SHORTER NOTICES

Tractatus Logico-Philosophicus. By Ludwig Wittgenstein. With an introduction by Bertrand Russell. New York, Harcourt, Brace and Company, 1922. 189 pp.

The final number of Ostwald's ANNALEN DER NATURPHILOSOPHIE (1921) contains an article by Mr. Wittgenstein, a former pupil of Mr. Bertrand Russell, dealing with the nature of logic and with its relations to mathematics, philosophy, and natural science in a manner so original and profound as to make its publication an important event. The book in hand presents that essay in the original German, along with an English rendering of it under the editorship of Mr. C. K. Ogden of Magdalen College, Cambridge. The original and the translation are printed side by side, facing each other, and that is well, for the original contains many sentences that are not sufficiently clear to admit of quite confident translation.

Of the book's 189 pages 23 are occupied by Mr. Russell's introduction, the remainder being equally divided between the German version and the English one. So it is seen that the work proper is physically very small—only 83 pages. But it is far from small scientifically. Not only does it present "a theory of logic which," in Mr. Russell's opinion, "is not at any point obviously wrong" (notwithstanding it rejects as unsound some of the tenets hitherto held by the English logician) but it contrives to deal in a fundamental way with other great matters.

How can so small a work be so big? What is the art involved? The answer is found in a variety of considerations.

One of them is that Mr. Wittgenstein's thinking is confined to fundamentals. His book is addressed to none but the most seasoned of thinkers. The author will be content, he tells us, if only one person reads his book with understanding and pleasure.

Again, there is no index, no table of contents, no division into chapters, no bibliography, no specific acknowledgement of indebtedness to others save that of having been stimulated by "the great works of Frege and the writings of my friend, Bertrand Russell"; there is hardly any comparative criticism, setting the author's thought in relation with the thought of others, whether past or contemporaneous; and no clear indication of such parts of his work as he may deem to be new or original, "because," says he, "it is indifferent to me whether what I have thought has already been thought before me by another."

But the chief secret of his being able to deal effectively with so many great matters in so brief a space, is to be found in the temperamental quality of his style. Wittgenstein is a mystic—a logical

mystic—and like the great ones of that kind (Spinoza, for example, or Blaise Pascal), he is at once a slave of the propensity for condensation and master of the art. One may say of his style what Porphyry said of the style of Plotinus: "Dense with thought, more lavish of ideas than of words."

Wittgenstein's style is not admirable. His book is not an exposition; it is rather a conglomeration of insights, often profound, intimately related, wide-ranging, fit material for a magnificent structure, but they are not so ordered and presented as to constitute a luminous whole. In order to understand the book it is necessary to read it again and again, forward and backward, up and down, in and out. Even then, despite Mr. Russell's somewhat helpful introduction, some passages remain ambiguous, indeterminate, obscure; not because the subject is difficult, which it is, but because the author has not taken sufficient pains to be clear. Mr. Russell tells us that Mr. Wittgenstein's theory of logic "is not at any point obviously wrong." But upon the score of obviousness, he might have said with equal justness that the theory is not at any point obviously right. Mr. Wittgenstein deserves to be thanked for producing a book that every mathematical or philosophical logician must read, and to be at the same time reprimanded for allowing his lust for mystic condensation so to obscure his thought as to burden and sometimes to irritate the reader. Such a reprimand is not unjust, for it is of the very essence of the author's teaching that "everything that can be thought at all can be thought clearly" and "everything that can be said can be said clearly."

The central aim of the book is to answer a very important and very difficult question that has seldom been asked: What must be the essential nature of a logically perfect language? To present Wittgenstein's answer fully and clearly would require, as already said, more space than he himself has devoted to it. Yet even a brief review may give a few hints, serving perhaps to orient and stimulate the reader.

Consider the following random propositions: (1) the canary bird in the corner of this room has black eyes and a golden throat; (2) the specific gravity of mercury exceeds that of gold; (3) the velocity of light is greater than any other velocity. The propositions (whether true or false) are "symbols" representing "possible" facts. The facts, which are not propositions, "exist" or do not "exist" according as the propositions are true or false. If a fact, like that symbolized by proposition (1), is composed of two or more facts, it and the corresponding proposition are "molecular;" otherwise, "atomic." Even an atomic fact contains parts, for the fact is a relation among things (objects) and these are its parts. So, too, an atomic proposition has parts, for it is a relation among names (symbols for objects) and these names are its parts. Now, in a logically perfect language, each proposition has

a unique and definite meaning, but the meaning of a proposition is determined by the meanings of its parts (the names in it). A name denoting a "complex" object can have such a meaning only when the object has been completely analyzed; but complete analysis is possible, theoretically possible, only upon the assumption that a complex object is composed of "simples." So it is seen that the concept of a logically perfect language involves the hypothesis that every complex object is composed of simples and involves the requirement that each of the simples in the world shall have one and but one name, no name (of a simple) shall denote more than one simple (and of course no complex). Between all other names and the complexes in the world there must be a unique and reciprocal correspondence.

Language is composed of symbols: names symbolize objects, simple or complex; propositions (true or false) symbolize possible facts (existent or non-existent). The role of propositions is that of depiction (Abbildung), representation by means of pictures. How does a proposition symbolize--picture, depict—the fact asserted by it? In the philosophy of logic the importance of that question is fundamental, and Wittgenstein's answer is one of the gravest theses in his book. His answer is, in very brief, substantially as follows: A fact, being a relation among objects, has a certain structure, or form; a proposition (asserting the fact) also has a certain structure, or form, for it, too, is a relation—a relation among the names occurring in it and symbolizing the objects in the facts. Now, says Wittgenstein, the structure or form of the fact and the structure or form of the proposition (asserting the fact) are identical, and that is why the proposition is a picture of the fact. Moreover—and here we touch the nerve of the author's mysticism—a proposition cannot "express" its own structure or form, but can only "exhibit" it: the structure cannot be said, it can only be shown. The inexpressible is the mystical.

Wittgenstein's theory of logical inference is profound and beautiful. Space is lacking to set it forth here, for to do so would require a careful preliminary explanation of certain technical terms. It must be said, however, that the theory in question discriminates sharply between propositions of logic (including mathematics) and all other propositions. The former are true unconditionally, and are known to be true by inspecting them. All other true propositions are only conditionally true, and their truth cannot be recognized by inspecting them. Propositions of logic (including mathematics) are silent about the empirical realities of life and the world. But they are absolutely essential in the process of inferring from propositions that do relate to such realities to other propositions relating to them.

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