REBUTTING JOSEPH T. MAJOR’S VIEW OF GENERAL SEMANTICS IN HEINLEIN’S CHILDREN

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JOSEPH T. MAJOR released his book *Heinlein’s Children* in March of 2006. This book contains an updated collection of Major’s essays on the so-called “juvenile” books of speculative fiction author, Robert A. Heinlein, published between the years of 1947 and 1963. In this book, Major draws certain conclusions about General Semantics, the study of language developed by Alfred Korzybski, and about Heinlein’s view of philosophy based on this quotation from *Space Cadet*:

> You’ll be studying the day you retire. But even these subjects are not your education; they are simply raw materials. Your real job is to learn how to think and that means you must study other subjects; epistemology, scientific methodology, semantics, structures of languages, patterns of ethics and morals, varieties of logics, motivational psychology, and so on. This school is based on the idea that a man who can think correctly will automatically behave morally or what we call “morally.” (72)

Immediately following this quote, Major comments:

> Provided, of course, that the “semantics” is the field of study of the meanings of words and not the jumble of half-digested, random readings organized by a contrived jargon and symbology unique to itself (a hallmark of a pseudo-science) that was publicized under the nomenclature (“nomenclature1948” to use a bit of that unique symbology) of “General Semantics.” Heinlein was a great believer in continued study over a broad range of knowledge. In the

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context of this book, one might also list this vast burden of studies as another “sickener,” an intellectual one as opposed to a physical one. The choice of topics touches on one of Heinlein’s crotchets. In fiction and fact alike Heinlein derided the concept of studying philosophy (see Expanded Universe p. 531, for example). Yet here Matt is studying the stuffs of philosophy. It might be how you package it. (31-32)

I would ask the following four questions:

1) Was Heinlein speaking of “semantics” as usually defined, or of “semantics” as standing for the more specific term “General Semantics”?
2) What is General Semantics, and is it a science or a “pseudo-science” as Major claims?
3) Was Heinlein being inconsistent about studying “the stuffs of philosophy.”
4) Was Heinlein’s interest in GS justified?

Question #1 — Was Heinlein speaking of “semantics” or “General Semantics”?

In preparing a book on the subject of Heinlein’s relationship with General Semantics (Heinlein and Korzybski: Maps of General Semantics, forthcoming), I found no instances of the term “General Semantics” (hereinafter also “GS”), in any of Heinlein’s work except in his 1941 WorldCon Guest of Honor speech, published in Yoji Kondo’s Robert A. Heinlein: Requiem and Tributes to the Grand Master. (221) I did find numerous direct and indirect references to GS in many of his works, however: Korzybski’s name appears at least three times, in “Blowups Happen” (47), “Coventry” (391), and “Gulf.” (56) In “Coventry,” Heinlein specifically groups Korzybski together with C.K. Ogden and “other semanticists.”

The number of indirect references to GS found in Heinlein’s works is close to two hundred. One more example should suffice here. His first major work, For Us, the Living, which was lost and remained unpublished until recently, contains a long section which deals with the “semantic readjustment” of the protagonist Perry Nelson. (132-154) This section describes the basic concepts of General Semantics exactly.

There may be no simple, yes-or-no answer to this question, as Heinlein apparently thought of GS as a part of, or complement to, traditional semantics, though Korzybski was himself more insistent on the distinctions. However, the overwhelming majority of the references clearly relate to GS rather than to the earlier semantics summarized in Ogden & Richards, The Meaning of Meaning (1922).
The problem is further complicated in that what we mean by “semantics” has since changed and now includes subjects that were formerly regarded as belonging to mathematics and linguistics — none of which were then regarded as a part of philosophy.

