Portland Talk on Tarski Book
8 August 2009

Alfred Tarski

Collected Papers: Supplement

Translated from Polish and edited by

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A talk contributed by James T. Smith to the *MathFest* Meeting of the Mathematical Association of America on 8 August 2009 in Portland, Oregon

Acknowledgments

I thank the following for their support:

- **The *MathFest*, for the opportunity to**
  - **inform you about this project and**
  - **advertise for further information related to it;**

- **My coeditors, for their facility with mathematics and language, and their interest.**

- **The CSU retirement program for making it possible.**

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Project: *Tarski Papers Supplement*

- **Alfred Tarski (1901–1983) was one of the world's foremost logicians.**
- **His *Collected Papers* were published in 1986.**
- **Most are available in English, French, or German.**
- **The remaining few, until now, only in Polish.**
- **Some are about elementary geometry.**
- **So, his early geometrical work is largely unknown.**

This project will remedy that.

A planned book will contain

- **annotated translations of all papers available until now only in Polish,**
- **new annotated translations of geometry papers crudely published in 1952,**
- **annotated translations from Tarski's 1935 high-school geometry text,**
- **list of his works published since 1986, and**
- **list of comprehensive works published about Tarski and his legacy.**

Alfred Tajtelbaum

- **1901** Born in Warsaw, then Russian.
  Schooled there, in Russian. Talented in languages.
  Became a Polish patriot during World War I. Brief military service.

- **1919** Entered University of Warsaw, now Polish.
  Switched from biology to mathematics and logic.
  Studied with Stanisław Leśniewski (1886–1939).

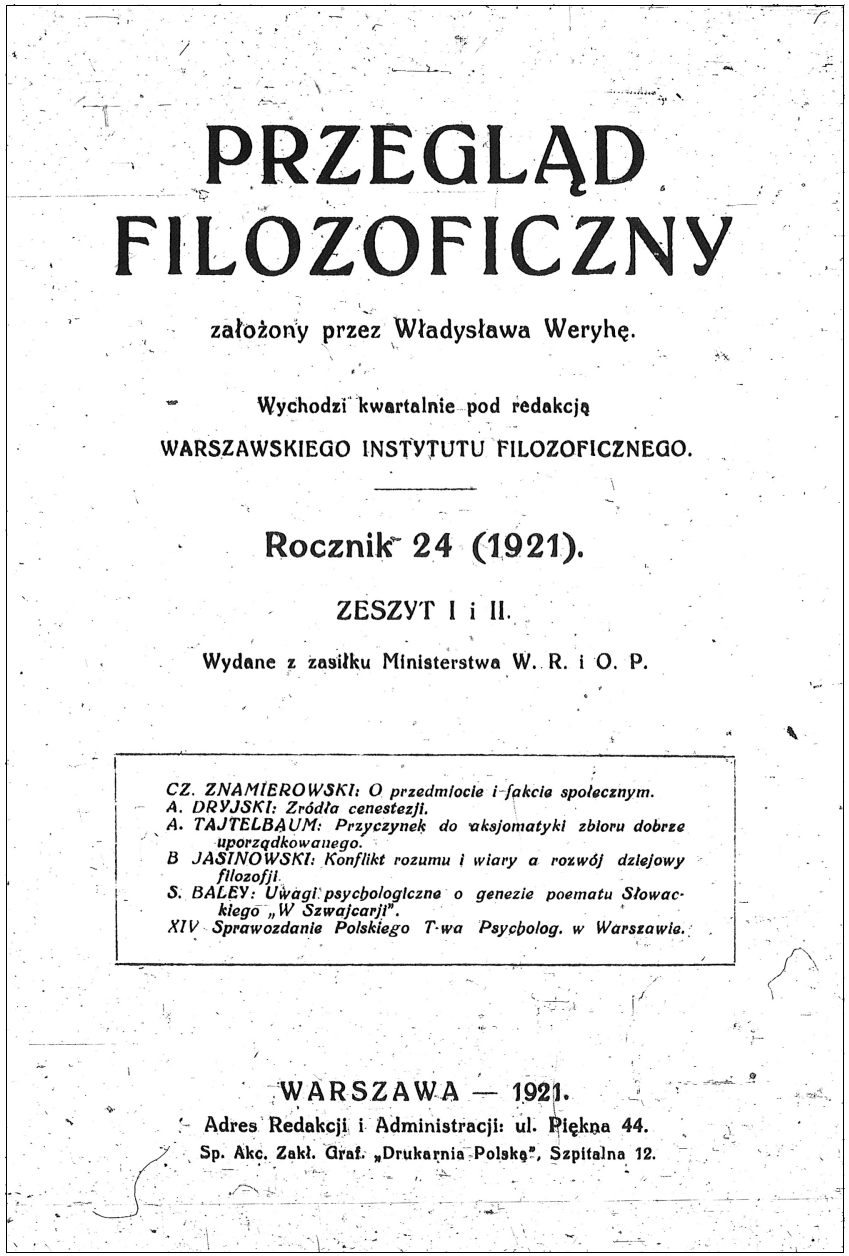
Leśniewski's early work featured the distinction between language and metalanguage. He became known for obsessive precision and perfectionism in philosophical writing and discussion, and sharp criticism of the work of most others, who did not attain that standard.

