

The Mathematics of Love



By
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This paper is presented in speech format and is intended only for review purposes. It does not include the fuller definition of Love nor does it address many of the issues or evidence that support the general conclusions presented. This is a reduced form of a chapter from a forthcoming book which will define the abbreviated references. Because of publisher's concerns, I ask that any quotation from or publication of the contents, other than the most general reference, be made only by specific approval.

—C. Hansen

We frequently encounter the proposition that God runs the universe with love. This may sound good to many of us; but, in scientific terms, to suggest that love is the logical foundation of Reality, would seem a bit much. In fact, love has no basis in scientific theory of any sort. Currently, love is not even the backbone of any major school of philosophy. Even in the religion of love, Christianity, love seems to frequently sit "second pew", behind issues such as "economic and social justice" or other concerns of doctrine and theology, much of which seem far removed from the simple example of love, set by its founder.

The small hold that love does have seems to be bound up in our innermost subjective experiences; those with our intimate few family and friends, and our personal relationship with divinity, whatever it may be. But in the wider scope of things, love seems to be without much foundation. One modern psychologist suggests that "love may be like a crutch, impeding the development of the new social forms so important for the development of a better and more satisfying human condition..." (SOL, p51) To such thinkers "love" is simply a superfluous hangover of our family and tribal evolutionary development—an emotion that must gradually diminish in importance as greater social organizations unfold. Doctors now recommend, for example, that working parents get their children into day-care before extensive bonding of love takes place—it makes "separation" less stressful. This does not suggest that parents are cold-hearted; but only dealing with the practicalities of modern life in a professional and scientific manner. Even in these more intimate matters, we tend to follow the lead of scientific thinking much more than we usually realize. And although we all welcome the experience of love, the cold fact is that love has no demonstrated scientific or logical foundation in our civilization. As one thinker expresses it: "it would be a mad romantic [to propose that] love can be the energy of the social order"—the large scales of social, business, economic, and political organization. (ANA, p59) As another summarizes the case: "the value of love has yet to be demonstrated." (SOL, p27) And without a foundation of scientific usefulness, love is, as Jesus seems to have expressed it, "the stone the builders have rejected."

Science is the search for logical foundations, the search for consistent or unchanging prin-

cles, the search for "foundation stones," so to speak, that underlie our life experiences. Science is, as Einstein defined it, "methodical thinking, directed toward finding regulative connections between our sensual experience." (I&O, p50) And love seems to be a "sensual" experience, so to speak, something we actually can discern by our senses. So it would seem that love could be scientifically studied to see if we can find in it any such "regulative connections," consistent causes, or "logical foundations." The key to such a scientific study of love would be to find a way of observing love as we actually experience it, rather than trying to bring it into the laboratory, killing it, and dissecting it. Perhaps it could be observed in "everyday life" where it seems to occur; and perhaps this would meet scientific standards, for, as Einstein observed: "The whole of science is nothing more than a refinement of everyday thinking." (I&O, p290)

For several years now I have been involved in such a "scientific" study of love, and I would like to share some of the findings with you.

The first thing an observer notices about love, in everyday life, is that it is something that seems to occur between an individual and another person or object. And, that it can only be observed (if some action takes place between the two. I am not saying that love consists only in action, but that love manifests only in action.) This is akin to saying "Love without works is dead," which, of course, is nothing new. But what is somewhat "new" is that the actions of love can be classified into a limited number of distinctly separate categories; there are only so many ways to love someone or something.

This means that, regardless of what goes on mentally or emotionally, and there is a lot of mental and emotional processing involved in love, the actions of love occur in certain clearly definable and consistent patterns; patterns which I term Love's action elements. These action elements form the major expressive component of Love termed Care; and behind Care, with its action elements there, are many other mental components and elements crucial to Love: Respect with its elements such as recognition and admiration; Knowledge with its elements such as patience, humility and forgiveness; and Responsibility, with its elements such as trust and loyalty. But regardless of all of the mental elements vital to love, it all gets down to action. Actions are the only things by which we can observe the experience of love in a scientific

ACTION

manner.

