

 FOREWORD 

When teaching introductory courses at the University of Chicago, Richard McKeon would often comment that “any problem pushed far enough is philosophic.” His point was that philosophizing is not just the technical province of academic professionals but an important aspect of all thoughtful undertakings, whether or not it is recognized as such. The present volume explores the consequences of this idea in the disciplines of the natural sciences, with particular focus on physics. It is the first of a projected three volumes, the succeeding two of which will treat, respectively, the social sciences and the humanities. All three are based on courses McKeon taught. He was widely regarded as an extraordinary teacher, both in his lectures and in his exposition of texts during discussions, and these volumes will present a uniquely detailed record of his educational practice. Focusing on understanding recurring issues in the disciplines and fundamental assumptions present in arguments about those issues, each will provide an introduction to philosophy as McKeon conceived of it. Possibly most important, both individually and as a whole they will provide an introduction to McKeon’s philosophic and historical semantics. Previously appearing in only the briefest of sketches, this is the interpretive approach on which, in one form or another, he based his own philosophic inquiry. Moreover, it is the semantic schematism which for years his students and colleagues have found to be so powerful in making meaning of the complexity of intellectual arguments not only throughout the history of Western thought but also across the whole spectrum of intellectual inquiry. In short, these volumes will introduce to those who did not personally know him something of McKeon’s remarkable contribution to education and philosophy.

A few words about the provenance of the present volume are in order. *On Knowing—The Natural Sciences* grows out of the first of a series of three courses McKeon invented and taught at Chicago in the 1950s and 1960s. The other two courses, which all comprise the succeeding volumes, covered the social sciences and the humanities. McKeon developed this set of courses to

provide an introduction to the interdisciplinary program of the Committee on the Analysis of Ideas and the Study of Methods, which he helped found in 1945. The natural sciences course was first taught as Ideas and Methods 201, "Concepts and Methods: The Natural Sciences," in the autumn quarter of 1951 and he repeated it in the autumns of 1953, 1955, 1956, 1958, 1959, and 1961. In 1963, in connection with a reorganization of the curriculum (see his remarks about this change in note 1 for lecture 1), the revised course was offered with the same title but listed as Ideas and Methods 211. This year was the last time McKeon taught the introductory natural sciences course, and it is this last version which is presented here.

The lectures and discussions herein are based on transcriptions of a collection of tape recordings made by an unknown individual or individuals in 1963. They have been in the possession of one of the editors, David Owen, since the late 1960s. Because the tapes were recorded informally on inexpensive equipment, they are generally of poor quality. Despite careful rerecording with a parametric equalizer and playback through a ten-band equalizer, the editors have had to interpolate individual words and phrases, especially those of students in the discussions, in the context of the development of an idea. Passages utterly unrecoverable by these methods have been eliminated from the text, omissions which are indicated in the notes.

The editing of both the lectures and the discussions has been greatly assisted by the extensive collection of notes kept by McKeon in preparation for his classes. A virtually full set of notes exists for each of the eight versions of the lectures for the natural sciences course. McKeon was obviously meticulous both in his preparations for class and in his preservation of the materials so generated, which he frequently recast for use in later, sometimes indirectly related, courses. An example of how fully developed his lecture notes were is the set prepared for lecture 10 which is contained in appendix E.

The editing here has been further supported by a set of extensive notes kept by one of the students who took this course for credit, Douglas Mitchell. All the figures and tables that appear in his notes are included here. Additional figures and tables, based both on McKeon's spoken remarks as well as on the lecture and discussion notes which he prepared for class, have been prepared. Any figures and tables that do not exist in Mitchell's notebook have been so identified in the notes.

When taken together with the forthcoming works on the social sciences and the humanities, the lectures presented here form the definitive elaboration of McKeon's schematism of philosophic semantics. The schematism itself was never published during his lifetime, though a typescript copy circulated among his students and colleagues at Chicago from the mid-1960s on. It finally appeared posthumously in "Philosophic Semantics and Philosophic Inquiry" in

his *Freedom and History, and Other Essays: An Introduction to the Thought of Richard McKeon*, ed. Zahava K. McKeon (Chicago: University of Chicago Press, 1990), pp. 242–56. For that form of the schematism, see Appendix H. A discussion of early forms of this schematism appears in George Kimball Plochmann's *Richard McKeon: A Study* (Chicago: University of Chicago, 1990). Those interested in seeing how McKeon used his semantic schematism in his published work should consult John F. Callahan's extensive bibliography, "Richard Peter McKeon (1900–1985)," *Journal of the History of Ideas* 47, no. 4 (Oct.–Dec. 1986), pp. 653–62.

The discussions in the course are based on five classic texts from physics. At the beginning of the course, McKeon handed out to students mimeographed selections from Plato's *Timaeus* and Aristotle's *Physics*. The *Timaeus* selections—sections 27d–37c, 57d–59d, and 88c–90d—were based on the translation by Benjamin Jowett for Oxford University Press that, beginning in 1871, went through numerous editions; but the text McKeon used included a number of substantive revisions, presumably ones he had made. The selections from Aristotle's *Physics*—book II, chapters 1–2; book III, chapters 1–3; and book V, chapters 1–3—were taken directly and without alteration from the translation by R. P. Hardie and R. K. Gaye originally prepared for W. D. Ross's edition of all of Aristotle's works for the Oxford University Press completed in 1931 and included by McKeon in his own 1941 Random House edition of *The Basic Works of Aristotle*. The other three books used were paperback editions to be purchased by the students. They included Galileo Galilei, *Dialogues Concerning Two New Sciences*, trans. Henry Crew and Alfonso de Salvio (New York: Dover Publications, 1954 [1914]); *Newton's Philosophy of Nature: Selections from His Writings*, ed. H. S. Thayer (New York: Hafner Publishing Co., 1953); and J. Clerk Maxwell, *Matter and Motion* (New York: Dover Publications, [1952]). For the reader's convenience, page references to all the books used in the course will appear in the text within brackets following quotations.

The reader should be aware of two editing conventions used below to give some flavor of the dynamics of McKeon's classroom. First, where the students laugh at something McKeon has said, the editors have inserted "[L!]" Second, ellipses ("...") are used to indicate one of the following: extended pauses after McKeon asks a question and receives no immediate response; a sentence which trails off and remains incomplete; or an interruption of one speaker's remarks by a second speaker.

In closing, the editors would like to thank Walter Watson for his meticulous reading of the original manuscript and thoughtful suggestions for its improvement. We also want to thank Jo Ann Kiser for her help in manuscript editing and Barbara Cohen for her assistance in preparing the index. Finally, we want to extend a special thanks to Doug Mitchell. He has overseen the careful edit-

ing of this volume for the Press as well as provided his complete student notebook to supplement the tape recordings of McKeon's course. Most importantly, though, he has been absolutely essential in both planning and executing this project; without his suggestions and support, this aspect of McKeon's work would almost certainly never have had the opportunity to receive a public hearing.

—The Editors