



# Noesis

The Journal of the Mega Society

Issue #193 December 2012

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## About the Mega Society

The Mega Society was founded by Dr. Ronald K. Hoeflin in 1982. The 606 Society (6 in 10<sup>6</sup>), founded by Christopher Harding, was incorporated into the new society and those with IQ scores on the Langdon Adult Intelligence Test (LAIT) of 173 or more were also invited to join. (The LAIT qualifying score was subsequently raised to 175; official scoring of the LAIT terminated at the end of 1993, after the test was compromised). A number of different tests were accepted by 606 and during the first few years of Mega's existence. Later, the LAIT and Dr. Hoeflin's Mega Test became the sole official entrance tests, by vote of the membership. Later, Dr. Hoeflin's Titan Test was added. (The Mega was also compromised, so scores after 1994 are currently not accepted; the Mega and Titan cutoff is now 43—but either the LAIT cutoff or the cutoff on Dr. Hoeflin's tests will need to be changed, as they are not equivalent.)

Mega publishes this irregularly-timed journal. The society also has a (low-traffic) members-only e-mail list. Mega members, please contact the Editor to be added to the list.

For more background on Mega, please refer to Darryl Miyaguchi's "A Short (and Bloody) History of the High-IQ Societies"—

<http://www.eskimo.com/~miyaguch/history.html>

—the Editor's High-IQ Societies page—

<http://www.polymath-systems.com/intel/hiqsocs/index.html>

—and the official Mega Society page,

<http://www.megasociety.org/>

*Noesis* is the journal of the Mega Society, an organization whose members are selected by means of high-range intelligence tests. Jeff Ward, 13155 Wimberly Square #284, San Diego, CA 92128, is Administrator of the Mega Society. Inquiries regarding membership should be directed to him at the address above or:

[ward-jeff@san.rr.com](mailto:ward-jeff@san.rr.com)

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# Editorial

**Kevin Langdon**

Here is your yearly issue of *Noesis*. This is not what I intended. I'd like to get *Noesis* out at least two or three times a year. But I didn't get around to publishing an issue last Spring and Summer, partly because I'd lost some files for *Noesis* submissions in a computer crash (I've written to the authors asking them to please resubmit their contributions) and partly busyness and procrastination, and then I had a series of health problems this Fall (none of them terribly serious but bad enough that my energy was significantly depleted).

Once again we have some interesting articles.

This issue begins with a tribute by the Editor to the late psychometrics pioneer Arthur R. Jensen, who died in October.

Then we have "Healing and Renewing the Compete Self" (a rather ambitious title), by Cedric Stratton. Cedric speaks of the all-around efforts in many areas of life needed to keep one's edge into old age. From an interest in tissue regeneration in certain animals, Cedric began a serious examination of health and healing, including such approaches as electrical stimulation, acupuncture, massage, faith healing, mental and physical exercise, and challenging oneself in many ways, questioning medical orthodoxy in favor of continuing personal investigation of the questions regarding human growth, illness, and healing which interest him.

Next is "The Life and Thought of Stephen C. Pepper, American Philosopher," by Mega Society founder Dr. Ronald K. Hoeflin, a critical appreciation of the author of the "root metaphor" theory of philosophical systems, originally intended to be a Wikipedia article. This is followed by Dr. Hoeflin's analysis of Peano's axioms in terms of Pepper's theory.

Then is a short piece by the Editor on a more accurate way of calculating the standings for the Olympic Games and two short poems by Ruediger Ebendt and May-Tzu (Richard May).

Elections are overdue again. Our Constitution calls for a call for candidates in the September issue of *Noesis*—and clearly that's impossible again this year. Mega members, please let me know if you're interested in running for Editor, Internet Officer, or Administrator. Maybe next year we can actually publish a September issue.

The **deadline for submission** of material for the next issue is April 20, 2013.

**Cover image:** False color image of the surface of Jupiter's moon Europa, produced by combining low resolution color data with higher resolution mosaics recorded during three separate flybys by the Galileo spacecraft. The cracked plates visible in the image are thought to be water ice on the surface of an interior ocean. (NASA)

## In Memoriam

# Arthur R. Jensen (1923-2012)

**Kevin Langdon**

Arthur Jensen, who died on October 22, was the world's leading expert in intelligence testing and a fine human being.

Known for his honesty, his courage, and his thoroughness, Dr. Jensen, Professor of Educational Psychology at the University of California at Berkeley, separated fact from superstition in the highly-controversial field of cognitive testing. He was best known for his work on the "general cognitive factor." His book on the subject, *The g Factor: The Science of Mental Ability* (1998), is a classic in psychometrics.

Dr. Jensen was frequently attacked because his work on differences in cognitive ability between racial and ethnic groups flew in the face of political correctness. That work is most completely explicated in his book *Bias in Mental Testing* (1980).

Dr. Jensen was my friend. He encouraged my work in high-range IQ testing and the (all too few) exchanges we had were very helpful to me.

I organized two appearances by Dr. Jensen—one, many years ago, at a meeting of the Four Sigma Society, and one at the 2010 ggg999 (Global General Gathering of the Triple Nine Society) meeting for members of the Triple Nine Society and other societies with credible admission criteria at or above the third standard deviation above the mean.