**Question #2** — What is “General Semantics” and can it reasonably be termed a “pseudo-science?”

Korzybski himself discussed Semantics and the relationship of General Semantics to Semantics in the *Olivet College Seminar Lectures, 1937*:

What is it all about? The term semantics is not new. It comes from a Greek word meaning “significance,” “value,” “meaning.” It has been used many years ago, but the old semantics is now dead. I call this new discipline General Semantics to make a difference from the old use. The science of GS is the science of values — evaluation. A general science of values and evaluation. I want you to realize and evaluate this by yourselves because I cannot do that for you. In GS we deal with values and evaluation, which represent mighty problems. (6)

The view that Korzybski had of Semantics starts with Herbert Spencer and Charles Sanders Peirce in the middle of the 19th century, which received fresh infusions of energy from William James in the 1890s and John Dewey a little later. It is not unreasonable of Korzybski to note that, by 1937, this tradition had run out of steam.

Arising from Korzybski’s scientific training and his early work with mental patients, GS addresses the issues of sanity in every day life, and applies the scientific method to the ways language can influence what we know and how we think. General Semantics is, therefore, a semantics meta-discipline, rather than a strict continuation of the “meaning of meaning” project.

Kate Gladstone has reported that Heinlein’s first introduction to GS was through Stuart Chase’s book *The Tyranny of Words*. (5) He subsequently read *Science & Sanity* (hereinafter “S&S”), and met S.I. Hayakawa, an early proponent of GS and author of a very popular book on the subject, *Language in Thought and Action*. It is evident in the Schuman Interview that Heinlein was very impressed by Hayakawa (156). Hayakawa appears in fictional form in Heinlein’s *Expanded Universe*, where he is referred to only as “Uncle Sam,” and references are made to his famous Tam O’Shanter and other distinguishing characteristics. (577-579) Even though Korzybski insisted on keeping the two fields, GS and “semantics” separate, Bruce Kodish points out in “In the Name of Skepticism,” an article that appeared in the
General Semantics Bulletin, that Hayakawa continued to combine the two. (56) It seems likely that Heinlein picked up much of his terminology and usage from Hayakawa and from reading The Meaning of Meaning by Ogden and Richards.

Hayakawa’s insistence may have been particularly congenial to Heinlein because of his interest in symbology. It is also possible that Heinlein conflated the two terms due to a deep misconception of the nature of GS. Many of Heinlein’s statements in his 1941 speech can be construed as dealing with GS only as an extended version of regular semantics (221) — an error specifically identified in S&S as considering only the “verbal” level of the term and ignoring the “unspeakable levels.” (751) Korzybski noted in the preface to the second edition of S&S (1941) his frustration with people misinterpreting his use of the term “semantics”:

There is a fundamental confusion between the notion of the older “semantics” as connected with a theory of verbal “meaning” and words defined by words, and the present theory of “general semantics” where we deal only with neuro-semantic and neuro-linguistic living reactions of Smith₁, Smith₂, etc., as their reactions to neuro-semantic and neuro-linguistic environments as environment (xlii).

Is GS a pseudo-science? Major calls it “[a] jumble of half-digested, random readings organized by a contrived jargon and symbology unique to itself (a hallmark of a pseudo-science) ....” With no other evidence, these charges seem damning — but there is an abundance of contrary evidence: Major conveniently doesn’t mention the long list of solid scientists of many fields who have studied GS, commented on its benefits and incorporated it into their work. When S&S first appeared in 1933, it was very favorably reviewed by mathematicians ET Bell and Bertrand Russell (an eminent scientist who had every chance, if anyone did, then or now, to know whether Korzybski had “half-digested” his work), and by anthropologist Bronislaw Malinoski, among many others. During the ensuing years, scientists from Buckminster Fuller to Abraham Maslow to Gregory Bateson have presented their views about GS as a part of the annual Alfred Korzybski Memorial Lecture series. Surely, a “pseudo-science” may con a luminary or two, but are we really supposed to believe that Major is more canny than all the professionals who evaluated GS favorably over the years?

So where does such a vehemently negative viewpoint come from? The arguments bear an uncanny resemblance to those found in Martin Gardner’s (a philosopher, not a scientist) 1952 book Fads and Fallacies in the Name of Science.

It is interesting to note that Gardner first describes the subject of GS as
“controversial, borderline, which may or may not have considerable scientific merit.” (281) However, in the succeeding pages, he goes on to attack not only GS itself, but adds ad hominem, attacks on Korzybski himself — an indication that something else may be going on in this treatment, that classifies Gardner’s remarks more in the vein of abuse than a serious criticism.