In Leśniewski's seminar Alfred proved that a set Z is well-ordered by a binary relation R if and only if

$$(\forall U \subseteq Z)\Big(\phi \neq U \Rightarrow (\exists! a \in U)(\forall u \in U)\neg\, u\, R\, a\Big).$$

This result became his first paper, published while still a student. It is employed occasionally in texts, usually without attribution.

With discussion, it forms chapter 1 of the planned book.



PRZEGLĄD FILOZOFICZNY

założony przez Władysława Weryhę.

Wychodzi kwartalnie pod redakcją

WARSZAWSKIEGO INSTYTUTU FILOZOFICZNEGO.

Rocznik 24 (1921).

ZESZYT I i II.

Wydane z zasiłku Ministerstwa W. R. i O. P.

CZ. ZNAMIEROWSKI: O przedmiocie i fakcie społecznym.
A. DRYJSKI: Zródła cenestezji.
A. TAJTELBAUM: Przyczynek do aksjomatyki zbioru dobrze uporządkowanego.
B JASINOWSKI: Konflikt rozumu i wiary a rozwój dziejowy filozofji.
S. BALEY: Uwagi psychologiczne o genezie poematu Słowackiego „W Szwajcarji".
XIV Sprawozdanie Polskiego T-wa Psycholog. w Warszawie.

WARSZAWA — 1921.

Adres Redakcji i Administracji: ul. Piękna 44.

Sp. Akc. Zakł. Graf. „Drukarnia Polska", Szpitalna 12.

The journal's editors:

- **Leśniewski's colleague Marjan Borowski,**
- **their teacher Kazimierz Twardowski.**

Soon after its publication, Borowski wrote Twardowski,

> **"... I inform you, discreetly, that [we] haven't many papers of real worth in the editorial office. Warsaw choristers write little, being afraid of Leśniewski! But the 'scourge of God' has now risen upon him, in the person of his pupil, Tajtelbaum."**

Alfred Tajtelbaum

Alfred Tarski

- ***Changed his surname from Tajtelbaum*** **in 1924.**
- **Received the doctorate in 1924.**
- **Was immediately appointed docent at the University.**
- **Never attained a professorship there.**
- **Supported himself by high-school teaching.**

Nevertheless, he soon became a leader in a world center of logical research, in Warsaw.

Contents of planned book

1 ***Tarski's First Paper*, A contribution to the axiomatics of well-ordered sets (1921)**

2 ***Equidecomposibility of Polygons***
On the equivalence of polygons (1924)
The degree of equivalence of polygons (1931)
Further remarks about the degree of equivalence of polygons (1931–1932)

3 ***Secondary Teaching***
Report about the 1929 First Congress of Mathematicians from Slavic Countries
On the circumference of a circle (1931–1932)
Excerpts from the [1935] 1946 school geometry text
14 exercises posed in teachers' journals

4 ***Assorted Contributions***
Łukasiewicz' 1928–1929 paper on definitions, with contribution by Tarski
Tarski's 1929 paper on politics and insurance
Tarski's 1930–1931 first abstract on the concept of truth
Tarski's conference discussions of papers by six Polish philosophers

5 ***Additional Information*. Annotated lists of**
15 posthumous publications
15 biographical studies
25 research surveys

On the equivalence of polygons (1924)

Two plane point sets are *equivalent* (≡) if they can be dissected into equal finite numbers of disjoint, respectively congruent subsets.