Both meetings were in Berkeley, but the first one was attended by a number of Berkeley leftists who viewed Dr. Jensen's work with great suspicion—and he won them over with his gentleness, his willingness to listen to and consider all views, and his logical approach to matters approached by others with much emotional drama.

At ggg999 2010 Dr. Jensen appeared with his colleague Frank Miele, speaking about his work with a special emphasis on his recent work in "chronometrics" (cognitive assessment by means of tests of reaction time); see his book *Clocking the Mind: Mental Chronometry and Individual Differences* (2006).

Dr. Jensen's passing, and that of his colleague J. Phillip Rushton only three weeks earlier, marks the end of an era in the field they both helped shape.

# Healing and Renewing the Complete Self

**Cedric Stratton**

A major gap in my education occurred when I elected to study the mathematically-based sciences – pure and applied mathematics, physics and chemistry – no biology. But I became interested in biology when I taught biochemistry during many of my college teaching years, and doubly so when my daughter took her degree in the field. The following are some slightly better than idle thoughts on the healing process, from which a sketchy picture is emerging of how things may work in the less mathematically driven field of biology.

A long time ago I read in *Scientific American* an article on tissue regeneration which caught my imagination. Crabs, lizards, and a few other creatures, but not mammals, can grow important new parts, including 'bone', as needed. Occasionally a newborn infant who loses a digit during the birth process – typically a scalpel slipping during a caesarean section – grows a new digit. People aware of this phenomenon often wondered why adults grow only a lesser range of new parts when injury takes place. From these beginnings researchers tried to find why the select few animals performed the seeming miracle of growing a whole new leg, but most do not.

In nature, salamanders that lose parts grow new parts with ease, even complete new legs. Regeneration is even more common among small organisms. In contrast, frogs share a very large proportion of DNA with salamanders but do not grow new parts.

In parallel, early results in experiments on pain signals showed small millivolt pulses to the brain. That was thought to be the only signal, and the supposition held good for many years. But more sensitive instruments were built, and they discovered much smaller signals in the microvolt range, in the return direction. Failure to see tiny or obscure effects is common in science, as for example: the recently found functions of the once-called “nonsense” regions of the DNA molecule. They do indeed have functions, but often they are not invoked.

On discovery of this new signal, a biology thesis advisor asked his grad student to try inducing bone regrowth in frogs using electrical impulses. The frog's digit was cut off and teased with small electrical pulses into and out of the challenged site. In the millivolt range, he produced – nothing. He planned to seek a new research topic, but his supervisor asked him to try once more, using microvolts instead of millivolts. At the very much lower voltage he succeeded at least partially, and continued the project, opening up the new field of healing by electrical stimulation.

To date, current researchers have successfully regrown frog digits with microvolt pulses teasing the injury site. To sustain the regrowth of the digital bone, electrode tips were devised to move with the growth to maintain contact with the active region. Because the new growth starts later, it is smaller than the original, but in time presumably would attain full size. It seems just a matter of time before humans can benefit.

There are different interpretations as to what is actually taking place, but some reasonable ideas put it that creatures unable to regenerate tissue fail for at least three reasons: no return signal to work with; inadequate nerve density; or DNA instructions that terminate after achieving maximum growth.

Bear in mind that human skin has many nerves and bone has few; and also that skin regenerates rapidly but bone does not. Because infants are small, and also in a sensitive and rapid-growth phase, they have higher nerve density and activity than adults, which may explain why they sometimes do regenerate lost digits. Or perhaps the gene directing skeletal growth becomes less effective with age, or simply turns off at the due time.

Whereas pain signals to the brain have voltage differentials of some 70 millivolts across the nerve membrane, the return signal that stimulates tissue regeneration is only a few microvolts. This leads one to suspect that *if the brain supplies the electrical stimulus for normal tissue regrowth, other stimuli that cause electric signals of the right order may also have a hand in the healing process.*

At a meeting I attended some months ago the assembled group heard a presentation from a naturopathic doctor who talked about the role of food in maintaining health – obviously – but she also so gave an account of electrically stimulated healing, among other things; and on a different occasion she gave some demonstrations. These writings were seeded by that experience.

The small electrical pulses that caused healing in injured sites somehow provide a stimulus to other neurons connected by the tree-like structure to the point of excitation. Could contact electrodes on the skin be doing the same thing as the return signal after a pain signal to the brain or spine? If so, might this explain the effectiveness of **externally applied electrical pulses**?

Metallic elements are electron receivers and transmitters – very small amounts, but definitely there immediately on contact, until electrical balance is reestablished by continued contact. Non-conductors may accept a static electrical charge either positive or negative. Is this what lies behind **acupuncture**?

There is probably little dispute that mental states change electrical patterns in the neural pathways. Depressed people appear to heal only slowly, whereas upbeat people seem to heal rapidly. Happy people seem never to even become ill in the first place. It was known in biblical times that “a merry heart doeth good like a medicine.” This might explain how people with a **positive outlook** seem either not to become sick, or when sick, to heal rapidly. Before WWII a young RAF cadet, Douglas Bader, lay legless in a hospital bed and overheard a nurse chide some noisy visitors – “Quiet!” she said, “there’s a young man in there dying.” That triggered what I call the “Oh, yeah?” response. From that point on he made a miraculous recovery, and became the legless WWII fighter ace whose inspirational story gave us the 1956 biopic *Reach For the Sky*.

