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# Eri (Ari) Jabotinsky, Mathematician and Politician - A short biography

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Eri Jabotinsky (1910 – 1969)

## Abstract

Despite the fact that Eri Jabotinsky (1910 – 1969) published only few (i.e. fourteen) mathematical papers, some of them had a remarkable influence in iteration theory. But also his life was remarkable. Eri was the son of the famous politician Vladimir Ze'ev Jabotinsky. He was active in the Zionist movement and later as parliamentarian in the Knesset. Here we give an outline of his life and a complete list of his publications.

**Keywords:** Jabotinsky equations, iteration theory, biography, history of mathematics.

## 1 The Jabotinsky equations

Eri Jabotinsky is known for his system of differential equations, derived from the *Translation Equation*

$$F(x, t + s) = F(F(x, t), s). \quad (T)$$

For real or complex  $n$ -dimensional functions the “Jabotinsky equations” read as follows.

$$\frac{\partial F(x, t)}{\partial t} = \frac{\partial F(x, t)}{\partial x} \cdot G(x), \quad (1)$$

$$\frac{\partial F(x, t)}{\partial t} = G(F(x, t)), \quad (2)$$

$$\frac{\partial F(x, t)}{\partial x} \cdot G(x) = G(F(x, t)), \quad (3)$$

together with the differential initial conditions

$$\left. \frac{\partial F(x, t)}{\partial t} \right|_{t=0} = G(x) \quad (4)$$

$$F(x, 0) = x. \quad (5)$$

These equations have been published in 1963 in: “*Analytic iteration*”, Trans. Amer. Math. Society 108 (3), 1963, 457–457, but before in 1955 in his thesis at the Hebrew University, Jerusalem.

The notation above is due to GYÖRGY TARGONSKI: “*Topics in iteration theory*” [2] and “*New directions and open problems in iteration theory*” [3].

Later on we noticed that these equations (1) – (3) have been considered before Jabotinsky by others in connection with iteration theory, e.g. by J. ACZÉL; therefore these equations are called by some authors the “*Aczél-Jabotinsky*” equations.

Even more, I discovered that in 1874 the famous logician GOTTLÖB FREGE considered all these three differential equations in connection with *analytic iteration* for real functions in one and also several variables (see Gronau [1]).

In the sequel several “Jabotinsky papers” appeared by J. Aczél, C. Cap, P. Erdős, H. Fripertinger, W. Jabłoński, L. Reich, M. Sablik, J. Schwaiger, Gy. Targonsky, J. Tomaschek, myself and, in the meantime, may be by some others.

## 2 Short biography of Eri Jabotinsky.

Eri (also transliterated “*Ari*”) Jabotinsky has been born in Odessa (Ukraine) on December 26, 1910. The father of Eri was Vladimir (Ze’ev) Jabotinsky, a Russian Jewish Revisionist Zionist leader, author, poet, orator, soldier and founder of the Jewish Self-Defense Organization in Odessa.

## 2.1 Vladimir Ze'ev Jabotinsky, 1880 - 1940



Eri with parents around 1920

Vladimir Ze'ev Jabotinsky was born as *Vladimir Yevgenyevich Zhabotinsky*, (ВЛАДИМИР ЕВГЕНЬЕВИЧ ЖАВОТИНСКИЙ) in Odessa, 1880 and died in New York City, 1940. Vladimir grew up in Odessa educated in Russian schools also taking Hebrew lessons. Already in his youth he was active as a journalist and later (1903) in the Zionist movement. He changed his name from Vladimir to Ze'ev (this means 'Wolf') and began work on organizing defense for Jewish communities all across Russia.

In World War one Ze'ev Jabotinsky was one of the founders of the Jewish Legion of the British army. Later he established several militant Jewish organizations in Palestine, e.g. the Irgun.<sup>1</sup>



In 1923 after differences between him and Chaim Weizmann he established a new revisionist party called "Alliance of Revisionists- Zionists".

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<sup>1</sup>Irgun was a Zionist paramilitary organization that operated in Mandate Palestine between 1931 and 1948. The Irgun has been viewed as a terrorist organization or organization which carried out terrorist acts. (Wikipedia 'Irgun'.)

Ze'ev Jabotinsky died of a heart attack in 1940 in USA and is buried in Mount Herzl cemetery in Jerusalem.

Besides his journalistic and political work, he published novels, e.g. *Samson the Nazarite* (*Richter und Narr*) in 1927 and *The Five* (*Die Fünf*) in 1935, both today also available in German language under the author's name Vladimir Jabotinsky. In Israel, 57 streets, parks and squares are named after Jabotinsky, more than for any other person in Jewish or Israeli history, making him the most-commemorated historical figure in Israel.<sup>2</sup>

## 2.2 Eri Jabotinsky

Born 1910 in Odessa, the Jabotinsky family immigrated to the Mandatory Palestine in 1919.



Eri Jabotinsky (right) with his parents in the late 1920s

Following the arrest of his father in 1920, Eri left the country and moved to France, where he attended high school in Paris, and later earned a degree in electrical engineering. Between 1933 and 1935 he worked as an engineer in an aircraft factory. In 1935 he returned to Palestine, and worked as an engineer at the Naharayim power station in the Jordan Valley.<sup>3</sup>



Eri Jabotinsky in the 1940s

Eri Jabotinsky was a member of the high command of Irgun and had been sentenced to a jail term in Acre for a retaliation operation in Jerusalem

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<sup>2</sup>Wikipedia: 'Ze'ev Jabotinsky'.