Major critiques GS’s “contrived jargon and nomenclature” as “a hallmark of pseudo-science,” while Gardner claims that you can tell the difference between “science” and “pseudoscience” because the pseudo-scientist “often has a tendency to write in a complex jargon, in many cases making use of terms and phrases he himself has coined.” (12-13) And Major’s description of a “jumble of half-digested, random readings” strongly echoes Gardner’s dismissal of S&S as a “poorly organized, repetitious, mish-mash.” (281)

Several writers have made serious, and definitive, rebuttals to his work, notably Dr. Allen W. Read and Dr. Bruce I. Kodish. The only thing that I would add, which I didn’t see in any of the previous rebuttals of Gardner, comes from personal correspondence with Nora Miller, a current trustee of the Institute of General Semantics, addressing the “jargon” criticism.

Every science must necessarily adopt terminology that others find “contrived.” How would the ornithologist differentiate between primaries, secondaries and scapular coverts, and how could the linguist discuss the concept embodied in the sentence “An actual implicature is any potential implicature that is not canceled by its context,” without “jargon?” It’s only “contrived” to Major because he doesn’t know anything about it. He calls that a “hallmark of a pseudo-science,” but in fact, it is a hallmark of all science — the development of precise, new terms to refine the distinctions necessary to discuss a topic heretofore unaddressed. Until there were “primaries and secondaries” we could only talk about wing feathers. Until there were “implicatures” we might never have noticed that certain statements imply facts not openly identified.

Since Gardner’s book has been very popular and is in its 31st printing, it seems likely that Major has taken his viewpoint from Gardner. Read and Kodish have pretty well demonstrated the serious flaws in attempts by Gardner and others to prove GS to be a “pseudo-science.” Kodish also published, in his paper “Contra Max Black,” a rebuttal to Max Black, another philosopher who derided GS. In fact, Black’s 1949 essay is considered the prime source for all who later criticized GS in this way. Noted neurologist, Dr. Stuart Mayper, also refuted Black in 1962, in an article in ETC, Volume 18, Issue 4.
**Question #3** — Was Heinlein inconsistent in his views on philosophy?

Major appears to be criticizing Heinlein for being inconsistent in his attitude towards “philosophy” when he says:

In fiction and fact alike Heinlein derided the concept of studying philosophy *(see Expanded Universe, p. 531, for example). Yet here Matt is studying the stuffs of philosophy. It might be how you package it. (32)*

There is nothing that says that an author has to be consistent in his fiction or in his personal beliefs versus those held by his characters, especially in a large corpus of works such as Heinlein’s, produced over many years. However, is he really being inconsistent? Do these subjects mentioned in the earlier part of the quote actually qualify as the “stuffs of philosophy”? These are epistemology, scientific methodology, semantics, structures of languages, patterns of ethics and morals, varieties of logics, motivational psychology, and so on.

We shall address “semantics” later.

(a) *Epistemology*, understanding how we know what we know, has since the beginning of Western Philosophy been pursued by numerous philosophers. Philosopher Garth Kemerling in his “Plato” essay, points out Plato was much more concerned to establish his views on matters of metaphysics and epistemology, trying to discover the ultimate constituents of reality and the grounds for our knowledge of them.

The actual approaches to epistemology and concepts of epistemology, however, have varied considerably over the ages and it would perhaps be somewhat speculative to say to which particular version of epistemology Heinlein was referring to, but let’s consider the following two quotes. The first is from Korzybski’s *Manhood of Humanity*:

> There are different kinds of interpretations of history and different schools of philosophy. All of them have contributed something to human progress, but none of them has been able to give the world a basic philosophy embracing the whole progress of science and establishing the life of man upon the abiding foundation of Fact (28). [Note 1]

and the second is a well-known saying of Heinlein’s, from *Time Enough For Love*:

> What are the facts? Again and again and again — what are the facts? Shun wishful thinking, ignore divine revelation, forget what “the stars foretell,” avoid opinion, care not what the neighbors think, never mind the unguessable
“verdict of history” — what are the facts, and to how many decimal places? You pilot always into an unknown future; facts are your single clue. Get the facts! (246)

True, this second quote comes in a work of fiction, but Heinlein also said something very similar in his Guest of Honor Speech at WorldCon in 1941 (213-214), which could easily represent the inspiration for the fictional statement — and in any case, it encapsulates a prominent attitude Heinlein displays over and over again throughout his entire career.