Believing that one will heal seems to be effective. People who make *others* feel upbeat, and give them an optimistic outlook may also cause the subject's brain to change its electrical patterns with no apparent physical stimulus, which would in turn explain the many successes of what we call **faith healing**. The appearances are easy to copy but apparently some people are more convincing to the patient, hence the spectacular healing, mixed in with more numerous non-healings. This may explain why doctors with a good "bedside manner" are often more successful than impersonal peers, and also explain a secondary common observation – that doctors with a good bedside manner are seldom sued.

People who use their brains intensively seem to escape the consequences of seemingly devastating conditions. The great physicist Stephen Hawking has ALS (Lou Gehrig's disease), which normally causes complete degeneration of the neural system in just a few years and leads to an early death. Some survive longer, but Stephen Hawking is now 70. Could the constant use of his brain help maintain electrical stimuli and slow the effects of the disease? **Constant mental stimulation?**

ATP is a key substance in the "electron cascade" providing cellular energy that drives muscular action. It is produced by exercise. Besides being pleasant, exercise enhances the whole system. Do muscular actions enhance healing? **Constant exercise?**

People who lead active lives which often place them in danger seem to enjoy good health. They seem to enjoy the adrenalin rush of confronting challenges. Does their lifestyle provide electrical stimuli that promote good health? **Living in the Now?**

Finns and Icelanders who live in very cold climates seem to enjoy robust health. They indulge in sauna baths, with their eccentric extremes of hot and cold. It has also been reported that frequent cold showers help reduce infections. Icelanders, Swedes and Norwegians have very high life expectancies among the advanced nations. Is it possible that the hot/cold skin signals are initiating micro-volt impulses that travel to every corner of the body and reduces inflammations before they appear on our personal radar? Some years ago my water heater failed and I had just come indoors from a chilly November run of several miles. Wishing to retain my friends I elected to have a cold shower. Later in the day I felt tingly good all over, and a very learned doctor friend explained to me that the thermal shock induces anti-inflammatory corticosteroids to flood through the body and attack inflamed sites. I have ever since continued the practice, and though I do not enjoy them, I really do like how I feel for many hours afterwards, and enjoy relative freedom from viral infections. **Cold showers, anyone?**

Many people seem to give their entire lives to an all-absorbing career, hobby, or personal quest, always on the go, and seem to enjoy great health. They also seem to reap various rewards, not always money – fame, cure for a disease, a place in the record books, a lifetime of teaching others, satisfaction with their job well-done. They "give their lives that they may receive everlasting life," to put another biblical slant on it. **Follow a higher calling?**

The skull has only a dozen openings on each side for nerve signals to pass in and out. There are an estimated 100 billion neurons, so there must be thousands using each of the few orifices. Sympathetic stimulation of neurons close to the points of entry or exit is commonplace.

Many people going into strong sunlight often sneeze when the large optical signal comes near the sneeze neuron. Strong signals of any kind, properly applied, might also stimulate related part of the body in a way to induce healing. **Massage Therapy** stimulates quite large bundles of neurons, and since a full massage covers everything, the resulting good feeling is surely conducive to healing in a general sense.

Not all neurons track to the brain. Many go to the spine, and if many neurons enter the spinal cord through just a few openings, this is certainly a justification for using **osteopathy** and its spinal adjustments to improve health.

Already mentioned above is the probable importance of mental outlook on the likelihood of proper healing. There is a converse to this – that of the **Gypsy's curse**. If a gypsy curses a victim and persuades the victim that he or she is doomed, the mental state takes over and the person fails to flourish. On the good side, **shamans** and **witch doctors** work their seeming miracles by imposing their will on the person seeking healing. It seems that faith in a person or a god is the necessary ingredient - the person must *believe* they have what it takes to become well. I was at university in England with a sincere Ugandan student who assured me he was planning to be a witch doctor when he returned to Africa.

The last thing worth mentioning that is reputed to promote healing is the enjoyment of an active sex life. With so many neurons firing at the same time it is impossible to even guess how many *other* neurons are stimulated besides the expected few. Marvin Gaye had it right in one song that made him famous – **sexual healing**. Surely a satisfying sexual life with the right person must lead to a positive outlook, entailing a considerable amount of real exercise, with appropriate relaxation in the quiet times between.

While I was pondering these various things, I planned to run the ideas by a very wise friend and physician, but when I phoned his wife answered. She had been an OR nurse before they married, so I talked over some of the points with her instead. She tendered me some marvelous new information – both her husband and her son, in quite different fields of surgery, greatly accelerated the healing process by appropriate use of stem cells.

To me, that was the last piece of the puzzle. I do not have the full picture, but over the years I have come to understand that as the embryo develops, the stem cells divide and divide, eventually becoming an oblong shape that folds over and closes to become the neural tube – the spinal column and the brain, from which all else develops.

With the neural tube in place, all those spinal and cerebral neurons are busy firing away, building arms, legs, muscle, and so on. To me the electrical nature of life was fully exposed even though my understanding of it is still incomplete.

The neural tube has all the components and on-going actions available to build bone, muscle, ligament, plus the entire control mechanism before the embryo becomes a separate being. At some later point in the process the ability to generate new bone and muscle is curtailed, while allowing skin and blood to be regenerated throughout life.



