## N is more than a Number:

The legacy of Erdös Pal.



## Abstract

The mathematical talent of Paul Erdös, in search for the hidden Proofs from the Big Book, teaches us about the soulful journey of the scientific mind towards patterns of eternity. This magic of numbers reveals that N is more than a number and that 1 (one/echad) is the beginning of all human reasoning about natural reality (N=1).

Key terms: one; mathetics; proofs; the Big Book; eternal patterns; unified force.

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It is now well known that we live in the technological age of electronic social media, communication networks and automated information-processing; free informatics design, open source and knowledge working are definitely future trends of human productivity. Evolutionary and anthropological limits of humankind cannot be erased by these technical motions, but human communicative culture will be changed forever.

Concerning these future events, Paul Erdös/Erdös Pal (1913-1996) was a brilliant trendsetter or role model; this mathematical genius came out of a group of scientific researchers (e.g. Polya G/1887-1985; Neumann Jv/1903-1957; Turan P/1910-1976) who were all 'spiritual children' of Fejer Lipot (1880-1959). Behind this kind of mathematical science worked the hidden paradigm that the blueprint of reality is concealed in numbers and can be revealed by the scientific soul/mind of the logical/empirical researcher.

At that time, a 'perfect' scientific infrastructure for free mathematical research did exist already in Hungary, for example regular Journals with price questions, nationwide contests and loose formation of study groups at the university level where mentors/topics could be chosen via voluntary choice. Of course, these were not yeshivas or laboratories, but communicative study partnerships ('give me a study partner or death', an old Hebrew saying).

The cosmopolitan spirit of Paul Erdös, dedicated to empirical mathematical 'revelation', made him a role model of the future scientist; his permanent research into the Proofs from The Book and deep need for humane communication are the motivational driving factors of his scientific life. Despite all horrific setbacks and experiences, he found a way to mystically survive by inquiring into universal unity (oneness) for aesthetic reasons and intellectual beauty, i.e. his mathematical mind tried to grasp the spiritual essence of the physical order of this world, we may call it 'mathematical redemption'.

For a deeply religious person of ethical monotheist faith this looks like a real and Ersatz human link towards the creative divine order of the eternal upper force; however, science is factually the psychological metamorphosis of religion and philosophy at another stage of human development, i.e. the human mind tries to better and more exactly understand the deeper layers (laws/principles) of the natural process order or: G-d has the Big Book, the beautiful proofs of mathematical theorems are listed here (a saying attributed to Paul Erdös).

Among the quantitative record of 1525 mathematical articles from Erdös are 511 research papers with direct co-authors; he visited these colleagues

constantly around the world, lived out of a suitcase, had very few possessions, donated his scarce money to needy researchers and 'turned coffee into theorems' (A.Renyi). Erdös' scientific network had no hierarchies, was not organized, of informal nature, and he was the central knot of all hubs and connections. It was surely not a random network, but a probability network of potential communicators where knowledge working was focused on creative problem-solving. Human and scientific networks of this kind are a social phenomenon and economically very efficient: A) the costs of knowledge 'transactions' are very low, and B) they work better without a formal structure, in legal and monetary terms. Motivation and creativity are more valued than mechanical efficiency, i.e. it is quite the opposite inter-action model of the current economization and commercialization of academia where intellectual property rights have become somehow paramount. Such an open source model is based on brilliant ideas (ideals), factual or empirical performance and real problem-solving; it resembles as communicative ensemble a Jazz band (create and reset) and not a labor hierarchy (command and control), i.e. human interaction follows the quality principle of optional growth, in quantitative terms: the ethical imperative is to reduce complexity via small steps, circular feedbacks and process strategy, i.e. a variable dependency of independent elements via a specific temporal content, e.g. only variety can create variety.

The Erdös collaboration technique of scientific communication is a prototype of Jewish epistemology or learning process how Jews gain knowledge; a solidified body of knowledge and skills is slowly being extended by thematic human communication and exchange. Not an academic homo clausus is the ideal of knowing, but a serious knowledge worker that socially co-operates, shares and cares about the scientific results of the research discipline; profession and biography are minors and the topic of investigation becomes the prior majority. In this case, the magic of numbers (not Hebrew letters which are actually also numbers, according to the religious science of Kaballah) in space-time and time-space drives the permanent and perennial re-search for the eternal patterns of universal forces as a temporal moment of being here in this world. From this point of view, mathematical genealogy is a scientific approach to decipher the historical journeys of the human mind via the discovery route of the natural working order, i.e. it is mathetics, the science of learning. In addition, Erdös was very good a didactics and promoted a lot of mathematical talents (e.g. B.Bollobas, J.Kruskal, T.Tao).

Travelling with a Hungarian passport, being officially affiliated with the Hebrew University of Jerusalem and the Hungarian Academy of Sciences, researching at several prominent American and British universities, and visiting scientific conferences globally, Paul Erdös was a true world citizen, incorporating humane science and peace in times of the cold war.

## Conclusion:

The essentially Jewish epistemology of Erdös made him an original cosmopolitan knowledge worker in the research field of mathematical science who was well ahead of today's open source, social media networks and communication culture. His life-long search into the concealed number magic of Proofs from the Big Book reveals a real and Ersatz human link to the eternal upper and unified force of all proofs.

## Literature/Links:

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