So our first lesson in the mathematics of Love begins with: "How do I love you? let me count the ways." And if we do count the ways, we find (so far) that there are only ten ways we can express love regardless of how much we may love someone—eleven ways if we include a zero-action element. Keep in mind that these elements can be combined or mixed in any particular instance of love.

- 1- First, we can express love by paying attention to another: this is called Attentiveness.
- 2- Second, we can express love by Listening to another. And here listening is defined as conscious assimilation of all sensory data by ears, eyes, touch, smell, or whatever. Students of Jesus will recognize that he always listened first to those he loved: "What is it that you seek?"; "What is it that I should do unto you?"
- 3- Third, we can express love by Thanking another—something as simple as "Thank you."
- 4- Fourth, we can express love by Encouraging another. Encouraging means to "spur on" or to "inspire" as when we send someone a card. Or it may take on the form of simply being present. Jesus' "I will be with you always" is a form of encouraging, as is his suggestion to visit the sick, the widowed, the orphaned, and the prisoner.
- 5- Fifth, we can express love by Praising another—by expressions intended to commend or approve. At its highest intensities, praising becomes glorification or worship.
- 6- Sixth, we can express love by Comforting another. Comforting traditionally means "consolation" to someone in distress; but here comforting is used in its more expanded meaning, that of providing or increasing contentment or security by means of direct physiological contact, that is, by direct touch or by tool. This is more along the lines of the use of the term when we refer to a comfortable chair. Most touch associated with love falls in this element, including that of a sexual nature, or even that of the casual handshake. One also may "comfort" inanimate objects, as a sculptor may with clay, or as a musician may do with an instrument, or as any workman doing any task may do whenever a tool or a product is touched.
- 7- Seventh, we can express love by Assisting another. Assisting is direct energy expenditure made in alignment with another's effort, such as "lending the helping hand" to help someone change a tire.
- 8- Eighth, we can express love by Sharing with another. Sharing is a temporary or permanent transfer of direct or invested energy to another,

but with some reciprocal arrangement usually implied. When you share your lawnmower with your neighbor, you expect to get it back. When you share your ice-cream cone, you expect the sharee might do the same with his or her ice-cream cone next time, and so on. Lending is a form of sharing, even when, as Jesus suggests, you sometimes lend expecting (nothing) in return. But even if you do not expect a return, sharing always allows for a reciprocal.

9- Ninth, we can express love by Contributing something to another. Contributing is a permanent transfer of direct or invested energy with no reciprocity intended. In fact, the ultimate contributing is performed (in secret) as Jesus suggests, making reciprocity impossible. We also, of course, contribute many things to those who know where they are coming from, especially to children, with no direct, immediate reciprocity intended.

10- Tenth, we can express love by Protecting another. Protecting is the direction of action or energy so as to oppose potential or immediate threats. There are both "passive" and "active" modes of protecting; but we should keep in mind that the same individual who suggests that one "turn the other cheek" was speaking of a "smite from one's neighbor," not a battle ax swung at one's head; and that the same Jesus appears to have warned us to always be ready to "sell our garment and buy a sword." Protecting is a crucial action element of love, even if not always recognized as such.

11- Finally, we can express love toward another by simply not doing anything to them, by "letting them alone" sometimes.

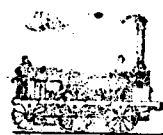
So these are the ten action elements of love: (Attentiveness, Listening, Thanking, Encouraging, Praising, Comforting, Assisting, Sharing, Contributing, and Protecting. Usually, several of these elements are involved in any particular "event" of love, and occasionally one deliberately "leaves someone alone" or opts for love's zero-action element.