My overall take on these musings is that we are, after all, complex electrical beings, responsive to all kinds of small signals, going in either direction along the trillions of pathways that make our lives possible.

At the back of my mind is the realization that the many therapies referred to as “alternative medicine” seemingly have no scientifically measurable demonstration of why they are effective – yet in some alternative medicines there are hundreds of years of empiricism suggesting that they definitely do work – not necessarily every time, nor for every person, but for a good many. Perhaps it is time for the entire medical fraternity to take a new look at some of the less accepted alternatives. If we find how they work, appropriate versions may serve as valuable adjuncts to usual practices. A firmer scientific basis would also make it easy to cull out the charlatans, of which there may be many.

Further to these writings, I add my own philosophy of life, which is approximately as follows: because the brain *controls* the body, while the body *sustains* the brain, it is my opinion that for optimum health it makes good sense to balance the way one sustains the two-part system.

*Mens sana in corpora sano*, the old Latin adage, says: “a sound mind in a sound body”. The Romans probably borrowed the idea from the Greeks, and who knows how many other civilizations had stated it in other ways before the Greeks found it.

To me this all suggests a way to live well and live long, by regarding every part of life as a challenge, to keep up the flexibility and strength of the entire system. By challenge, I do not mean challenges that exceed the comfort thresholds or approach pathologically damaging conditions, but challenges that one may walk away from without loss of face, health or dignity – challenges where one remains in full control of the degree of stress. Repeatedly reaching the boundaries of one’s comfort zones in each endeavor, without over-stepping the boundary into pathological territory surely strengthens the entire system.

I am supported in this view by studies made on Catholic nuns by medical researchers into longevity. One famous study compares two kinds of nun, service nuns and teaching nuns, by following them throughout their lives, a relatively easy task in such a stable population. The study found that the teaching nuns who maintained their mental sharpness by continuing their reading and learning habits to the end outlived less studious sisters by several years. In 1986 Dr. David Snowdon published the book, *Aging with Grace* which summarizes these findings. Several teachers from my early days at school, college and graduate school (all in Jolly Olde England), have lived far into their nineties, a few even passing the century mark. While at school, I looked upon certain teachers with particular favor because they seemed so engaged in life, transmitting their enthusiasm for their subject, their favorite sport, their joy in living, with great enthusiasm – as I hope I did during my own teaching years. These inspirational deeply engaged teachers were without exception, the longest lived.

My views call for me to look upon life as a game, to seek and face any challenges that arise while playing it. I feel that the whole body/brain system operates best under full steam – not so much exhausting effort, but rather sustained and satisfying effort. It seems to me that by

adopting this approach I ought to elevate the flow of electrical impulses in all directions, to hasten healing and recovery, and to live life to the fullest.

Should one therefore try to nourish and develop the brain, to use every facet of one's intellect, so that every corner of the mind is stimulated? Should one nourish and develop the body that it may be used just as fully?

If this is true, then one is bounded only by the hours in the day, the days in the month, and the months in the year. If true, then the best-lived life is that one which is most actively pursued – lived to the fullest. Is this a tenet that one should adopt? True or not, I try to follow this self-derived dogma to the end of the line, even to the point of deliberately expending my entire measure of daily energy, expecting that one good sleep and one good meal will allow me to greet the next day fully re-armed.

In connection with the above, I try not to lose sight of the mechanical requirements - an adequate and wide variety of foods that fuel the body and brain. That is my second important component of good health that I believe allows one to do almost whatever one desires in life. Ignoring the nature, amount and quality of food and drink is like driving an expensive car without changing oil or filling up with gas. That is another area to which I have long paid a great deal of attention. It probably warrants some explanations similar to the foregoing, but for this article, enough is enough.

**Cedric Stratton**  
**23rd. December 2012**

## **Eleven Tough Verbal Analogies**

**Ruediger Ebendt**

To receive a report on your score on this set of analogies please write to Ruediger ("ruediger dot ebendt at yahoo dot com"); there is no scoring fee.

- 1) Suspicious : Apprehend :: Auspicious : ?
- 2) Frieze : Wallpaper :: Rod : ?
- 3) 2 : Basle :: 2-2g : ?
- 4) Lining : Silver :: Cloud : ?
- 5) Amazon dweller, allegedly aggressive : Piranha ::  
Amazonas dwellers, allegedly lacking of numerals : ?
- 6) Sticks : Tally :: Tassels : ?
- 7) Overgrown : Weedy :: Stunted : ?
- 8) Basil : Gorgonzola :: Basilisk : ?
- 9) Italo-Western : Romance :: Romance : ?
- 10) Lenin : Ulyanov :: Leningrad : ?
- 11) General Secretary E.H. : Eternal ruler :: First Secretary E.H. : ?

# **The Life and Thought of Stephen C. Pepper, American Philosopher**

**Ronald K. Hoeflin**

**Stephen Coburn Pepper** (born in Newark, New Jersey on April 29, 1891, died May 1, 1972 in Berkeley, California) was a noted American philosopher who received his PhD in philosophy from Harvard University in 1916 and taught throughout most of his career at the University of California at Berkeley. He is the author, coauthor, or editor of a dozen books and had over a hundred articles published. He is best known for his root metaphor theory of metaphysics, detailed in his 1942 book *World Hypotheses*, but was also a respected authority on aesthetics and the philosophy of art, as well as on value theory and ethics. In *The New American Philosophers* (1968) Andrew Reck says “It was Pepper who, more than any thinker of his generation, made aesthetics and the philosophy of art the technical fields of study they are today.” And in *The Rise of American Philosophy* (1977) Bruce Kuklick ranks Pepper among the twenty most eminent recipients of PhDs in philosophy at Harvard from 1878 to 1930.

