

Review of
**ALFRED TARSKI, *INTRODUCTION TO LOGIC AND
TO THE METHODOLOGY OF THE DEDUCTIVE
SCIENCES***

Edited by Jan Tarski. 4th Edition. Oxford Logic Guides, No. 24.
New York and Oxford: Oxford University Press, 1994
xxiv + 229 pp. ISBN 0-19-504472-X

ROMAN MURAWSKI

The book under review is the fourth English edition of the famous monograph by Alfred Tarski. The history of it begins in 1936 when his book *O logice matematycznej i metodzie dedukcyjnej* (On Mathematical Logic and the Deductive Method) appeared. This small book (167 pages), written in Polish and published by Książnica-Atlas (Lwów and Warsaw), was meant as an introduction to mathematical logic for a general audience. In the next year, the German translation appeared (*Einführung in die mathematische Logik und in die Methodologie der Mathematik*, Vienna, Julius Springer-Verlag, 1937).

In 1941 the English version appeared. It was an enlarged (257 pages) and revised translation prepared by Olaf Helmer, published by Oxford University Press (Oxford and New York). The second revised English edition appeared in 1946 and the third one in 1965 — all published by Oxford University Press.

In the meantime the book has been translated into ten languages. All those translations were made from the second or the third English edition. Let us enumerate them here:

- (1) The Russian translation — published in Moscow in 1948.
- (2) The Spanish translation — published in Buenos Aires in 1951 (the second Spanish edition — Madrid 1968; the third one — 1977).
- (3) The Dutch translation — prepared by E. W. Beth, published in Amsterdam in 1953 (revised edition 1964).
- (4) The Hebrew translation — by Y. Bar-Hillel with E. I. J. Poznański, Jerusalem 1956; second revised edition 1966.
- (5) The French translation — Paris and Louvain 1960, second revised and enlarged edition 1969; third edition 1971.

- (6) The German translation — prepared by E. Scheibe, Göttingen 1966 (this was in fact the second German edition); the third one appeared in 1969; fourth — 1971; fifth — 1977.
- (7) The Czech translation — prepared by P. Materna, Prague 1966.
- (8) The Italian translation — prepared by E. Bello and S. Bozzi, Milan 1969.
- (9) The Georgian translation — Tbilisi 1971.
- (10) The Serbo-Croatian translation — Belgrade 1973.

One should add to this list the Bulgarian, Swedish and Spanish translations of Chapters 1 and 2 only published in scientific journals.

After Tarski's death in 1983, a discussion took place about publishing a new edition of the English-language text which had been out of print for a number of years. Some modifications in the existing text and a possible expansion of the book were considered, and a decision was made to publish two books. The first is the volume under review here; the second is a forthcoming companion volume that will contain several articles by Tarski as well as some new material, and should appear fairly soon.

The present fourth English edition was prepared by Tarski's son, Jan Tarski, in collaboration with Dana Scott (who had to limit his participation in the project rather substantially after the initial stages). The basis for this edition is, of course, the third edition from 1965. The original translation by Olaf Helmer was thoroughly revised and new material was added. The main modifications and changes were the following: the section "Suggested Readings" was removed (an edited version of it will be included in the companion volume), a new section "A Short Biographical Sketch of Alfred Tarski" was included, a number of editor's footnotes were added, notation was changed so as to conform to the prevalent usage of today (this applies in particular to the notation for quantifiers and for classes), the terminology was largely modernized, the index was revised, and extensive stylistic changes were made. (The previous editions had lost some quality by the double-translation effect. Recall that the first English version was a translation from Polish via German).

The contents of the book are well known and have been for several years, so there is no need to provide a detailed report. Let us say only that the book consists of two basic parts: I. Elements of Logic, Deductive Method, and II. Applications of Logic and Methodology in Constructing Mathematical Theories. They are characterized by the author in the Preface as follows: "The first [part] gives a general introduction to logic and to the methodology of deductive sciences; the

second shows, by means of a concrete example, the sort of applications which logic and methodology find in the construction of mathematical theories, and thus affords an opportunity to assimilate and to deepen the knowledge which is acquired in the first part.” (p. xiii).

Each chapter is supplemented by appropriate exercises. Additionally, at the end of the first part, supplementary exercises are given (pp. 134–141), arranged by the editor to replace several exercises included in the previous editions of the book that were eliminated in the present edition.

Part I deals with sentential calculus, the theory of identity, the theory of classes, the theory of relations and with the deductive method. In Part II one finds examples of constructions of mathematical theories (more exactly of the theory of numbers and the theory of real numbers) as well as some methodological considerations on constructed theories.

The author’s intention was “to give those readers who are interested in contemporary mathematics, but who are not actively concerned with it, at least a very general idea of [...] its growth in depth” (p. ix). The original Polish version of the book was intended as a popular scientific book for an educated layman. The response accorded to the Polish and German editions gave rise to the idea of also making the new edition a textbook upon which an elementary college course in logic and the methodology of deductive sciences could be based.

Tarski warns the potential reader in the Preface of what will not be found in the book. In particular, the book contains no systematic and strictly deductive presentation of logic, it gives (almost) no information about the traditional Aristotelian logic and it is not concerned with any problems belonging to the so-called logic and methodology of empirical sciences (Tarski doubted the existence of any special logic of empirical sciences as opposed to logic in general or to the logic of deductive sciences).

For Tarski logic was not only an essential tool of mathematics but the very foundation of it. What is more, he credited logic with having even more general meaning and significance. He ended the Preface to the first English-language edition (1941) of the book (quoted also in the present edition) with the following words: “I shall be very happy if this book contributes to a wider diffusion of logical knowledge. [...] For logic, by perfecting and by sharpening the tool of thought, makes men and women more critical — and thus makes less likely their being misled by all the pseudo-reasonings to which they are incessantly exposed in various parts of the world today” (p. xiii–xiv).

These words remain relevant, and this new edition of Tarski's classic book will certainly help a new generation of readers in this respect.

WYDZIAŁ MATEMATYKI I INFORMATYKI, UNIWERSYTET IM. ADAMA MICKIEWICZA, UL. MATEJKI 48/49, 60-769 POZNAŃ, POLAND