THE FAILURES (AND EVIL) OF LOGIC

A Particularly Evil Aspect Of Bertrand Russell[1]

by Jason Ross

Lyndon LaRouche has called Lord Bertrand Russell the "most evil man of the 20th Century," and the depth of his evil is often underestimated.[2] While some people think of him as a progressive advocate of peace, or as an esteemed philosopher, historian, and thinker, he, in fact, embodied the most retrograde image for humanity possible: the outlook of Zeus, that the great mass of people must be kept stupid, scant in number, and controlled by every necessary means. The creativity that characterizes the long arc of the development of the human species, was as absent from his writings, as it was from his desires for mankind. His work in science had the aim of eliminating creativity, just as his political aims sought the elimination of great numbers of people.

To give only a single instance of this, take this quotation from Russell's 1923 *Prospects of Industrial Civilization*:

> Socialism, especially international socialism, is only possible as a stable system if the population is stationary or nearly so. A slow increase might be coped with by improvements in agricultural methods, but a rapid increase must in the end reduce the whole population to penury.... [T]he white population of the world will soon cease to increase. The Asiatic races will be longer, and the negroes still longer, before their birth rate falls sufficiently to make their numbers stable without help of war and pestilence.... Until that happens, the benefits aimed at by socialism can only be partially realized, and the less prolific races will have to defend themselves against the more prolific by methods which are disgusting even if they are necessary.

The hideous, evil nature of this outlook is immediately apparent from Russell's statement. But a more far-reaching impact of his misspent life lies in his unfortunately rather successful attacks on science. In 1931, Kurt Gödel proved that Russell's attempt to systematize knowledge, beginning with mathematics, was an exercise in futility. Gödel's proof made it clear that truth and creativity transcend logic and mechanism, and Russell hated him for it.

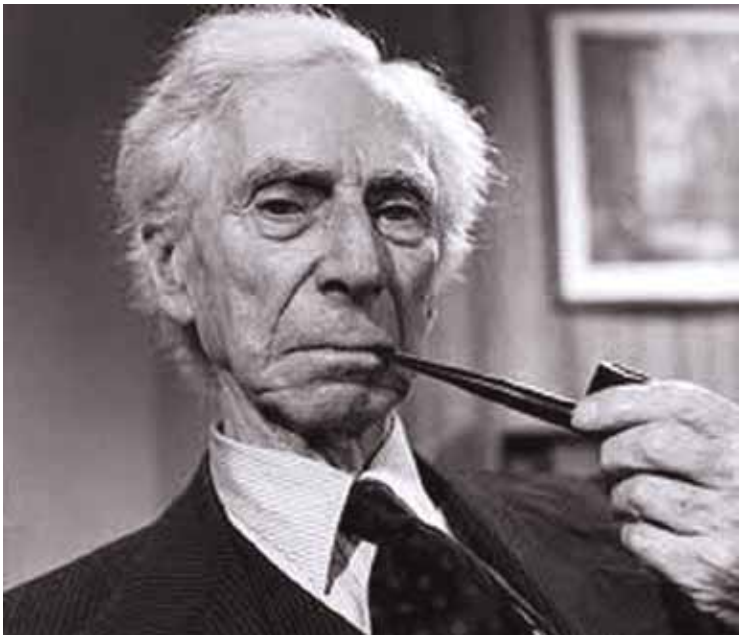
Here, I will sketch out the context of Russell's most famous scientific work, his *Principia Mathematica*, Gödel's victory over Russell, and the resemblance of the former's work to that of Bernhard Riemann, and our path forward today.

The Context of Russell's Dirty Work

The 1900 Paris meeting of the International Congress of Mathematicians is best known for David Hilbert's presentation of what he considered to be ten of the most important unsolved problems in mathematics. The second of those problems was proving the consistency of the axioms of arithmetic. Those who took up the challenge sought to successfully (consistently) axiomatize arithmetic, which meant transforming arithmetic (which has a basis in reality, and claims to the truth of its propositions, such as 2+3=5) into a logical system, in which the "meaning" of arithmetic came down to rules for manipulation of logical statements.[3]

Surely, if there were to be any hope of understanding all the laws of nature, the mathematics used to express them had to be both logically complete (able to decide the truthfulness of any statement made in the language of arithmetic) and consistent (free from the

1. Written as background for Lyndon LaRouche's "The Satan Still Operating from Inside Bertrand Russell's Corpse," *EIR*, March 28, 2014.
2. See LaRouche's definitive article, "How Bertrand Russell Became an Evil Man" in the Fall 1994 issue of Fidelio.
3. Logic is the application of specific rules about writing new combinations of symbols on a page, based on existing combinations of symbols on a page. The symbols it uses are deliberately separated from any meaning.



