

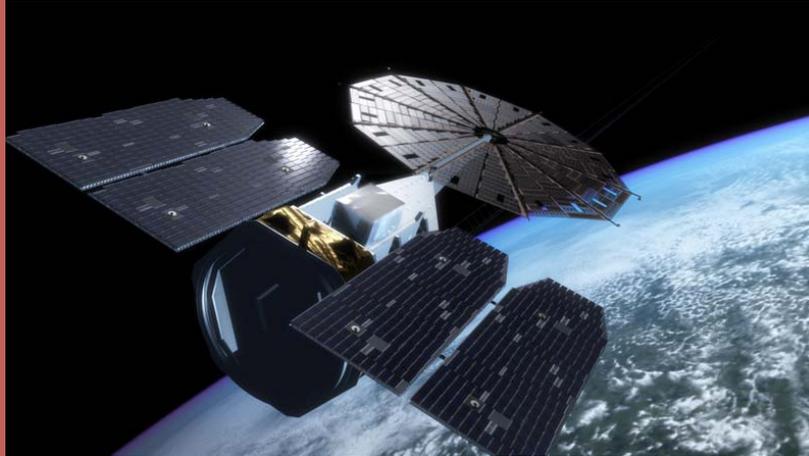
Physics or Metaphysics?

A Talk for The Willows

Mary Bothwell, C.S.
July 26, 2007



Space Technology 8



Courtesy NASA/JPL-Caltech

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2

When I was asked to give a talk about my project at JPL, I agreed. Then, a few months later, I decided to retire early and enter the full-time public practice of Christian Science, so it would have been inappropriate for me to give that talk. Today, even if I were still working at JPL, I couldn't give that talk, because shortly after I announced my retirement, the project was delayed and may eventually be canceled, due to new budgetary constraints.

So, I needed a new topic. Even in elementary school I was interested in math and science, and especially space exploration. When I went to college and majored in physics, the question I seemed to hear most from Christian Scientists was, "How can you major in a physical science? Isn't physics inconsistent with Christian Science?"

“...truth...is not a law of matter...”

“There is no physical science, inasmuch as all truth proceeds from the divine Mind. Therefore truth is not human, and is not a law of matter, for matter is not a lawgiver. Science is an emanation of divine Mind, and is alone able to interpret God aright.” (127:23-27)

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3



In fact, in *Science and Health with Key to the Scriptures*, Mary Baker Eddy wrote:

“There is no physical science, inasmuch as all truth proceeds from the divine Mind. Therefore truth is not human, and is not a law of matter, for matter is not a lawgiver. Science is an emanation of divine Mind, and is alone able to interpret God aright.” (127:23-27)

Grammatical Rearrangement

“...truth...is not a law of matter...”



A law of matter is not truth.

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4

Let's look at that second sentence a little more closely. “...truth...is not a law of matter...” Grammatically, the word *is* is like an equal sign, so we can just as accurately say, “A law of matter is not truth.”

Wait a minute! What about all of those physical laws that operate every day in our lives. (This is where you learn some physics, whether you want to or not.) We have Albert Einstein's famous equation, $E = mc^2$, which relates the energy of an object (matter) to its mass and the speed of light. Well, that might not seem terribly relevant to you and we'll talk more about it later.

Law of Motion: Velocity

$$v_{\text{ave}} = d/t \quad \rightarrow \quad t = d/v_{\text{ave}}$$

Problem: How long does it take to drive to San Diego?

d (distance) to San Diego: 78 miles

v_{ave} (average speed, velocity): 55 mph

$$\begin{aligned} t &= d/v_{\text{ave}} = 78 \text{ mi}/55 \text{ mi/hr} \\ &= 1.42 \text{ hr} = 1 \text{ hr } 25 \text{ min} \end{aligned}$$

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5

What about the laws relating to motion: velocity and acceleration? You invoke these every day when you get in your car or take a walk, and if you take a trip, you probably actually do the calculations to figure out how long it will take you to go from point A to point B when traveling at a certain average velocity:

$$v_{\text{ave}} = d/t \Rightarrow t = d/v$$

Law of Motion: Acceleration



General Motors Corporation

$$a = v_{ave}/t$$

Corvette:

$$a = 30 \text{ mph}/4.2 \text{ sec} \\ = 10.48 \text{ ft/sec}^2$$



General Motors Corporation

Suburban:

$$a = 30 \text{ mph}/9 \text{ sec} \\ = 4.89 \text{ ft/sec}^2$$

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Or, have you always wanted a Corvette? It goes from zero to 60 in 4.2 seconds. That's more than twice the acceleration of a Suburban, which takes about 9 seconds. You'd really feel pressed into your seat (and maybe a little scared) in the Corvette.

$$a = v_{ave}/t$$

You don't think about it when you step on the gas to pull away from a signal, but you're invoking a law of physics.