Linking the two quotes together provides, I think, a key to understanding Heinlein’s viewpoint on philosophy. He evidently valued, as did Korzybski, those philosophers who grounded their philosophical thinking in facts, not simply in speculation. I will say more about this later. In fact, when Heinlein was being educated as a young man, analytical philosophy was so far out of fashion that the term essentially meant German Idealist speculative philosophy exclusively. By these remarks, Heinlein is showing his commitment to 20th century, modernist ideas. In addition to plain “facts,” both Korzybski and Heinlein were convinced that mathematics played an extremely important part in epistemology. This view appears innumerable times in S&S, too many to list and Heinlein said, again in fiction, most prominently in Starship Troopers, “… everything of importance is founded on mathematics (278).

Now let us consider some other “stuffs of philosophy.”

b) **Scientific methodology:** This is a “philosophy” in its own right, but one far different from any of the” philosophies” which preceded it and which was fundamental to Heinlein’s thinking, as his definition of the scientific method reprinted in Requiem demonstrates. (213)

c) “**Varieties of logic” and “structures of languages”** are closely related, in my view, so let us examine them together. Kemerling holds that Aristotle thought “logic” and “language” were essentially one and the same. Aristotle further supposed that this logical scheme accurately represents the true nature of reality. Thought, language, and reality are all isomorphic, so careful consideration of what we say can help us to understand the way things really are. Beginning with simple descriptions of particular things, we can eventually assemble our information in order to achieve a comprehensive view of the world.

However, the phrase “structure[s] of language” couldn’t apply in Aristotle’s case because to him all the structure that mattered was structure of his language, namely Greek. It has only been in modern times “that structures of languages” has become
important, as in the work of mathematical philosophers including Wittgenstein, Quine, Tarski, and others, who deal with “formal languages” of logic and mathematics. Bloomfield, an eminent linguist, in his pioneering book *Language* in the same year, 1933, in which *S&S* was published, articulated a different study of the “structure of languages” as being a subject of linguistics, not philosophy, and in linguistics it refers primarily to the syntax, morphology and phonology of natural languages.

The distinction between “logic” and “language” has additionally been minimal. However, as Kemerling points out, starting with mathematical philosophers like those mentioned above, this split began to widen with the introduction of multi-valued logics as extensions of two-valued “true-false” logic. Infinite valued logics and structure of language came to mean the “structure of the formal logics,” including today’s programming languages for computers. Multi-valued logics play a significant part in Korzybski’s work. Heinlein referred to them in a number of places. So one can conclude that “varieties of logics” qualify as “stuff of philosophy” at least in modern mathematical philosophy. Furthermore, this is precisely the kind of philosophy that both Korzybski and Heinlein considered worthy subjects for study — though it was, paradoxically, not considered a part of philosophy proper until analytical philosophy entered its ascendancy in the middle of the 20th century.

“Structure of language” is probably one of the most important single concepts in GS, as Korzybski (in *S&S*) considered that the only possible knowledge, i.e. link between our verbal world and reality, depended on how well our languages were structured to match that reality. (699) This same idea was reflected in Heinlein’s first “juvenile,” *Rocket Ship Galileo*. (see, e.g., 25)

(d) *Patterns of ethics and morals:* Part of philosophy from the earliest days. Like “epistemology,” treated differently by almost every different philosopher, but most often based on the “will of God or gods.” However, it appears that Heinlein may have had something much different in mind. Consider the quotation Major singled out from *Space Cadet*:

>This school is based on the idea that a man who can think correctly will automatically behave morally or what we call “morally.” (72)

Examined in the light of GS, this quote refers to a principle that Korzybski outlined in his first book, *Manhood of Humanity*. (xlii) Heinlein expanded on this notion in *Starship Troopers*:

“But the instinct to survive,” he had gone on, “can be cultivated into motivations more subtle and much more complex than the blind, brute urge
of the individual to stay alive. Young lady, what you miscalled your ‘moral instinct’ was the instilling in you by your elders of the truth that survival can have stronger imperatives than that of your own personal survival. Survival of your family, for example. Of your children, when you have them. Of your nation, if you struggle that high up the scale. And so on up. A scientifically verifiable theory of morals must be rooted in the individual’s instinct to survive — and nowhere else! — and must correctly describe the hierarchy of survival, note the motivations at each level, and resolve all conflicts.” (118)

From a GS perspective set out by Steven Stockdale in “Korzybski’s Structural Differential and Hayakawa’s Abstraction Ladder,” we see a hypothetical fictional application of Korzybski’s “consciousness of abstracting” and the different levels of abstraction and their application to moral behavior.

(e) **Motivational psychology:** This is a modern phenomenon and I can’t by any stretch consider it a part of philosophy.

I conclude from the above that Heinlein either didn’t consider these things the “stuffs of philosophy” at all or that he considered them only in the light of modern mathematical philosophy.

**Question #4 — Was Heinlein’s interest in GS justified?**

To answer this question let us examine just how he understood GS.

Underlying Gardner’s and Major’s thinking is the assumption that GS is a “philosophy.” It was from this viewpoint that Gardner attacked GS even though he spoke of it in “pseudo-science” terms. Allen Walker Read identified one possible motive underlying Gardner’s antipathy to GS:

Among the budding philosophers on the University of Chicago campus was a graduate student named Martin Gardner, whom I knew and respected, but who picked up a contemptuous attitude from the [philosophy] department there [italics mine]. He later, in 1951, pilloried general semantics in his influential book, *Fads and Fallacies in the Name of Science.* This was not completely honest of him, since he admitted that Korzybski’s work was “controversial, borderline,” and that it “may or may not have considerable merit.” I conferred with Gardner as he was writing the book and found that he was unduly influenced by a published report from Los Angeles that a group of Korzybski’s followers were founding a “General Semantics Church” and were about to go underground to preserve the purity of the faith from the impending destruction of the world. It turned out that within a few
weeks this group lost its interest in general semantics and embraced scientology. But in this land of free speech, Korzybski could not prevent a few “loonies,” as I regard them, from proclaiming an alleged association with him (14).

Korzybski did, indeed, derive a number of features in GS from the works of certain philosophers. Prominent among these were Whitehead, Russell and Wittgenstein, all cited and referenced extensively in S&S, where he also said that he considered his work to be an extension of Aristotle’s thinking, not a refutation. (97) His presentations collated in the 1938 Proceedings of the First Conference on General Semantics indicate that he used and extended Whitehead and Russell’s Theory of Types. (33) Some of his notable quotes are paraphrases of Wittgenstein, such as “What can be shown cannot be said,” which has its Korzybskian counterpart in S&S: “The objective level is not words, and cannot be reached by words alone. We must point our finger and be silent, or we shall never reach this level.” (399) The “all” in “The map doesn’t cover all of the territory,” the second of Korzybski’s most quoted statements about GS from S&S, is directly attributable to Russell and Whitehead. (737)

In S&S (lxii) and again in the Olivet College Lectures (9), Korzybski explicitly stated he did not consider GS to be a philosophy, but instead considered it a scientific theory and an engineering discipline, which incorporated a number of applicable techniques for improving the semantic reactions of an individual with a proper understanding of the structures of reality. Philosophy only comes into the story because his theory of GS with its predictability, stressed in the Olivet College Lectures (8), is designed to counteract what be considered to be the influence of Aristotle’s philosophy on pre-scientific culture, which to this day has a serious impact on the way in which we think. Heinlein’s continuing interest in how we think (Remember that quote from Space Cadet above advising us to “learn how to think”) drew him to GS.