But even the zero-action element of love is made up of something very vital. And this "something" we can always sense, or discern, when love is present; it is what I term the intent-to-please. Some might wish to term it goodwill, but it is actually not a general notion as goodwill is usually considered. The intent-to-please is a very specific assertion toward another person or object. When incorporated into action, it occurs right at the "impulse to action" and becomes a recognizable part of it. It becomes embodied within the action itself. Without the intent-to-please, love simply does not seem to occur. But with the intent-to-please,

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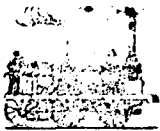
"I am not saying that love consists only in action, but that love manifests only in action."



"So our first lesson in the mathematics of Love begins with: 'How do I love you? let me count the ways.'"

(1) = TO PLEASE = TO SATISFY NEEDS

"Jesus describes it perfectly with his statement: 'I do always those things that please the Father.' The intent-to-please becomes love's common element."



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any of the preceding action elements, even the zero-action element, fall within love's domain. Jesus describes it perfectly with his statement: "I do always those things that please the Father." The intent-to-please becomes love's common element. It must be there every time all the time, whether direct action is taken or not.

I stress that the pleasing aspect of the intent-to-please should not be confused with simple pleasure, any more than a parent pleases the child by offering the pleasure of perpetual ice-cream cones. In mathematical language, the intent-to-please is of a higher order integration than pleasure or pain; that is, it includes a much greater spectrum of (information). Even that which is painful, like a good athletic workout, can be pleasing. And that which is pleasurable can be far from pleasing—especially in retrospect.

Now this may all seem quite simple, and it is, but let us look at what has been accomplished. From all of the reported experiences related to love, out of all of the "billions and billions" of actions that humans use to express love toward one another, or toward anything, we have reduced love's possible expressions to just ten—or eleven—simple categories. In so doing, we have achieved what science first attempts to achieve when it focuses on any phenomenon. We have recognized some underlying consistencies in love's everyday experience. And this is far from trivial, for what we now have is a format of ten action elements, and a zero-action or common element, which define love's expression whenever and however it may occur—whether the individuals and/or objects involved are young or old, of the present era or of the ancient past; regardless of geographic location; and regardless of the language, or educational or cultural context. In any situation, the general association of these ten action elements, with the ever-necessary common element; the intent-to-please, can be recognized as love, or as what I call the system of love.

True, some of these elements may take on literally billions of differing expressions and many quite different forms. Some may be couched in even ignorant action—such as early physicians attempted the comforting of patients by bleeding them. But nevertheless, the observed presence of the action elements of Attentiveness, Listening, Thanking, Encouraging, Praising, Comforting, Assisting, Sharing, Contributing, and Protecting occurring from one person toward another, means only one thing. It means love—so long as the intent-to-please is there also. As already mentioned,

there are other "mental" components and elements of love which are necessary; but if science is to deal with love, it must deal primarily with observables, the simplest of which have just been summarized as love's action elements.

These observable action elements of love and the discernible intent-to-please, can now be looked at from a more logical or mathematical perspective. The mathematical perspective is not so much concerned with numbers, as it is concerned with the search for "relationships of relationships," as one famous mathematician (Von Neumann) explains it.

Each action element of love constitutes a real energy expression, a real "energy event" that has a certain sense, a certain direction toward someone or something, and an amount or magnitude of energy. In mathematical terms, such an "energy event" is termed a vector. A whole event of love may embody many such vectors, but let us keep it simple here.

Let us first take a closer look at a vector, an "energy event" embodying sense, direction, and magnitude, and see just how accurately this mathematical language fits the action elements of love.

The Sense of a vector means just what it says: you can "sense" when someone's action is Listening, or when someone's action is Thanking, or Sharing, or Protecting, and so on. Similarly, you can "sense" whether, within the very core of the action impulse, there is an "intent-to-please." It is vital to keep in mind that any vector that may constitute love, can have a "sense" which is clearly not of love. There can be a loving thank-you, and a very spiteful thank-you; there can be Sharing out of love, or Sharing out of fear; Assisting out of love, or Assisting out of fear or coercion, and so on—the same general profile of an energy event, but with entirely different "sense."

The Direction of a vector also means just what it says: you can direct the energy of any action element at yourself, for example, or toward another person or object.