Here we have some "laws of matter" that seem pretty real. We experience them every day. They are useful to us and we humanly need them. However, if we accept these material laws of physical science as real, how can we deny the laws of material health? We can't have it both ways. Either spiritual laws are real or material laws are real, and we all know which is true. Material laws are at best indicators of spiritual laws and at worst they are absolutely untrue.

Back to my story... It got so that I was rather apologetic about majoring in physics until shortly after I graduated and met a Christian Scientist my age who replied, "Well, what do you think about studying material history as a history major? What's the difference?" That gave me a totally different perspective.

Christian Scientists Study Science

“It was hypothesized that Christian Science college students would be less likely than other college students to major in one of the sciences...Data gathered from a large midwestern state-supported university showed, however, that while Christian Science students were indeed less likely than other students to major in the behavioral and life sciences, they were no less likely than others to major in the physical sciences, and they were more likely than others to major in engineering.” (Nudelman, 1972)

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7



In fact, I wasn't alone. In a study reported in 1972 in the *Journal for the Scientific Study of Religion*, Arthur Nudelman wrote [Slide 7]:

“It was hypothesized that Christian Science college students would be less likely than other college students to major in one of the sciences...Data gathered from a large midwestern state-supported university showed, however, that while Christian Science students were indeed less likely than other students to major in the behavioral and life sciences, they were no less likely than others to major in the physical sciences, and they were more likely than others to major in engineering.” (Nudelman, 1972)

Indeed, Principia College has had a strong physics department for decades and some of its graduates have gone on to earn Ph.D.s from significant universities (Caltech and Berkeley come to mind) or to hold leadership positions in leading technical organizations. And, I might add that some practicing Christian Scientists are very successful in the life sciences, including a man who went through the Christian Science Sunday School with me and is now a fish biologist.

Mary Baker Eddy uses a lot of words and concepts that are also used by physical scientists, words like compound, irradiance, radiance, reflection, circumference, universe - you get the idea. So, I thought it would be interesting to explore some of these concepts in both their physical and metaphysical meanings. Then, we'll talk about the Bethlehem star and compare potential physical explanations with the spiritual truth and finish with anecdotal accounts of little-s science in Mrs. Eddy's household.

Definition of *Physics*

1 **physic** *noun singular a* : the art or practice of healing diseases : the science of therapeutics : the practice or profession of medicine; *also archaic* : medical science : the theory of diseases and their treatment **b** *obsolete* : medical treatment; *also* : a health-giving or curative practice or regimen **c** (1) : a remedy for disease : a medicinal agent or preparation; *especially* : a medicine (as a laxative) that purges (2) *obsolete* : a mental, moral, or spiritual medicine
2 *also* **physic** *archaic* : NATURAL SCIENCE
3 a : a science that deals with matter and energy and their interactions in the fields of mechanics, acoustics, optics, heat, electricity, magnetism, radiation, atomic structure, and nuclear phenomena **b** : a particular system or branch of physics <classical *physics*> <nuclear *physics*>

Webster's Third New International Dictionary, Unabridged.

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8



Let's start with the word *physics* and look at its definition in Webster's Unabridged Dictionary:

Definition 1a (singular): the art or practice of healing diseases

Definition 2 (archaic): natural science

Definition 3a: a science that deals with matter and energy and their interactions in the fields of mechanics, acoustics, optics, heat, electricity, magnetism, radiation, atomic structure, and nuclear phenomena

The synonym listed for *physics* is *remedy*. Under the listing for *remedy*, it is noted that "*physic* is the archaic equivalent of *medicine*." (Webster)

Mrs. Eddy uses the word *physics* 13 times in *Science and Health* and 20 times in *Prose Works*, although several of those passages are repeated within that collection, and she uses the word *physic* (singular) once in *Retrospection and Introspection*. In all but a couple of instances it is clear from the context that she is referring to the healing practice of medicine and not natural science when she uses the word.

Something Higher than Physic

“WHEREAS, The Massachusetts Metaphysical College, chartered in January, 1881, for medical purposes, to give instruction in scientific methods of mental healing on a purely practical basis, to impart a thorough understanding of metaphysics, to restore health, hope, and harmony to man, — has fulfilled its high and noble destiny, and sent to all parts of our country, and into foreign lands, students instructed in Christian Science Mind-healing, to meet the demand of the age for something higher than physic or drugging...”
(Ret. 47:16)

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9



I think the motion to close her college contains the clearest sense of her use of the word:

“WHEREAS, The Massachusetts Metaphysical College, chartered in January, 1881, for medical purposes, to give instruction in scientific methods of mental healing on a purely practical basis, to impart a thorough understanding of metaphysics, to restore health, hope, and harmony to man, — has fulfilled its high and noble destiny, and sent to all parts of our country, and into foreign lands, students instructed in Christian Science Mind-healing, to meet the demand of the age for something higher than physic or drugging...” (Ret. 47:16)

Metaphysics above Physics

"Healing by Christian Science has the following advantages:—

"First: It does away with all material medicines, and recognizes the fact that, as mortal mind is the cause of all 'the ills that flesh is heir to,' the antidote for sickness, as well as for sin, may and must be found in mortal mind's opposite, — the divine Mind.