Implicit in Korzybski’s formulation is the notion that “language” itself, our “map” of reality, influences the way we think about that reality. The linguist, Benjamin L. Whorf, studying Native American languages contemporaneously with Korzybski, but unknown to him at the time he was researching for S&S, came to the same conclusions, presented in individual papers collected into Language, Thought and Reality. A link between Korzybski and Whorf apparently developed some time prior to Whorf’s death in 1941, as a paper by him is listed in the Collected Papers of the Second American Congress on General Semantics that year. (7) Whorf died in
the month just prior to this conference, and it is unclear at this time whether or not his paper was actually presented.

In supporting this thesis that GS is a “science” and not a “philosophy,” I offer the following quote from Korzybski’s *Olivet College Lectures*, highly reminiscent of Heinlein’s quote from *Expanded Universe*.

I say frankly that if you find any “cosmic legislation” in my work, dismiss the whole thing. You will not find any there. I am talking about facts, facts, facts, and facts alone! You can always verify these facts. That is the point. But the moment we agree on a fact stick to it. In mathematical physics when we discover something, say an error in a formula or a disregarded factor in an equation, once discovered it is then corrected, and the old error is abandoned for good. That is mathematical science. (19)

Empirical data validating at least parts of the theory of GS were presented in the First and Second American Congresses on General Semantics, held respectively in 1935 and 1941. Especially significant were studies presented by doctors of medicine, psychologists, and psychiatrists relating their successful work in implementing the practice of GS in treating their mentally ill patients and by educators who had used the techniques of GS to educate and motivate their students.

Of special significance is the report about the work of Dr. Douglas M. Kelley, formerly Marine Corps Lt. Colonel and, during World War II, Chief Consultant in Clinical Psychology and Assistant Consultant in Psychiatry to the European Theater of Operations [Note 2], which was included in the Preface to the 3rd Edition of *S&S*, and also appeared in the 5th Edition:

General semantics, as a modern scientific method, offers techniques which are of extreme value both in the prevention and cure of such [pathological] reactive patterns. In my experience with over seven thousand cases in the European Theater of Operations, these basic principles were daily employed as methods of group psychotherapy and as methods of psychiatric prevention. It is obvious that the earlier the case is treated the better the prognosis, and consequently hundreds of battalion-aid surgeons were trained in principles of general semantics. These principles were applied (as individual therapies and as group therapies) at every treatment level from the forward area to the rear-most echelon, in frontline aid stations, in exhaustion centers and in general hospitals. That they were employed with success is demonstrated by the fact that psychiatric evacuations from the European Theater were held to a minimum. (xxxi-xxxii)
In light of the preceding paragraphs, I am confident in answering my fourth question, “Was Heinlein’s interest in GS justified” in the affirmative.

Regardless of whether or not Heinlein correctly understood all of the theory of GS, he had a great deal of respect for it and its founder. The references in his fiction cannot “prove” this proposition, but his 1941 WorldCon Guest of Honor speech, reprinted in Dr. Kondo’s Requiem, shows that he certainly didn’t consider GS a “pseudo-science.” Of Korzybski, Heinlein said:

... he’s at least a great a man as Einstein, at least, because his field is broader.
The same kind of work that Einstein did, the same kind of work using the same methods [i.e., scientific methodology], but in a much broader field, much closer to human relationships. (221)

Heinlein became a member of the Institute of General Semantics and attended with his second wife, Leslyn (as Kate Gladstone has documented), at least two seminars in GS, in 1939 and 1940, and, at one point, wrote in his correspondence, published in Grumbles from the Grave, that he thought seriously about writing a book on General Semantics. (12) [Note 3]

More information about Heinlein and his relation to GS will be found in Bill Patterson’s forthcoming biography, The Man Who Learned Better: Robert A. Heinlein in Dialogue with his Century.

Heinlein was not alone in valuing GS. Among others, many prominent scientists and other professionals endorsed Korzybski’s works. Comments such as these were incorporated into the 2nd Edition of Science & Sanity (1941):

- **BRONISLAW MALINOWSKI, PH.D.** (Cracow), D.Sc. (London), Professor of Social Anthropology, School of Economics, University of London, and along with Boaz, Eliade, and Levi-Strauss, one of the most influential anthropologists of the 20th century:
The functional or relational conception of matter, mind and, finally, of human culture, seems to be gradually crystallising from all attempts at scientific synthesis. Count Korzybski’s work contributes to these efforts in no mean measure. I am perhaps biased as a countryman, but to me this Polish attempt at synthesis seems to rank as one of the most important. I am of course unable to express a competent judgment on its mathematical, scientific — in the narrow sense of the word — and philosophical side. As regards however semantics and the anthropological issues discussed by Count Korzybski, I am in complete agreement with his approach. I should like to add that the approach is so new and
fundamental that it will take some time for us to become completely familiar with it. For the present I should like to say that I have not yet mastered all the intricacies of Count Korzybski’s system, so my appreciation must naturally be regarded as preliminary.