## **Contents**

1. Early life
2. Education
3. Teaching career
4. Writings
5. Root metaphor theory
6. Influences by others on his thinking
7. Influences of his thinking on others
8. Death

### **1. Early life**

Pepper was born in Newark, New Jersey, the son of Charles Hovey Pepper and Frances (nee Coburn) Pepper. Pepper’s father was a portrait and landscape artist who took his family to France and Japan, among other places, in pursuit of his career, evidently influencing Pepper’s lifelong interest in aesthetics and the philosophy of art. Pepper was married to Ellen Hoar in 1914 and they had three children, a boy and two girls. He served briefly as a private in the U.S. Army in 1918 during World War I, stationed in the U.S.

### **2. Education**

Pepper was sent to prep school at the Browne and Nichols School in Concord, Massachusetts. He enrolled at Harvard shortly before the death of William James in 1910, receiving his bachelor’s degree in 1913, his master’s in 1914, and his doctorate in 1916. His dissertation supervisor was Ralph Barton Perry, a protege of William James. His dissertation tried to account for the concepts of truth, beauty, and goodness in terms of the at-that-time

relatively new stimulus-response concepts of behaviorism, the term “behaviorism” having entered the language just three years earlier in 1913, according to the *Merriam-Webster Collegiate Dictionary*, 11th edition.

### 3. Teaching career

He was a philosophy instructor at Wellesley College in 1917. Following a brief stint as a private in the U.S. Army in 1918, he began his long career as a teacher at the University of California at Berkeley in 1919. He served as Chairman of the Berkeley Art Department from 1938 to 1953 and as Chairman of its Philosophy Department from 1953 to 1958. He served as Mills Professor of Philosophy, the sole endowed chair in philosophy at Berkeley, a distinction subsequently held by the noted Berkeley philosopher John R. Searle. From 1958 to 1970 he taught at Hamline University and Macalister College (1958), the University of California at Santa Barbara and Colby College (1959), Tulane University (1961), Williams College (1964), the University of California at San Diego (1965), the University of California at Santa Cruz (1966), Carleton College (1967), and the University of California at Santa Cruz again (1970).

### 4. Writings

Pepper’s never-published doctoral dissertation was titled “The Theory of Value in Terms of Stimulus and Response.” The values it focused on were truth, beauty, and goodness, and his main published monographs can all be grouped under these three headings as follows (with the date of first publication in parentheses):

Truth:

*World Hypotheses: A Study in Evidence* (1942)

*Concept and Quality: A World Hypothesis* (1967)

Beauty:

*Aesthetic Quality: A Contextualistic Theory of Beauty* (1937)

*The Basis of Criticism in the Arts* (1945)

*Principles of Art Appreciation* (1949)

*The Work of Art* (1955)

Goodness:

*A Digest of Purposive Values* (1947)

*The Sources of Value* (1958)

*Ethics* (1960)

Other books:

Pepper also co-authored a book titled *Modern Color* (1923) with Carl Gordon Cutler, which offers advice on painting shadows with realistic color shadings. *Knowledge and Society: A Philosophical Approach to Modern Civilization* (1938) was co-authored by the entire Philosophy Department faculty at Berkeley and was essentially a philosophy textbook. *Selected Writings in*

*Philosophy: A Companion Volume to "Knowledge and Society"* (1939), edited by Pepper and the entire Philosophy Department faculty at Berkeley, has excerpts from the writings of various noted thinkers from Plato and Aristotle to John Dewey and Alfred North Whitehead.

Notable shorter writings:

"Emergence" (*The Journal of Philosophy*, 1926) focused on puzzles concerning the concept of emergent qualities in nature, e.g., the fact that the sight of the colors blue or red purportedly emerged in nature only when color vision finally was attained during the course of evolution. Pepper also contributed articles on value theory and aesthetics to three volumes in *The Library of Living Philosophers*, an ongoing series now totaling 32 volumes, each devoted to one notable philosopher, founded by Paul Arthur Schilpp in 1939. The volumes Pepper contributed articles to are those dealing with the philosophies of John Dewey (1939), George Santayana (1940), and C. I. Lewis (1968). Prior to *World Hypotheses* Pepper wrote two preliminary essays on his root metaphor theory: "Philosophy and Metaphor" (1928) and "The Root-Metaphor Theory of Metaphysics" (1935), both published in *The Journal of Philosophy*. Three of Pepper's final essays can be found in *The Nature of Philosophical Inquiry* (1970), edited by Joseph Bobik. They are based on lectures at the University of Notre Dame in 1966-1967 by Pepper and four other philosophers. These three essays were titled "The Search for Comprehension, or World Hypotheses," a summary of Pepper's root-metaphor theory; "The Ordinary Language Movement," which criticizes the largely Anglo-American analytic school of philosophy in terms of Pepper's root-metaphor theory; and "Existentialism," which critiques Sartre's *Being and Nothingness* in terms of the root-metaphor theory.