Lord Bertrand Russell, whose deterination to use any means to reduce the human population, and destroy human creativity, made him, in the words of Lyndon LaRouche, "the most evil man of the 20th Century."

possibility of contradictions). This is not an unimportant question, and the attempt to formalize knowledge spread far afield from mathematics, into attempts to formalize all of science.

As an example of a contradiction, we will consider a hypothetical remote village and its (male) barber. In this village, every man shaves, and there are only two types of men: first, those who shave themselves and are *not* shaved by the barber; and, second, those who do *not* shave themselves and *are* shaved by the barber. Now, answer this question: Who shaves the barber? If he shaves himself, then he is in the first group, but that group is for people not shaved by the barber. If he does not shave himself, then he is in the second group and is shaved by the barber (himself). Either way, there is a paradox, expressed by posing the question: "Who shaves the barber?" Yet, the paradox actually lies in the description of the town, and the condition we set on the two types of men. The paradox was always implicitly there. As soon as we described such a village, the contradiction was inherent in the conditions, in the axioms of the village system.

The axioms are self-referential: The barber is both a man in need of a shave, and part of the rules of shaving. The rule inherently refers to the barber himself, as a man of the village. Any system that refers to itself has the potential for contradictions such as this one, and could not therefore be what Hilbert was looking for, and any normal system has the potential for self-reference.

Bertrand Russell (1872-1970) was one of those who took up Hilbert's task, publishing his enormous *Principia Mathematica* in the 1910s. It was to be for mathematics what Euclid's *Elements* was to geometry: From an initial set of rules, all of mathematics was to be logically derived. Additionally, Russell had taken great pains to exclude any paradoxes of self-reference, by working very hard to make it completely impossible for any statement in mathematics to refer to itself. Russell incorporated a level of "meta"-ness into every statement. Objects themselves had a level of zero, while statements about objects had a level of one, statements about statements about objects had a level of two, etc. By this scheme, any statement could only refer to lower-level statements or objects, and, therefore, self-referencing statements were forbidden. *The barber paradox could simply not be written in Russell's system.*

In working on this project, Russell's goal was not purely mathematical; it was, in fact, not academic at all: *He wanted to eliminate the concept of creativity itself,* through actions that would limit all reasoning to logic, in which all future ideas already reside in the foundation axioms. By axiomatizing mathematics, the language in which Russell (following Paolo Sarpi) presumed that all new physical principles would be expressed, he would have prevented any change in the language itself, and thereby artificially constrained what future concepts could be considered.[4] Since all new mathematics would only be derived from the basic axioms, the future would be no different from the present (or the past): Russell sought to kill the concept of "future" itself.

Gödel's Proof, and its Limitations

In 1931, Gödel (1906-78) published a paper with the title "On Formally Undecidable Propositions in *Principia Mathematica* and Related Systems I."[5] There,

4. If a language is formally fixed, it cannot express new metaphors, which redefine the language itself.

5. For an excellent treatment of Gödel's proof, readers are referred to Nagel and Newman, *Gödel's Proof,* NYU Press.

Kurt Gödel, whose 1931 proof jammed up Russell's attempts to reduce creative human thought to the sterile laws of logic.

Gödel proved that the universe rejected Russell's attempts to reach the "end of science." What's more, he proved that Russell's system itself (and any similar logical system) rejected Russell.

Gödel found the necessarily existing flaw in the logical approach, by cleverly allowing the system to make self-referential statements. He did so by transforming any statement about numbers, into a number itself, about which statements could then be made. Since a level-one statement could refer to level-zero objects (like numbers), Gödel's transformation of statements into numbers allowed statements to refer to themselves, as numbers.[6] Gödel had flanked Russell's defenses, and could now make self-referencing statements in his system.

Then, by posing a statement analogous to "this statement is false," Gödel brought down the entire edifice that Russell had foolishly (and with evil intent) labored on. Russell was dumbfounded and enraged: While the impossibility of his task could already be known by those who understood the work of Nicholas of Cusa, Johannes Kepler,[7] or Carl Gauss, Gödel had defeated Russell on his own turf!

However, while Gödel's proof demonstrates, from within logic and arithmetic, that axiomatization is impossible, and therefore, that creativity is most emphatically not logical or deductive, it does not itself indicate what creativity actually is. For this, we must necessarily step outside the domain of logic, as Gödel well knew.