- **E. T. BELL**, Professor of Mathematics, California Institute of Technology, (who wrote science fiction under the name of John Taine):
  I think it is obvious that Korzybski is working in a direction of the highest present importance for science and life. This is the more so as some sort of corrective seems to be needed for the well-meaning but ill-considered popular announcements by certain leading scientific men. A little careful consideration of the recognized fundamentals of scientific and other thinking, such as Korzybski’s book aims to set forth clearly, would prevent such really futile pronouncements by prophets of science and make the public more chary in swallowing every transient guess. Korzybski, among personal contributions of his own concerning the law of identity, has succeeded incidentally in making current the fundamental revolution in mathematical and other basic thinking, which goes under the name of a non-Aristotelian logic, and bringing to educated people an account of the most significant advance in abstract thought of the past millennium. The profound modifications of rational, mathematical thinking which began about thirty years ago with the work of Brouwer, have, so far as I am aware, escaped the notice of those who undertake to report science and mathematics to the general public. The reader of Korzybski’s book will gain an outlook on these new fields as well as an insight into the author’s contributions to the problem of identity. Brouwer challenged one of the laws of Aristotle, Korzybski challenges another.

- **BERTRAND RUSSELL**, Noted Philosopher:
  Your work is impressive and your erudition extraordinary. Have not had time for thorough reading but think well of parts read. Undoubtedly your theories demand serious consideration.

The above list represents just three of the many of those whose comments were written in response to the first edition of *Science & Sanity* and included in pages 783 to 789 of the second edition. Most of these names will not be familiar to a modern audience outside, perhaps, of Bertrand Russell, (is it coincidence that Heinlein gave his fictional “greatest mathematical psychologist of our time,” in *Have Space Suit — Will Travel* the name of Russell [271]?), although the science fiction community will likely recognize the pseudonymous John Taine (mathematician Eric Temple Bell). These endorsements came from people prominent in the fields of Anthropology,
Biology, Botany, Education, Entomology, Genetics, Ophthalmology, Mathematics, Mathematical Foundations and Logic, Neurology, Physics, Physiology, Psychiatry and Semantics during the time Korzybski was writing and publishing his works.

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(Online versions of most of the original essays can be found at [http://members.iglou.com/jtmajor/HeinJuvs.htm](http://members.iglou.com/jtmajor/HeinJuvs.htm))


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**NOTES**

1. Students of GS should immediately notice that Korzybski violates his own principle of “non-allness” in this quote, but I would point out that this quote appears in Korzybski’s first book, which was published twelve years before *S&S*, just at the beginning of his research into this subject.

2. Kelley also served as Chief Psychiatrist in charge of the prisoners at Nuremberg, and wrote *22 Cells in Nuremberg* (Greenberg Press, New York, 1947).

3. Heinlein mentions in this letter in *Grumbles* having attended five seminars. Steven Stockdale, in response to a letter-query by the author, suggests that three of these were probably local (Los Angeles area) seminars not involving Korzybski himself.

4. A number of these will be more recognizable by a modern audience, notably, Buckminster Fuller, inventor of the geodesic dome, James A. Van Allen discoverer of the “Van Allen Radiation Belt,” Jacob Bronowski who became a cultural icon in the 1970s for his *Ascent of Man* book and television series, sf writer Ben Bova, and entertainer and writer Steve Allen. People involved with computer fields will most likely recognize Lotfi Zadeh, the inventor of “Fuzzy Logic,” an extension of the multi-value logic of Lukasiewicz, which today is being applied in a number of engineering fields.

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