And the Magnitude of a vector also means just what it says; but it is a relative energy amount, not one we can measure precisely in absolute terms. Jesus makes this clear when he observed of the widow's last mite going into the donation box, "She has given more than all the rest." The greatest relative magnitude of a vector of love is also described by Jesus: "to lay down one's life for a friend." There is no more energy that one can give; and also note that the direction is totally aimed at another. Jesus thus defines the precise maximum magnitude for a vector of

love's action. Whether such a maximum vector might be one of Assisting, or Protecting, or some combination involving love's other vectors, we would usually term this high magnitude of love one of Devotion. Right beneath it would be the lower magnitude of Nurturing; then below that would be the magnitude of Consideration, below that, Kindness; and finally, the least magnitude of love's vectors, that of Courtesy. I will not elaborate on these various magnitudes, but this simply shows how all of the language fits, and stresses that love's action elements can be observed across a wide range of magnitudes, appropriate to various situations. A simple, courteous thank-you is an appropriate magnitude of love in some instances, just like a devoted sacrifice of self may be an appropriate magnitude in another instance.

And, by the way, if vectors and love seem a strange mix of language, keep in mind that it was Jesus who first used the concept that any mathematician will instantly recognize as the language of vectors: "Give and it shall be given back to you"; "For with the measure you mete it shall be measured back to you again." Jesus is speaking about the general sense, direction, and magnitude of love's "energy events."

When we mention science or mathematics, however, we do not normally think of Jesus, but of someone like Albert Einstein—probably the greatest scientist of our times. Einstein set in place an entirely new framework by which observation of the universe—and everything within it—can be conducted. We usually term this framework Relativity Theory. Unfortunately, his framework has been somewhat misunderstood by most of us. His essential principle of Relativity is not even close to what "cultural or moral relativism" has come to mean—the justification of various opinions and diverse perspectives. Einstein used the term relativity to mean "Seek and you will find"; he did not mean "Just look and you will see." For Einstein, relativity described the search for, and validation of, the invariants, the constants, the things that do not change, the things that are "absolute and reliable despite the apparent confusions, illusions and contradictions" that occur with changes in, or diversity of, perspective. (EU,p2) His was the search for the basic principles whose objectivity can be demonstrated, regardless of the perspective or viewpoint of the observer.

(It should be stressed that Quantum Theory is sometimes cited as a rebuttal of Einstein's basic framework of Relativity. This is not so. Although the two theories do not merge perfectly, the fact is that Einstein helped found

Quantum Theory, and it is an error to suggest that he rejected it. He did have "problems" with it, so to speak. And his fundamental argument with Quantum Theory was that its probabilistic nature, its foundation of "chance, could not be the ultimate logical foundation of Reality." Thus his famous statement: "God does not play dice with the Universe.")

Einstein's kind of thinking is so profound that, as one fellow scientist observed as early as 1936, "In him philosophy, logic, theology, physics, and mathematics become reunited." (IQOM,p33) Einstein held that consistent principles that do not change, must underlie the whole of Reality, and must be objectively describable...preferably in the language of mathematics.

By finding that love manifests in terms of a consistent, objectively describable set of action elements that can further be defined as vectors, we have taken the first step in finding something about love that "does not seem to change" even as we change our perspective. We have taken a small step along Einstein's route. Thanking will always appear locally as something unique, but any observer should have little trouble defining it as a Thanking vector regardless of the perspective of culture, time, or situation. (With its intent-to-please) no one could misinterpret a thank-you of love for a vicious thank-you whose intent was to harm. So a Thanking vector, just like a Praising vector, a Comforting vector, an Assisting vector, or a Sharing vector, has its unique consistent language of sense, direction, and magnitude regardless of the perspective of the observer or the particular context of the event. This unique, consistent, underlying language of vectors is the most universal of all language, that of mathematics—the ultimate language of science.