Riemann, and Human Will as a Force of Nature

Gödel had a close predecessor in Bernhard Riemann (1826-66), who demonstrated the errors of Euclidean geometry. Two errors were: first, Euclid made an unjustified assumption of the flatness of space, with his fifth

Artificial Intelligence and Gödel's Proof

While Russell's co-author, Alfred North Whitehead, admitted defeat, Russell did not. His influence is seen in today's proponents of artificial intelligence (AI), who, rather than recognizing that Gödel proved that the creative human mind is fundamentally superior to logical systems (including all computers), take the opposite approach. While acknowledging Gödel's proof formally, they claim that human reason itself is subject to the same constraints as the logical systems that Gödel showed to be fundamentally limited.

Instead of recognizing, studying, and celebrating the uniqueness of the human mind, AI redefines the mind to conform to the operations a computer is capable of. So, in one sense, calling this intelligence "artificial" is quite apt.

Jason Ross

6. Gödel's fascinating technique is hard to describe in a short space. Very briefly, he assigned a numerical code to each symbol (word) in the language, and then encoded a statement—a sentence of words—as a number, formed as the product of successive primes raised to the power of the statement's words. For example, if the letters of the alphabet were encoded by their positions, then the word "META ," which has numbers 13-5-20-1, would be encoded as $2^{13}\ 3^{5}\ 5^{20}\ 7^{1}$ = 1,328,906,250,000,000,000,000. Similarly, logical statements composed of many words could be converted into such Gödel-numbers. Just as "2+2=4" is a statement about numbers, Gödel used his code-numbers to make statements that could refer to themselves, and therefore, be undecidable.

7. Kepler's concept of the vicarious hypothesis is very similar to Gödel's proof. Kepler, working inside the mathematical system of his astronomical predecessors, proved that their system itself was faulty, and that a physical, rather than mathematical approach, was needed. See the video "Metaphor: an Intermezzo," and the Kepler guides at http://science.larouchepac.com

Bernhard Riemann's 1854 habilitation dissertation was a masterful, explicit demonstration that Euclidean geometry does not represent reality, and that its deductions do not represent the human thought process.

(parallel) postulate, meaning that his geometry does not actually describe physical space. The more important, second error, was that in presenting his geometrical truths as deriving from initial axioms, the discovery process by which they were originally arrived at was obscured, and a false one (deduction) was presented in its place.

While "proof" and "discovery" may be considered as two distinct steps, this is precisely the problem of the gifted experimentalist who breaks down at the blackboard in attempting to *prove* that she observed what she observed. True discoveries are not new deductions from already existing axioms, rather, they expand the field of possibility by developing new principles.

Riemann's habilitation dissertation, "On the Hypotheses which Serve as the Foundation of Geometry," treats the errors of Euclid, and comes to an astonishing conclusion. After Riemann shows that Euclid's geometry is only one of many that may apply to physical space, and that it has no *a priori* claims to represent reality, he lays out what the true foundations of geometry must be. The foundations are not geometric, mathematical, or logical, at all. Not only must we decide upon the shape of space by experiment, rather than armchair philosophizing, but the foundations inherently lie *outside of the concept of space itself.*[8] That is, the physical principles which give rise to and govern the actions that take place, are themselves the only legitimate basis upon which to build a geometry. He concludes this breathtaking work with an understated, but stunning, final sentence: "This leads us into the domain of another science, that of physics, which the nature of the present occasion forbids us to enter."[9]

Building Today's Future

Any attempt to unify scientific understanding, which does not include human creativity as an active power in nature, is a failure. As expressed beautifully in Vladimir Vernadsky's concept of the noösphere, human thought is itself a physical force—an increasingly powerful one. The work of Gödel and Riemann demonstrates that any attempts to understand either thought or nature as mechanical, fundamentally non-creative processes, is wrong.

Riemann's demonstration that increasing human understanding of nature is itself a force of nature, and Gödel's demonstration that science will never end, paint for us the outlines of a beautiful picture, of a future in which there will always be more to do, more to discover, more music to compose, and more joys to participate in.

Creativity, expressed by the universe as a whole, and by our actions, is the true substance that underlies reality, not geometrical or logical axioms. In that light, the proposals of LaRouche and his associates for the next breakthroughs of continental water management through NAWAPA XXI, controlled thermonuclear fusion, and increasing control over our region of the Solar System, are a part of being naturally human, and increasing our power (and numbers) on Earth and, eventually, farther afield.

And, best of all, Russell would hate all of these proposals!

8. Some might object: "But, I. Kant!"
9. For a video presentation by the present author, on Riemann's habilitation dissertation, as well as the text of Riemann's paper itself, see http://larouchepac.com/riemann.