Not the "elementary" notion!

Typical lemma □ ≡ □—

Main result **Polygonal regions are ≡ iff they have the same area.**

Problem **Are a disk and a square with the same area ≡ ?**

Solution **Yes! —Laczkovich 1990**

The degree of equivalence of polygons (1931)

Two plane polygonal regions are *equivalent*—the "elementary" notion—if they can be subdivided into equal finite numbers of respectively congruent *polygonal regions*, whose *interiors* are disjoint.

Their *degree of equivalence* is the smallest number of such subdivisions.

This paper was inadequately translated and published in 1952.

Tarski gave fascinating talks on this subject to high-school students.

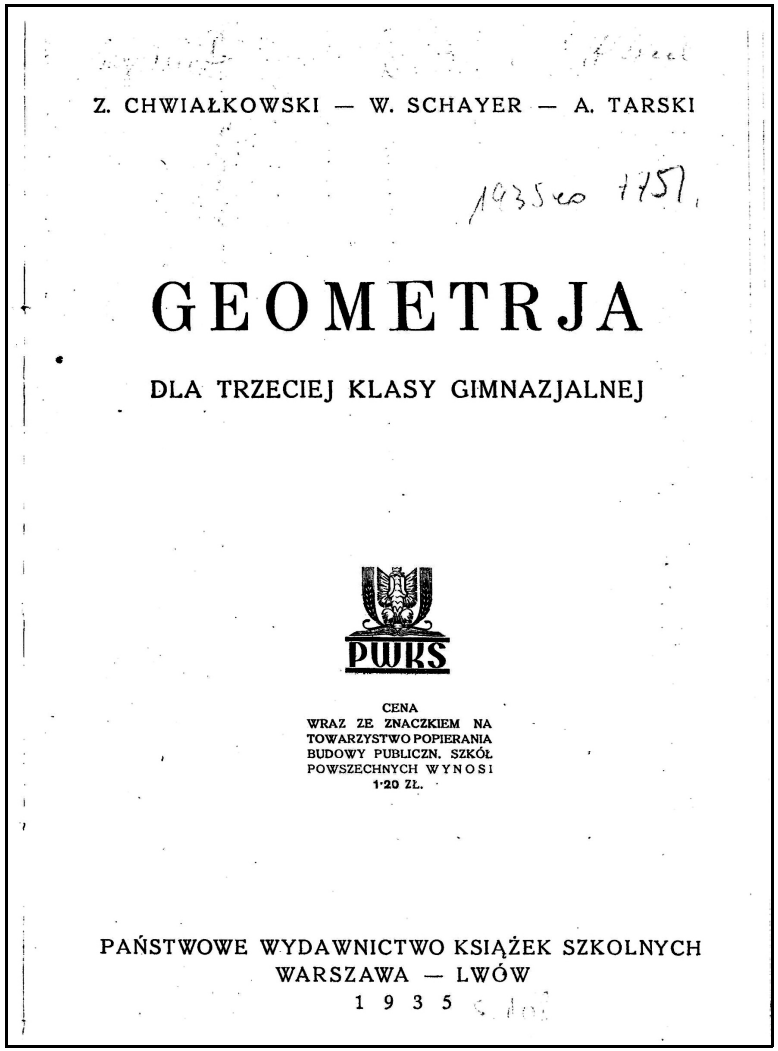
But it has certainly been neglected by mathematicians!

Geometry for the Third Gymnasium Class (1936)

with
Zygmunt Chwiałkowski
Wacław Schayer

The planned book will contain excerpts from this text: its final sections, about polygonal areas.

Does anyone know anything about Tarski's coauthors?



Z. CHWIAŁKOWSKI — W. SCHAYER — A. TARSKI

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Little is known about Tarski's pre-1939 life in Poland. Any information, particularly from others' correspondence, would be of great value!

Thank you!

Alfred Tarski