"Second: It is more effectual than drugs; curing where these fail, and leaving none of the harmful 'after effects' of these in the system; thus proving that metaphysics is above physics.

"Third: One who has been healed by Christian Science is not only healed of the disease, but is improved morally. The body is governed by mind; and mortal mind must be improved, before the body is renewed and harmonious, — since the physique is simply thought made manifest."
(Mis. 33:22-9)

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10



Also, in several places in *Prose Works*, Mrs. Eddy asks and answers this question:

"What are the advantages of your system of healing, over the ordinary methods of healing disease?"

"Healing by Christian Science has the following advantages: —

"First: It does away with all material medicines, and recognizes the fact that, as mortal mind is the cause of all 'the ills that flesh is heir to,' the antidote for sickness, as well as for sin, may and must be found in mortal mind's opposite, — the divine Mind.

"Second: It is more effectual than drugs; curing where these fail, and leaving none of the harmful 'after effects' of these in the system; thus proving that metaphysics is above physics.

"Third: One who has been healed by Christian Science is not only healed of the disease, but is improved morally. The body is governed by mind; and mortal mind must be improved, before the body is renewed and harmonious, — since the physique is simply thought made manifest." (Mis. 33:21-9)

Caveat of Language

“The chief difficulty in conveying the teachings of divine Science accurately to human thought lies in this, that like all other languages, English is inadequate to the expression of spiritual conceptions and propositions, because one is obliged to use material terms in dealing with spiritual ideas. The elucidation of Christian Science lies in its spiritual sense, and this sense must be gained by its disciples in order to grasp the meaning of this Science.” (349:13-21)

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11



There's just one caveat to make regarding the rest of this talk. I'm going to be relating the physical science usage of words and concepts to Mrs. Eddy's spiritual sense. She makes a very direct comment about language and its limitations in *Science and Health*:

“The chief difficulty in conveying the teachings of divine Science accurately to human thought lies in this, that like all other languages, English is inadequate to the expression of spiritual conceptions and propositions, because one is obliged to use material terms in dealing with spiritual ideas. The elucidation of Christian Science lies in its spiritual sense, and this sense must be gained by its disciples in order to grasp the meaning of this Science.” (349:13-21)

We always must get back to the spiritual sense if we are to understand and practice Christian Science.

Light

“And God said, **Let there be light:** and there was light. And God saw the light, that it was good: and God divided the light from the darkness. And God called the light Day...” (Gen. 1:3-5 (to ,))

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12



Let's start with "light." The concept of light is introduced right at the beginning:

“And God said, Let there be light: and there was light. And God saw the light, that it was good: and God divided the light from the darkness. And God called the light Day...” (Gen. 1:3-5 to ,)

Light Created before Sun

“This **light** is not from the sun nor from volcanic flames, but it is the **revelation of Truth and of spiritual ideas.**”(504:9-11)

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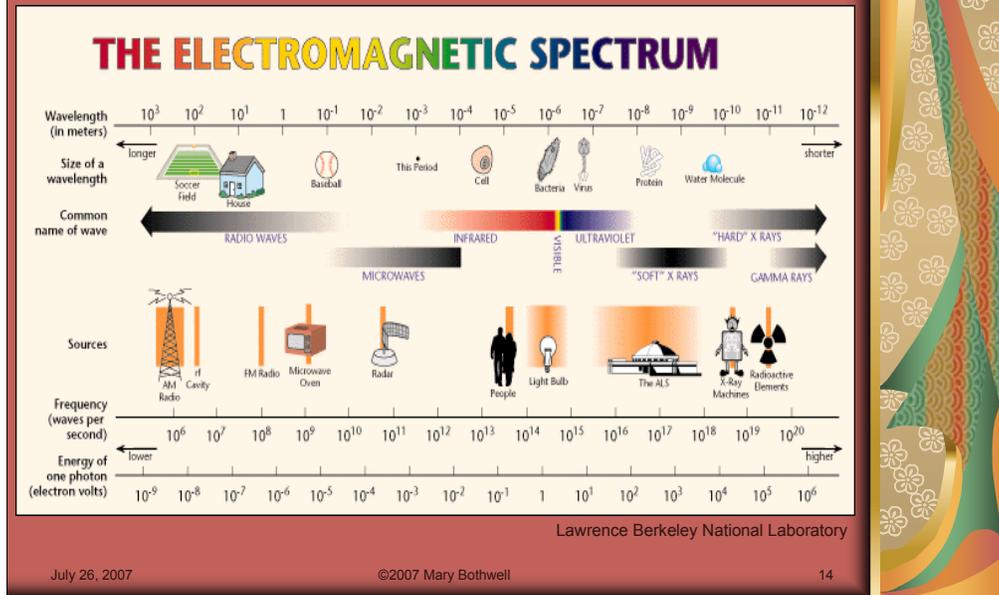
13