Anything that demonstrates consistency or an unchanging nature, irrespective of the viewpoint, is said, in mathematical terms, to possess symmetry. The great breakthrough of Einstein was, for instance, to realize that the laws of nature—specifically the laws of physics—had to be symmetrical for the known universe; they had to be experienced everywhere the same, unchanging and equally applicable. Since Einstein's demonstration of symmetry at the foundation of physics, modern physicists have found over and over again that symmetry holds the keys to the laws and operation of the universe. Modern physics has become essentially a search for ever greater symmetry ultimately expected to be found in (one) fundamental principle—much as Einstein predicted—a principle that is unchanging,

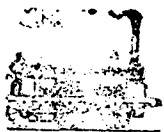
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invariant, constant, under all circumstances regardless of the perspective of the observer. Einstein held that such a principle would extend far beyond the realm of "physics", to include life, intelligence, and even human personality.

Coincident with Einstein's Relativity Theory and the search for such symmetry, a new branch of mathematics has evolved and has proven to be specifically geared for defining the presence of symmetry in complex phenomena. This mathematics is called the Theory of Groups. Sounds simple enough; but as one great mathematician described it, it is "a super mathematics in which the operations are as unknown as the quantities they operate on and [in which] a super-mathematician does not know what he is doing when he performs these operations." (TTOG, p1559) It's not quite that bad, and fortunately it can be presented in plain English. Its essence is that it enables one to take a collection of vectors that seem to operate as a system, like the "system of love," and test them for invariance under all possible transformations, that is, for all possible manifestations, or conditions, or from all possible perspectives. If the action elements of love with their common element can pass this test, if they possess the "Group property," then we are no longer talking about simple consistency of these elements among various cultures, timespans, and contexts; we are reaching far deeper into some type of fundamental symmetry that emerges from the very nature of whatever love is. And this would mean that love is not simply some subjective experience but is something that is profoundly objectively real.

How does love perform under this test of relativity, the test of Group Theory?

The first test of a group is to see if its elements, when combined or mixed, stay within the group. If we combine, or mix, the vectors of love, such as Thanking and Listening, for example, or if we combine Attentiveness and Protecting, or Assisting and Contributing, or any other of these action "vectors," can we stay within the domain of love or do we generate something else, something outside of love? The answer is that any combination, or mix, of the action elements, or vectors, of love, remains within the group defined as love. This holds for even its zero-action element which is also a vector; it has love's sense and direction, but with zero magnitude.

The second test of a group is a little more complex: We must see if the rule of combination of elements is associative. This means: If you send someone a gift (Contributing) with a

thank-you note (Thanking) and then have them over for dinner (Sharing), is the result different than if you change the manner of combination slightly by sending them a gift, and then inviting them over to your home, thanking them, and having them for dinner? No. There is no essential difference: the "message" stays the same as you combine one element with any combination of two other elements. Love's vectors can be arranged in combinations in any manner—without changing the love content itself. 5

The third test for a group is to see if the system of love contains an identical member or common element such that, if it is combined with Listening, let us say, then the result remains that of Listening. Or, when combined with Assisting, the result is still Assisting. The intent-to-please is just such an identical member. It also might be considered the zero-action (zero magnitude) vector and its embodiment does not change the essence of an action vector. It also works either way: you can combine the intent-to-please with Thanking or combine Thanking with the intent-to-please. In the actual case it makes no difference. However you add the intent-to-please, like yeast in the bread, it permeates the whole "energy event."

The fourth and final test for a group is to see if there exists a reciprocal for each of the elements such that, when combined with the element itself, the result is the identical member, or the common element. As the system of love necessarily includes both a subject and object, this would mean that if you gave someone a book for Christmas, an act of Contributing, and if they just happened to give you a copy of the exact same book, a perfect reciprocal, then while the vectors of Contributing exactly cancel each other in terms of energy, the intent-to-please survives and is experienced in perfect condition. There is no possible vector of love that does not have such a possible reciprocal and from whose combination the intent-to-please does not survive unscathed.