## 5. Root metaphor theory

Pepper coined the phrase "root metaphor" in 1935, and the phrase entered popular use sufficiently to have an entry devoted to it in the *Webster's Third New International Dictionary*, the unabridged Merriam-Webster dictionary initially published in 1961. This entry reads as follows:

root metaphor: a fundamental perspective or viewpoint based on a supposition of similarity of form between mental concepts and external objects which though not factually supportable determines the manner in which an individual structures his knowledge -- see category.

But in his introduction to the root-metaphor concept in *World Hypotheses* Pepper repeatedly emphasized the responsiveness of a root metaphor to facts, the root metaphor constantly evolving to adjust itself to each important new fact with which it is confronted. Metaphysics is the attempt to account for everything in the universe in terms of some underlying metaphor that gives it coherence and precision. Pepper held that all of the metaphysical systems in Western philosophy can be boiled down to just seven or eight basic root metaphors, only four of which he regarded as relatively adequate.

The four relatively adequate systems he called mechanism, based on the root metaphor of a machine, such as a simple lever; formism, based on the root metaphor of similarity, such as the similarity between different sheets of yellow paper in a ream of yellow paper; contextualism, based on the root metaphor of a historical event in its context, illustrated by the decision to put a

period at the end of a sentence like “A period will be put at the end of this sentence,” and organicism, based on the root metaphor of an organic whole, illustrated by the coalescence of celestial phenomena into more and more coherent and comprehensive schemes of thought from the time of the ancient Greeks to the modern cosmologies of Einstein and others.

The relatively inadequate world hypotheses Pepper calls animism, based on the root metaphor of a person, as in the idea that every event in nature is the product of a deity or deities acting on nature, a theory that ultimately has to be supported by the excessive dogmatism of priests and holy books; mysticism, based on the root metaphor of the mystical experience, which is an experience whose emotional intensity leads its experiencer to overvalue its cognitive worth; and the generating substance theory of the ancient pre-Socratic philosophers and others, who tried to account for everything in the universe in terms of some fundamental substance such as water (Thales) or air (Anaximenes), out of which all other substances are generated.

Pepper was ambivalent as to the precise number of world hypotheses. He recognized two main types of formism, for example. In immanent formism the quality that others are similar to is present or immanent in an object, such as the yellow in a sheet of paper, while in transcendent formism the quality that others are similar to transcends any concretely observable quality, such as perfect circularity. Pepper further divides transcendent formism into Platonic and Aristotelian versions, Plato focusing on human artifacts such as beds and shoes, or rather the perfect bed or perfect shoe, while Aristotle focused on natural qualities such as the perfect oak tree or perfect sheep (*World Hypotheses*, p. 162). Another example of Pepper’s ambivalence is positivism, which in *World Hypotheses* he accepted as non-metaphysical, as its proponents claimed, and hence not based on a root metaphor, whereas in “The Ordinary Language Movement” he says that “logical positivism [a modern version of positivism] is essentially an extreme form of the mechanistic world theory” (*The Nature of Philosophical Inquiry*, p. 170).

The main problem for the root-metaphor theory is whether the four relatively adequate theories can be amalgamated under a single root metaphor. In the middle of *World Hypotheses* (Chapter VII) Pepper indicates reasons for thinking this may be possible, but in his concluding chapter (Chapter XII) he gives reasons for thinking this may not be possible.

The categories of one’s metaphysical system should derive from an analysis of one’s root metaphor. A geometrical analogy seems to support this idea. If we think of a cube as the root metaphor for a rectangular coordinate system, then length, breadth, and height would amount to the categories of such a system, by means of which we can specify the position of any point in space. Similarly, if we think of a sphere as the root metaphor of a spherical coordinate system, then latitude, longitude, and altitude would amount to the categories of such a system, by means of which we can specify the position of any point in space. In metaphysics, by analogy, we ought to be able to account for any fact in nature by describing it in terms of the categories of one’s root metaphor.

Pepper held that the root metaphor of each world hypothesis generates its own distinctive theory of truth, its own distinctive definition of beauty, and its own distinctive ethical theory, which he explains in *World Hypotheses*, in *The Basis of Criticism in the Arts*, and in *Ethics*, respectively. For example, he regards the Correspondence Theory of Truth as emerging from

formism and as utilizing similarity as the basis for evaluating truthfulness; the Coherence Theory of Truth as emerging from organicism and as utilizing the organic whole as the basis for evaluating truthfulness; and the Pragmatic Theory of Truth as emerging from contextualism and as utilizing the decisions made in a given context as the basis for evaluating truthfulness. Evidently every conceivable concept, not just those of truth, beauty, and goodness, could be viewed through the distinctive perspective of the root metaphor of a world hypothesis.

In Pepper's final book, *Concept and Quality: A World Hypothesis*, he proposes his own metaphysical theory, which he calls selectivism because it is based on the underlying root metaphor of a selective system or, in simpler guise, the purposive act, which seemed promising to Pepper because it corresponds to intelligence, perhaps the most complex thing in nature, from an understanding of which one might get a grasp of any simpler thing.

Selective systems seem akin to what Norbert Wiener called a cybernetic system, but it seems probable that Pepper developed his theory independently of Wiener, since for example his *A Digest of Purposive Values* was published a year before Wiener coined the word "cybernetics" in his 1948 book by that name.