Light was introduced while the earth was still “without form, and void”. (Gen. 1:2)

Mrs. Eddy points out that light was created before the sun and that it “is the revelation of Truth and of spiritual ideas.” (504:11) God went on to create the firmament or heaven to divide the waters called “Seas”, dry land called “Earth”, grass, herbs, and fruit trees before he created the spiritual ideas of the sun and moon. “And God saw that it was good.” (Gen. 1:multiple verses)

Light Spectrum



The concept of “light” and terms which characterize light are found throughout Mrs. Eddy’s writings. It is also a fundamental area of physics, where light, or radiation, includes much more than we see with our eyes. In fact, we see only a very small portion of the light spectrum, from 0.4 to 0.7 micrometers in wavelength, out of a spectrum which runs from near zero to over 1,000 meters in wavelength. Mrs. Eddy uses the word “light” 143 times in *Science and Health* and over 200 times in *Prose Works*. That’s more than it is used in the Bible.

Some Words Associated with Light in Mary Baker Eddy's writings

absorb/absorbed/absorption
amplification/amplitude
emit/emits
energy
irradiance (only once)
radiance/radiant
radiation/radiate/radiating
reflect/reflects/reflected/reflecting/reflection/
reflections (over 250 times!)

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15

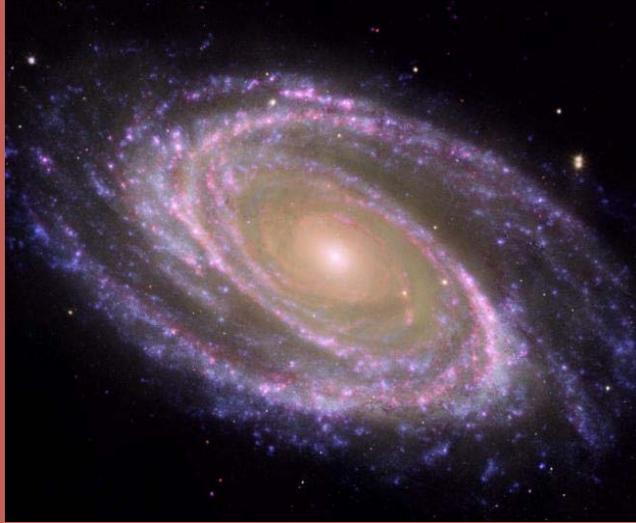


She uses several words that physical scientists use to characterize either the nature of light or what light does:

- absorb/absorbed/absorption
- amplification/amplitude
- emit/emits
- energy
- irradiance (only once)
- radiance/radiant
- radiation/radiate/radiating
- reflect/reflects/reflected/reflecting/reflection/reflections (over 250 times!)

There are others.

Light: Understanding Our Universe



Courtesy of NASA/JPL-Caltech/ESA/Harvard-Smithsonian CfA

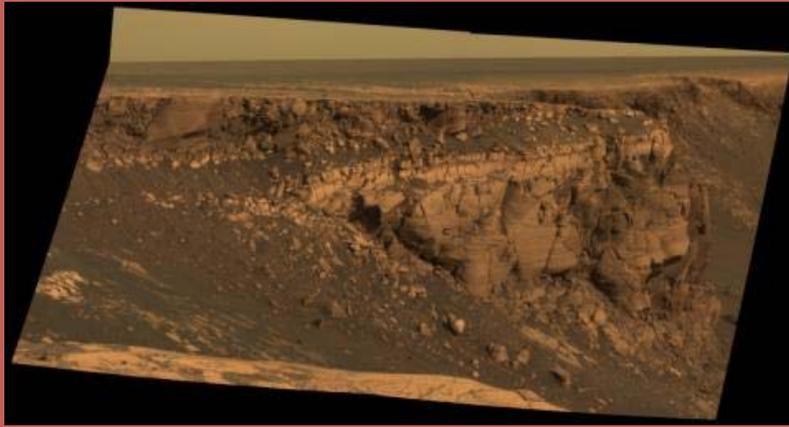
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16

What is light? To a physical scientist, light has a dual nature: it can be considered as waves or as little packets of energy. Light has color. It is absorbed, emitted, and reflected. In the broadest sense it is called “radiation” and includes very high energy particles like gamma rays and low energy waves like radio emissions. In between is the light we see with our eyes and the heat we feel with our skin. The nature of the light being reflected, emitted, or absorbed by a source is how we determine what that source is, whether we’re using sophisticated astronomical telescopes in space to understand distant galaxies,