What all this means is that love seems to satisfy the mathematical or logical conditions of Group Theory, and it therefore must possess an innermost symmetry: love remains invariant, unchanging, under all conditions, from all perspectives—regardless of place, time, culture, language, age of those involved, or context of the immediate situation. And even more revealing, its most unchanging element is its common element, the intent-to-please. However we transform love into any particular event—and into any of its manifestations, whether Listening, Thanking, Sharing, Protecting, or

any combination or mix of these or the other of love's action elements, the intent-to-please remains completely invariant—much as Jesus suggested with his statement, "I do always the things that please...."

But actually, this means much more than simply finding symmetry, finding something that does not change regardless of how we look at it. WHY is symmetry so important to an Einstein or to any modern mathematician or physicist? It is not because symmetry always seems simple, elegant, even beautiful—as well as unchanging. Science has different interests. "Science is swayed only by efficient causes," a great American philosopher and scientist Charles S. Peirce has reminded us. Science is interested in what works, and in what works with the least energy expenditure; it is called efficiency. So here we find the reason scientists pursue symmetry: That which is inherently symmetrical, is inherently efficient. Symmetry and efficiency are somehow related in the universe. The sphere, or globe, for example, is symmetrical from any perspective, and is perfectly invariant in relation to its center. It is also the most efficient use of energy-matter to provide the maximum surface area and/or the maximum volume.

So, by finding an inherent symmetry within the system of love and by demonstrating this symmetry in the mathematical language of Group Theory, something most significant has been accomplished: we have crossed over the line of looking at love as something that is just simple, elegant, even beautiful. We have crossed over into the world of science itself; the world of efficiency. As one great mathematician observed: "...if and whenever you ascertain the group of all the transformations that leave invariant some specified object or objects of thought, you thereby define perfectly some actual (or potential) branch of science..." (TGC,p1546) We have just defined such a group of all possible transformations consisting of the action elements of love with its common always unchanging element, the intent-to-please. Indeed, we have uncovered the New Science of Love.

Will this change things? I believe it will. If we were just demonstrating that love looked and felt nice, that would not do much. But we have done more than that. This "new science" means that love's inherent symmetry is most probably linked to the paths of highest efficiency for needs-fulfilling human action. The language of love, then, is not only that of looking and feeling nice, it is the language of the "easier yoke and the lighter burden"—across the board of pur-

poseful human activity, precisely as suggested by Jesus.

Indeed, this *should* change things, for it constitutes a scientific basis for all the human and social sciences. The Group of Love's vectors provides a format which should demonstrate the most efficient profile of any interaction of information and exchange of energy in all of its forms among humans. There is no other known invariant principle that can presently demonstrate such symmetry, with its implied efficiency, for the full range of purposeful human action—across time, place, culture and situation. I add here that from this work it has been possible to soundly demonstrate the actual linkage between efficiency and love in measurable, needs-fulfilling human activity, which I cannot go into here in any depth. But I will say that if you study the Japanese, you will see the emergent results of love's symmetry reflected in raw efficiency of their entire social order—their psychology, their sociology, their business, their economics, their justice, and even their government. I do not mean to suggest that the Japanese are perfect; but the embodiment of love's elements in their entire culture—simply loving one another—is such that it now puts any other society on this planet almost to shame. And with love's gentle efficiency, they are busily inheriting the Earth—much as Jesus predicted.

Nevertheless, when all the logic and evidence is weighed, it means that the system of love, actually a group in mathematical terms, defines a unique logical foundation for all of the human and social sciences—psychology, sociology, economics, and politics—all of which, unless they can find a fundamental principle of symmetry and efficiency of their own, must eventually bow to the symmetry and inherent efficiency of love. For humans will ultimately take the easier way; the most consistent simplest, and most efficient path in everything they do—in all of their "energy events." And the logical foundation of moral philosophy must bow to the same path. So the long-sought-for objective basis of morality appears to be found here also, exactly as suggested by Jesus.