<sup>3</sup>Wikipedia: 'Eri Jabotinsky'.

and for transporting illegal immigrants. Before his arrest, Eri Jabotinsky succeeded in bringing in two more ships from Rumania with hundreds of immigrants at a time when World War II was already at its height.

In 1949 Eri Jabotinsky was elected to the first Knesset as a member of the Herut party's list of candidates.

After leaving the Knesset, he was awarded a PhD in mathematics in 1957 from the Hebrew University of Jerusalem. He also lectured on electricity theory at the Technion between 1955 and his death in 1969.

### 3 Papers of E. Jabotinsky:

Eri Jabotinsky published according to AMS Mathematical Reviews fourteen mathematical papers, among them two with Paul Erdős. Four of these papers deal with analytic iteration.

1. *Jabotinsky, Eri*: A rapidly convergent series for the Weierstrass elliptic function. (Hebrew) Riveon Lematematika 1 (1946), 30–31. (Reviewer: A. Erdélyi).
2. *Jabotinsky, Eri*: Sur la représentation de la composition de fonctions par un produit de matrices. Application à l'itération de  $e^z$  et de  $e^z - 1$ . (French) C. R. Acad. Sci. Paris 224 (1947), 323–324. (Reviewer: A. J. Macintyre).
3. *Jabotinsky, Eri*: Sur les fonctions inverses. (French) C. R. Acad. Sci. Paris 229, (1949), 508–509. (Reviewer: A. J. Macintyre).
4. *Jabotinsky, Eri*: The minimal Tarry-Escott problem. (Hebrew) Riveon Lematematika 4 (1950). (Reviewer: D. H. Lehmer).
5. *Jabotinsky, Eri*: Representation of functions by matrices. Application to Faber polynomials. Proc. Amer. Math. Soc. 4 (1953), 546–553. (Reviewer: A. Pfluger).
6. *Jabotinsky, E.*: Iterational invariants. Technion. Israel Inst. Tech. Sci. Publ. 6 (1954/5), 64–80. (Reviewer: A. J. Macintyre).
7. *Jabotinsky, E.*: A tentative explanation of the Weissenberg and Reiner effects by postulating the existence of gyroscopic phenomena in viscous flow. Bull. Res. Council Israel. Sect. A. 6 (1956), 65–76. (Reviewer: A. M. Freudenthal).
8. *Gutwirth, A.; Jabotinsky, E.*: An alignment matrix and its applications to plane cubic curves and their rational points. Bull. Res. Council Israel. Sect. A 6 (1956), 11–41. (Reviewer: J. W. S. Cassels).

9. Erdős, Paul; Jabotinsky, Eri: On sequences of integers generated by a sieving process. I, II. Nederl. Akad. Wetensch. Proc. Ser. A 61 = Indag. Math. 20 (1958), 115–128. (Reviewer: S. Chowla).
10. Erdős, Paul; Jabotinsky, Eri: On analytic iteration. J. Analyse Math. 8 (1960/1961), 361–376. (Reviewer: J. Lehner).
11. Jabotinsky, Eri: Analytic iteration. Trans. Amer. Math. Soc. 108 (1963), 457–477. (Reviewer: J. Mayer-Kalkschmidt).
12. Jabotinsky, E.: l-sequences for nonembeddable functions. Proc. Amer. Math. Soc. 17 (1966), 738–741. (Reviewer: I. N. Baker).
13. Jabotinsky, E.: Universal relations between the elements of Grunsky's matrix. J. Analyse Math. 17 (1966), 411–417. (Reviewer: W. K. Hayman).
14. Jabotinsky, Eri: On the use of spherical means in hydrodynamics. Application to the study of the inception of turbulence. Israel J. Math. 9 (1971), 3–19. (Reviewer: C. Demuth).

## References

- [1] GRONAU, D. *Gottlob Frege, a pioneer in Iteration Theory*. In: *L. Reich, J. Smítal, Gy. Targonski (Eds.): ITERATION THEORY (ECIT 94)*. Grazer Math. Ber. Nr. 334 (1997), 105 - 119.
- [2] TARGONSKI, GY.: *Topics in iteration theory*. Vandenhoeck & Ruprecht, Göttingen, 1981.
- [3] TARGONSKI, GY.: *New directions and open problems in iteration theory*. Ber. Math.-stat. Sektion, Forschungsz. Graz, Nr. 229 (1984).

## Further References:

AMS MathSciNet Mathematical Reviews

<http://www.betar.org.uk/betaris/zeev.php>

[https://en.wikipedia.org/wiki/Eri\\_Jabotinsky](https://en.wikipedia.org/wiki/Eri_Jabotinsky)

<https://en.wikipedia.org/wiki/Irgun>

[https://de.wikipedia.org/wiki/Wladimir\\_Zeev\\_Jabotinsky](https://de.wikipedia.org/wiki/Wladimir_Zeev_Jabotinsky)

Photographs from the Internet.

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