Light: Understanding our Solar System



Courtesy of NASA/JPL/Cornell

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17

a small camera on the surface of Mars to identify minerals,

Light: Understanding our World



Nutricoach

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18

or our eyes to distinguish a large orange from a small grapefruit or a Fuji apple from a Golden Delicious. In a physical sense, radiation can be either useful or destructive - it helps us see where we're going, keeps us warm, causes plants to grow, but it to material sense also causes injuries. To a physical scientist, light is still a physical phenomenon. We need matter to detect it and it affects matter, and sometimes, it even acts like matter.

Ray of Light – One with the Sun

“As a drop of water is one with the ocean, a ray of light one with the sun, even so God and man, Father and son, are one in being.” (361:16-18)

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19



Let's take one of my favorite passages in *Science and Health* and look at first a physical science interpretation and then the metaphysical truth. [Slide 19]

“As a drop of water is one with the ocean, a ray of light one with the sun, even so God and man, Father and son, are one in being.” (361:16-18)

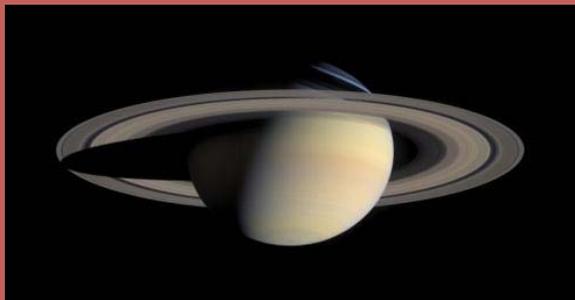
How is a ray of light “one with the sun”? When a little packet of light leaves the sun, it has all the characteristics of that part of the sun. Actually, more than just light leaves the sun - like solar flares and the solar wind. Most of the physical science concerning the sun didn't develop until the 20th century, although the solar cycle was discovered in 1847 and the first observation of a solar flare was made in 1859. The solar wind wasn't discovered until 1958. Since solar science was developing while Mrs. Eddy was working, I suspect that she confined her analogy to the light leaving the sun and that's what we'll discuss.

Our little packet, or ray, of light leaves the sun with an identity. It has velocity and a spectral signature, or color - identical to every other ray of light from our sun. If an astronomer on a planet in another solar system were observing our sun as a star, she would know that it's light from our sun, because of its spectral signature and the direction she's looking. If our little packet of light doesn't hit anything, it will keep going forever. However, we can be pretty sure that it will hit something, even if it's just space dust, and it loses intensity as it gets further from the sun at the rate of one over the distance squared. So, if you were on a spaceship twice as far from the sun as the Earth is, the amount of light hitting your spaceship would be one quarter of that hitting the earth.

Sunny Days at Mars and Saturn



Courtesy of NASA/JPL/Cornell



Courtesy of NASA/JPL/Space Science Institute

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20

To put this in perspective, a sunny day on Mars is like a dull, but not rainy, day on earth; a sunny day at the top of Saturn's atmosphere would be like sunrise or sunset here.

What happens when our little packet of light hits something? It is either absorbed or reflected or some of both. If the object it hits is a perfect reflector, which is hard to achieve in nature, then all the light is reflected. If it is a perfect absorber, a little easier to achieve, then all the light is absorbed and becomes another kind of energy, often heat.

Moon



Courtesy NASA/JPL-Caltech

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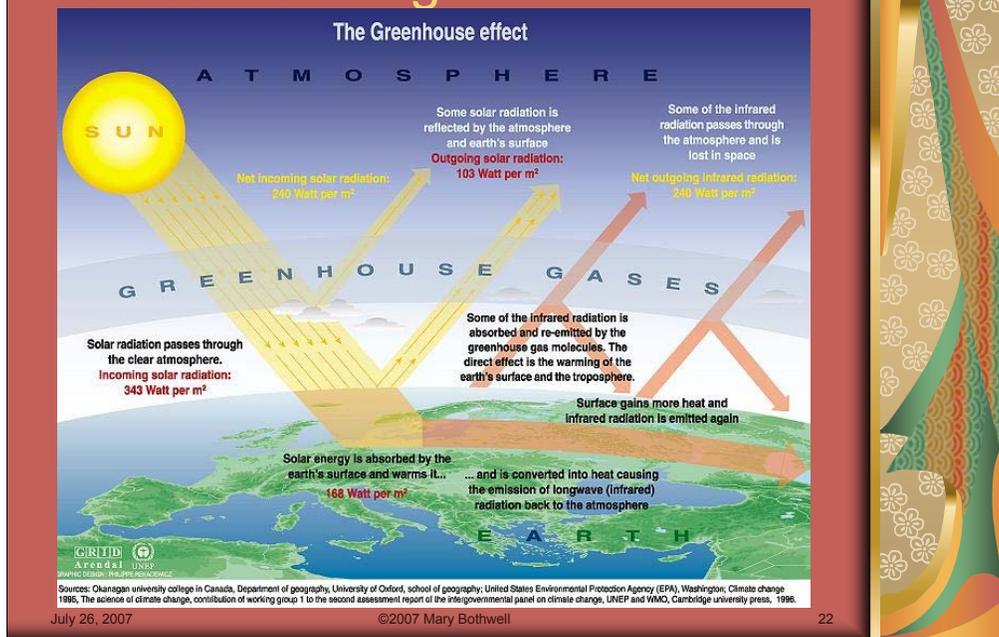
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21