And there is more
For ages now, humanity has searched for a principle that might unite both the natural and human sciences, as well as philosophy and religion. Following Einstein's lead, such a principle would have to reflect the ultimate symmetry—and efficiency. In this quest, we sometimes like to separate humanity from the rest of Reality, and search for principles that apply to science, but not to humans; or that

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apply to humans but not to science. Actually, Einstein with his "unprecedented universality" finally ruined this game whether we recognize it yet or not. There is only one Reality, according to Einstein; much as Jesus seems to have observed: one continuum alpha to omega. This means that the energy events of human action, the vectors of love, for instance, fall within Reality, not outside of it. So what we have encountered is a group composed of real vectors, not imaginary ones; and this means that love is a manifestation of an invariant that must penetrate Reality (all of it). At the core of love's symmetry, then, resides its unchanging common element, an invariant (the intent-to-please) which must penetrate (all of Reality as humans experience it).

Now it is the nature of the intent-to-please as we experience it, to be only persuasive; there is no coercion possible, no force involved, in this invariant. Its pure attraction could be said to consist of an absolute persuasion toward efficiency. But, it was Einstein who revealed that gravitation, whose law sets the general conditions "which regulate physical phenomena" of the energy-related or natural sciences (Whitehead) is actually not a force at all, but is more of a persuasion toward paths of highest efficiency. So here, we encounter the first merging of principle that offers to unite hard science with the invariant we have just defined. In fact, just such a principle was proposed almost a century ago by a man who is gradually becoming recognized as perhaps America's greatest thinker, Charles Peirce. A scientist, philosopher, and a mathematician, he termed (the merging principle of all science, philosophy, and religion, evolutionary love). Although too ill to complete his writings, in an apparent reference to this integration he stated that his proof would be "surprisingly simple"; that it would change our understanding of Natural Laws and "free will"; and that it would change religious faith into more of a logical conviction. Unfortunately, he left us before demonstrating his philosophy in rigorous logic. But, it seems that the merging of all of science, philosophy, and religion cannot be far from this, for love with its absolute persuasion toward efficiency demonstrates an objective basis with which not only the fundamentals of gravity, but also with which (all human needs-fulfilling) experience, including the human experience of values, morality, and aesthetics, would seem to align. And while it does not define God, of course, or prove that he exists, it can be said to reflect a

most friendly, if not a loving, nature penetrating Reality. Indeed, it seems Reality does intend to please with an invariant as constant as the speed of light or the persuasion of gravity. Perhaps Einstein's great intuition foretold this solution when he stated: "There is only one important question for scientists, namely, is the universe friendly?" (John Kiley, NR, Apr. 24, 1987, p39, Poem YES)

As the great philosopher Alfred North Whitehead observed in 1925: "We are entering upon an age of reconstruction in religion, in science, and in political thought. Such ages, if they are to avoid mere ignorant oscillation between extremes, must seek truth in its ultimate depths. There can be no vision of this depth of truth apart from a philosophy which takes full account of those ultimate abstractions whose interconnections it is the business of mathematics to explore." (S&MW, p39)

Accordingly, the mathematics of love sets the logical foundation in place by which construction of the new age may begin. Love, of course, cannot be understood as simply a matter of mathematics, of vectors. It is understandable only in terms of the whole personality—from which the vectors of Attentiveness, Listening, Thanking, Encouraging and the rest emanate. The wholeness of love must find its understanding in the role model of personalities who love. And unbeknownst to many of us, one of the greatest of scientists, Einstein himself, referred to Jesus and his teachings as the ultimate model for humans to follow. (TWAISI, p111) America's greatest scientific philosophers, Charles Peirce and Alfred North Whitehead, also reached the same conclusion. (ITPOCSP, p462) And it has long been recognized that religions tend to center on the loving, role-model personality of their founders; even if not Jesus. By adding the scientific foundation to what these personalities have demonstrated, we only clarify their essence. But this also means that from the perspective of science, philosophy, and religion, the stone the builders have rejected is soon due to be recognized as the head of the corner, assisted by a language which the builders cannot ignore—the universal language of science: mathematics, the mathematics of love.

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(1): "To intent to please" others is equivalent to try to satisfy their spiritual, emotional, psychological and material needs.