## **6. Influences on his philosophy**

Pepper's root metaphor theory seems to have been influenced by two immediate sources. One was William James's 1909 book, *A Pluralistic Universe*; in its opening pages James writes that "All philosophers . . . have conceived of the whole world after the analogy of some feature of it which has particularly captivated their attention." This is the essential idea of Pepper's root-metaphor theory. The other source was Ralph Barton Perry's 1912 book *Present Philosophical Tendencies*, whose subtitle reads *A Critical Survey of Naturalism, Idealism, Pragmatism, and Realism, together with a synopsis of the philosophy of William James*. The four tendencies mentioned correspond to what Pepper called the four "relatively adequate" world hypotheses except for the new names that Pepper applied to them so that he could give them his own distinctive characterizations: Perry's naturalism is what Pepper calls mechanism, idealism is organicism, pragmatism is contextualism, and realism is formism.

## **7. Influenced by his philosophy**

Andrew Reck has a 37-page summary of Pepper's philosophy in his 1968 book *The New American Philosophers* (p. 46), where he remarks that "it was Pepper who, more than any thinker of his generation, made aesthetics and the philosophy of art the technical fields of study they are today." Reck's own 1972 book, *Speculative Philosophy*, delves into roughly the same four main philosophical world views that Perry and Pepper had dealt with in 1912 and 1942, again changing the names to enable him to put his own stamp on them: Pepper's mechanism Reck calls materialism, formism is called realism, organicism is called idealism, and contextualism is called process philosophy. There have been at least seven doctoral dissertations on various aspects of Pepper's philosophy.

## 8. Death

Pepper died in Berkeley, California on May 1, 1972, at the age of 81, of throat cancer. The death certificate gives the time of death as 11:25 p.m., which may account for the erroneous death date of May 2, 1972, given in the *National Cyclopedia of American Biography* (1973, vol. 57). The most widely available photograph of Pepper, a frontispiece to his 1967 book *Concept and Quality*, shows him as a bald older man holding a pipe in his left hand, which suggests that pipe smoking may have contributed to his death. Pepper was married in 1914 and outlived his wife but was survived by three children.

## References

1. For data on Pepper's early life, education, and teaching career, see the *National Cyclopedia of American Biography* (vol. 57, 1973).
2. A complete bibliography of Pepper's writings down to early 1968 was provided in typescript by the Philosophy Department at the University of California at Berkeley. It did not include Pepper's contribution to the Library of Living Philosophers volume on C. I. Lewis (1968), the three Pepper essays in *The Nature of Philosophical Inquiry*, edited by Joseph Bobik (1970), nor books and articles commenting on Pepper's philosophy.
3. Reference to Pepper as among the 20 most eminent Harvard philosophy PhDs from 1878 to 1930 can be found in Bruce Kuklick's *The Rise of American Philosophy*, Appendix 3 (pp. 581-589).
4. Reference to Pepper as a leading figure in aesthetics and the philosophy of art in Andrew Reck's *The New American Philosophers* can be found on page 46.
5. Information about the time and cause of Pepper's death was found in a death certificate provided by the State of California's bureau of vital statistics in Sacramento, California.
6. Virtually all of Pepper's books are still available from Amazon.com, even though nearly all are now out of print.
7. One can find synopses of the seven doctoral dissertations that deal with Pepper's philosophy in *Dissertation Abstracts*.



## Applying Pepper's Ideas to an Analysis of Peano's Axioms

Ronald K. Hoeflin

In *An Introduction to Mathematical Philosophy* (1919) Bertrand Russell points out (pp. 5-6) that in the late 1800s it was shown that "pure mathematics" could be reduced to "the theory of natural numbers," and Peano reduced the theory of natural numbers to the following axioms:

- (1) 0 is a number.
- (2) The successor of any number is a number.
- (3) No two numbers have the same successor.
- (4) 0 is not the successor of any number.
- (5) Any property which belongs to 0, and also to the successor to the every number which has the property, belongs to all numbers.

Russell says that these axioms have "three primitive ideas," namely "0, number, successor" (p. 5). By "0" he means the first natural number in the sequence of natural numbers, which is generally thought of as the numeral 1. By "number" he means a positive integer, such as 1 or 2 or 3, etc. And by "successor" he means the next natural number after any given natural number, e.g., 3 is the successor of 2 and 4 is the successor of 3.

I believe Russell should have included "property" as a fourth primitive idea in Peano's axioms. For example, if a number has the property of being even, then any even natural number divided by 2 yields another natural number.

We can correlate these four primitive ideas with each of the four primitive ideas in Pepper's theory of selectivism as put forward in his book *Concept and Quality* (1967). Specifically: "0" can be regarded as a drive concept, D, since it triggers or initiates the sequence of natural numbers; "successor" can be regarded as an anticipatory concept, A, since we anticipate that each natural number is followed by a successor; "number" can be regarded as a goal-object concept, G, since the basic objects that number theorists work with are numbers; and "property" can be regarded as a quiescence concept, Q, since just as the quiescence of eating a certain food is its taste and its nutritional value, so the property of a number, such as being even or odd, is the "taste" of that number, i.e., the number satisfies some requirement or expectation such as being divisible by 2 or not, just as eating a carrot or a rock satisfies or fails to satisfy one's immediate nutritional or taste requirement or expectation.