Most objects reflect a little and absorb a lot. The moon for instance reflects only about 12 percent of the visible light hitting it. It is very dark gray, even though a full moon out camping can seem like a searchlight in the middle of the night. Sunlight would be brighter at Pluto! The rest of the light is absorbed, heating the moon, and some is re-emitted, heating things or people on the moon or escaping into space.

Global Warming



We can discuss this in even more local terms - global warming. When light from the sun reaches the earth, some of it is reflected off the top of the atmosphere or clouds and we don't have to worry about it anymore. The rest is transmitted through the atmosphere and hits the surface. Some of that is reflected back into space and the rest is absorbed, warming the earth. Some of it is re-emitted from the surface as infrared radiation or heat. If the greenhouse gases are too thick, some of that heat is reflected back to the earth, re-emitted again, and a vicious cycle begins, which results in global warming, because not enough heat is leaving the earth.

A Steadfast Ray

Arise, arise and shine,
On thee hath dawned the day;
God is thy sun, and Christ thy
light,
Be thou a steadfast ray.

Sing praise, O waking heart,
For all thy God hath wrought;
For Truth's clear light on thee
hath shone,
And purified thy thought.

No more shall sin and wrong
Obscure the light divine,
For God hath given thee His
Son,
And lo, all things are thine.

Arise, arise and shine,
Uplift thee from the sod,
And let thy living light show
forth
Man's unity with God.

- Mary I. Mesechre
- Christian Science Hymnal

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23



This analogy of the sun and its rays is often used in Sunday Schools to explain the relationship between God and man. We even have a hymn admonishing us to be a “steadfast ray.” (Hymn 14) In fact, that hymn explains the spiritual sense quite well:

God is thy sun, and Christ thy light,
Be thou a steadfast ray.

.....

And let thy living light show forth
Man's unity with God.

To recap the analogy, God is the sun, Christ is all the light coming from the sun, and each individual ray is each of God's ideas. It is summarized in Mrs. Eddy's statement that Jesus' declaration, “I and my Father are one” (John 10:30), indicates “one in quality, not in quantity” (361:13-16). There is an infinite quantity of ideas (our rays), each of equal quality to God, because we are perfect reflectors.

This is where the physical analogy is limited, because we are perfect reflectors and we never lose any of our “intensity” as the perfect child of God because we can't be distant from Him, nor do we lose our original identity by being absorbed. Space dust between the observer and the sun would be analogous to error trying to block part of our perfect identity. The decreased intensity of the sun when observed from a distance would be analogous to error trying to dilute our infinite capabilities or suggest that we could be subject to deterioration.

Matter and Energy

When matter changes to energy,
it's still material!

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24



Now, let's talk a bit about matter and energy. New discoveries in physics are indicating that at some level matter disappears and all is energy. Does that mean that physicists are getting closer to Christian Science? I don't think so. They are still dealing with material energy. While we tend to think of matter as something we can touch, something solid, material energy is no less material than solid matter. Let's talk about what matter is. Everything is made up of atoms, which are mostly space with some electrons, protons, and other subatomic particles, bound together with energy. Atoms interact with each other and become molecules, some bound very tightly together such that it takes a lot of energy to break them apart. It takes even more energy to split an atom. Molecules interact with each other and become compounds, solutions, or mixtures. You can see where this is going. All of a sudden, we have a lot of apparently very solid matter. Even though the wall is mostly space, most of us can't walk through it. Jesus did. He wasn't limited by matter.

Mass-energy Equivalence

$$E = mc^2$$

E: energy

m: mass

c: velocity of light

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25



Albert Einstein's famous equation, $E = mc^2$, or the mass-energy equivalence, states very clearly that energy and mass are proportional. The third variable, c , is the speed of light. (We're very quickly getting into quantum physics, which I am not qualified to discuss.) This equation still holds today, and quantum physicists are testing it all the time.

Confirming $E = mc^2$

$$(m_{\text{before}} - m_{\text{after}})c^2 = E_{\gamma\text{-ray}} (\pm 0.00004\%)$$

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26

I read about an example in which radioactive atoms were weighed just before and after they emitted gamma-rays as part of their decaying process. (Remember that gamma-rays are a kind of light.) The change in mass of the atoms from before to after times the speed of light squared was equal to the energy of the emitted gamma-rays to within four hundred-thousands of one percent (0.00004%). That's pretty incredible. The popular scientific literature has all kinds of examples from electric power generating plants to atomic bombs to illustrate mass-energy equivalence.

“There is no matter.”

“Science and understanding, governed by the unerring and eternal Mind, destroy the imaginary copartnership, matter and mind, formed only to be destroyed in a manner and at a period as yet unknown. This suppositional partnership is already obsolete, for matter, examined in the light of divine metaphysics, disappears.” (274:27)

“Divine metaphysics explains away matter.” (278:3 (only))

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27



What does Mrs. Eddy say about this? She's pretty clear that, in reality, there is no matter. She uses that exact phrase 10 times in her writings, including as a chapter heading in *Unity of Good*. She says:

“...matter, examined in the light of divine metaphysics, disappears.” (274:31 matter)

“Divine metaphysics explains away matter.” (278:3 (only))

Atomic Action

“Atomic action is Mind, not matter. It is neither the energy of matter, the result of organization, nor the outcome of life infused into matter: it is infinite Spirit, Truth, Life, defiant of error or matter.”
(Mis 190:1-4)

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28



“Atomic action is Mind, not matter. It is neither the energy of matter, the result of organization, or the outcome of life infused into matter: it is infinite Spirit, Truth, Life, defiant of error or matter.” (Mis. 190:1-4)

In the last quotation, we can take advantage of grammar and replace the *it* in the second sentence with “Atomic action,” to say, “Atomic action...is neither the energy of matter,...”. “Atomic action...is infinite Spirit, Truth, Life, defiant of error or matter.” It sounds to me like a direct refutation of the mass-energy equivalence, and she wrote this passage no less than nine years before Einstein published $E = mc^2$.

This talk has been evolving since I gave Betty the title. I thought about talking about some of the physical science miracles in the Bible, like the Jordan River stopping and the sun turning back ten degrees (II Kings 20:9-11), but that’s not the way the talk evolved. Quickly, there is historical evidence that the flow of the Jordan River has been slowed or stopped due to landslides upstream. How, though, were those landslides coordinated with the Children of Israel or Elijah crossing the river? There is no physical science explanation for the sun turning back ten degrees.

Bethlehem Star



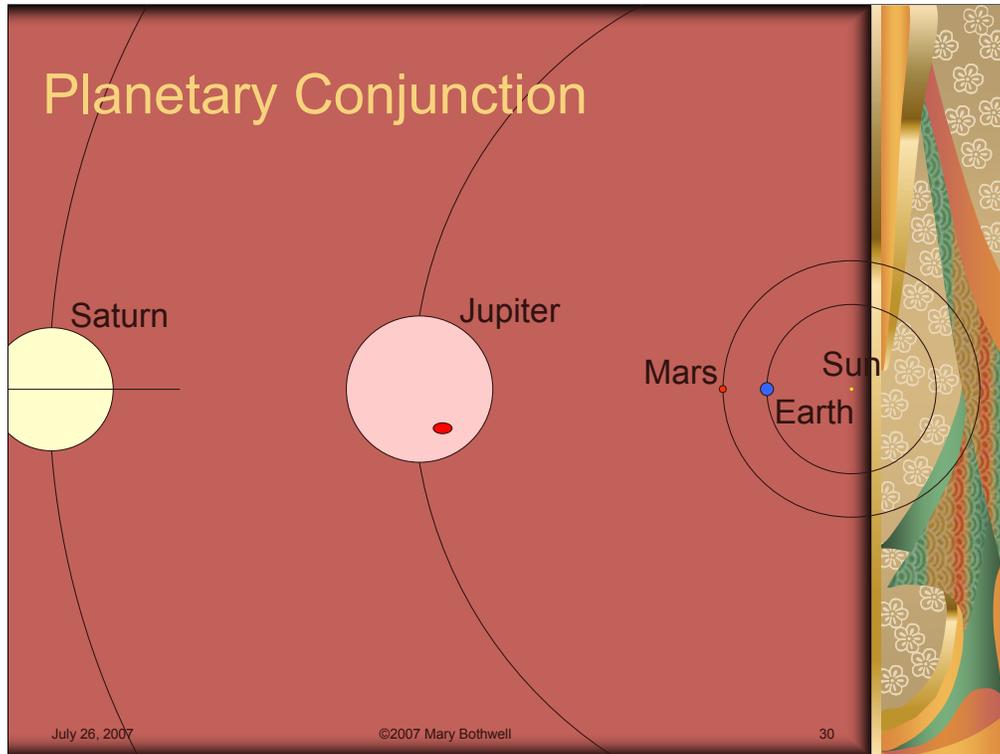
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29