Peano's axioms can be seen to connect these four primitive ideas in pairs. The fifth axiom, being more complex, can be regarded as involving three sets of pairs.

- (1) "0 is a number" connects D to G.
- (2) "The successor of any number is a number" connects A to G.
- (3) "No two numbers have the same successor" also connects A to G.
- (4) "0 is not a successor of any number" connects D to A.

- (5A) “Any property which belongs to 0 . . . belongs to all numbers” connects Q to D.  
 (5B) “Any property which belongs to the successor of every number” connects A to Q.  
 (5C) “Every number which has the property” connects G to Q.

We can diagram this by thinking of a square inscribed in a circle with the square tilted so it is balanced on one corner. The top corner of the square is then labeled D, the left corner A, the bottom corner G, and the right corner Q. The whole diagram represents a cybernetic feedback loop: a drive such as thirst, D, leads to an anticipation, A, such as that lemonade will satisfy the thirst, A. The lemonade itself, if found, amounts to the goal object, G, and the thirst quenching property of lemonade amounts to the quiescence of the drive, Q, or if one swallow is insufficient the drive renews itself to induce one to take another swallow or to try a different liquid. Number theory, like all other human activities or other activities in nature (superstrings can be regarded as very tiny cybernetic feedback loops, for example), can likewise be regarded as cycling through various cybernetic feedback loops. (Some loops are “open” loops, meaning that they do not feed back from Q to D, yielding no immediate apparent feedback.)

Our diagram thus has loci or niches for a total of ten categories: the eight peripheral niches D, DA, A, AG, G, GQ, Q, and QD, plus the two spokes of the wheel, DG and AQ. Peano’s axioms fit this configuration as follows:

- D Primitive idea “0”
- DA Axiom 4
- A Primitive idea “successor”
- AG Axioms 2 and 3
- G Primitive idea “number”
- Q Primitive idea “property”
- QD Axiom 5A
- DG Axiom 1
- AQ Axiom 5B

It is unlikely that either Peano or Russell noticed this connection between Peano’s axioms and the cybernetic loop.

I came up with this diagram and analysis in 1993 and was immediately able to exploit the insight that one can make use of the **two** inner spokes of the wheel as niches for categories by analyzing a host of ten-category structures such as Aristotle’s ten categories and the ten main divisions of the Dewey Decimal System for classifying library books.

By coincidence, Nelson Mandela became the first black president of South Africa in early 1994. Noticing the resemblance between his last name and the Hindu concept of a mandala, I looked up the latter concept in *The New Columbia Encyclopedia* and saw the following serendipitous remarks: “mandala: a concentric diagram, having spiritual or occult significance, in the form of a square, a circle, or combination [of both], usually quartered. The mandala occurs as a basic pattern in religious art and ritual throughout the world. The psychologist Carl Jung interpreted it as an archetype, the appearance of which in dreams signals the emergence of a period of fulfillment and balance.”

# The Real Olympic Standings 2012 Olympics

Kevin Langdon

In terms of subjective value, the ratio of gold to silver to bronze is approximately 5 to 2 to 1. The standings below were computed on this basis. The relative standings are the same, for the most part, as those based simply on total numbers of medals, but there are also some differences.

Nation	Gold	Silver	Bronze	Points	Total Medals	Tot Medals Rank
1. <u>United States</u>	46	29	29	317	104	1
2. <u>China</u>	38	27	23	267	88	2
3. <u>Russia</u>	24	26	32	204	82	3
4. <u>Great Britain</u>	29	17	19	198	65	4
5. <u>Germany</u>	11	19	14	107	44	5
6. <u>France</u>	11	11	12	89	34	8
7. <u>South Korea</u>	13	8	7	88	28	9/10
8. <u>Japan</u>	7	14	17	80	38	6
9. <u>Australia</u>	7	16	12	79	35	7
10. <u>Italy</u>	8	9	11	69	28	9/10
11. <u>Hungary</u>	8	4	5	53	17	14/15/16
12. <u>Netherlands</u>	6	6	8	50	20	11/12
13. <u>Ukraine</u>	6	5	9	49	20	11/12
14. <u>Kazakhstan</u>	7	1	5	42	13	18/19
15/16. <u>New Zealand</u>	6	2	5	39	13	18/19
15/16. <u>Spain</u>	3	10	4	39	17	14/15/16
17. <u>Cuba</u>	5	3	6	37	14	17
18. <u>Brazil</u>	3	5	9	34	17	14/15/16
19. <u>Iran</u>	4	5	3	33	12	20/21/22
20. <u>Jamaica</u>	4	4	4	32	12	20/21/22

Note China's much more decisive win over Russia, more accurately reflecting China's dominance, and Russia's much narrower win over Great Britain.

Canada, 13<sup>th</sup> in the total medals standings, did not make the top 20 here—because 12 of its 18 medals were bronze and only one was gold.

## Zuowang

**Ruediger Ebendt**

Twelve meditating elves  
were counting themselves.  
Oblivious of their selves,  
no one arrived at twelve,  
but rather at (uns)elfish eleven.

## Hall of Mirrors

**May-Tzu**

There are fewer things in heaven and  
Earth than are observed in our reality.