Mrs. Eddy uses a lot of astronomical examples in *Science and Health*, so the physical science miracle I'll discuss is the Bethlehem Star. There is a lot of conflicting conjecture about what the Bethlehem Star might have been. Early in the first millennium, it was postulated to be either a comet or a meteor, neither of which last long enough to be consistent with Biblical record. Others have postulated that it might have been a nova, a star which suddenly increases in light and then fades. In 1604, Johannes Kepler, who discovered the laws of planetary motion, observed a conjunction of Jupiter and Saturn, later joined by Mars and then a new star, which soon faded. He worked the planetary orbits backwards and found that in about 7 BCE the planets were in conjunction.



When two or more planets are close together as seen from the earth, it's called a "conjunction". From the earth's point of view, the planets are lined up so they appear close together in the sky. Later astronomers point out, however, that in 7 BCE Jupiter and Saturn were not closer together than 1 degree, which is twice the diameter of the moon, so they weren't close enough to appear like a super-star. It seems like there are dozens of theories, informed and uninformed, pushing a narrow religious interpretation or not, about what this astronomical event was, if indeed it was an astronomical event.

The Messiah, or Christ, has always existed. The Messiah appeared to human consciousness when the people's concept of God had developed sufficiently that they were ready to receive him. So, what was that Star? Spiritually interpreted, it had to be God's divine direction to the Magi and His announcement to the whole world. People became conscious of the appearing of the Christ, although they didn't know it yet. The Star announced the light of Christ dawning upon the earth and a few people were alert enough to notice it, understand its significance, and follow it. Evidently Herod did not see it, because he asked the wise men how they knew where the Messiah was. We don't need a physical science explanation for a spiritual event.

Light = Revelation

“The wakeful shepherd beholds the first faint morning beams, ere cometh the full radiance of a risen day. So shone the pale star to the prophet-shepherds; yet it traversed the night, and came where, in cradled obscurity, lay the Bethlehem babe, the human herald of Christ, Truth, who would make plain to benighted understanding the way of salvation through Christ Jesus, till across a night of error should dawn the morning beams and shine the guiding star of being. The Wisemen were led to behold and to follow this daystar of divine Science, lighting the way to eternal harmony.” (vii:2)

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31



Mrs. Eddy's opening paragraph in *Science and Health* explains this:

“The wakeful shepherd beholds the first faint morning beams, ere cometh the full radiance of a risen day. So shone the pale star to the prophet-shepherds; yet it traversed the night, and came where, in cradled obscurity, lay the Bethlehem babe, the human herald of Christ, Truth, who would make plain to benighted understanding the way of salvation through Christ Jesus, till across a night of error should dawn the morning beams and shine the guiding star of being. The Wisemen were led to behold and to follow this daystar of divine Science, lighting the way to eternal harmony.” (vii:2)

Appropriate Academics

“Academics of the right sort are requisite. Observation, invention, study, and original thought are expansive and should promote the growth of mortal mind out of itself, out of all that is mortal.” (195:13)

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32



What did Mrs. Eddy think about small-s science? We know from her writings that she didn't consider it to be the truth. However, she said:

“Academics of the right sort are requisite. Observation, invention, study, and original thought are expansive and should promote the growth of mortal mind out of itself, out of all that is mortal.” (195:13)

An Interview with Mrs. Eddy

Interviewer: "What is your attitude to science in general? Do you oppose it?"

Mrs. Eddy: "Not," with a smile, "if it is really science."

Interviewer: "Well, electricity, engineering, the telephone, the steam engine — are these too material for Christian Science?"

Mrs. Eddy: "No; only false science — healing by drugs..."

Interviewer: "But the pursuit of modern material inventions?"

Mrs. Eddy: "Oh, we cannot oppose them. They all tend to newer, finer, more etherealized ways of living. They seek the finer essences. They light the way to the Church of Christ. We use them, we make them our figures of speech. They are preparing the way for us." (My 345:7-12,25-30, speaker identification added)

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33

And, in an interview with the *New York Herald* in 1901, she was pretty clear that she didn't object to physical science, if it didn't include healing by drugs:

Interviewer: "What is your attitude to science in general? Do you oppose it?"

Mrs. Eddy: "Not," with a smile, "if it is really science."

Interviewer: "Well, electricity, engineering, the telephone, the steam engine — are these too material for Christian Science?"

Mrs. Eddy: "No; only false science — healing by drugs..."

Interviewer: "But the pursuit of modern material inventions?"

Mrs. Eddy: "Oh, we cannot oppose them. They all tend to newer, finer, more etherealized ways of living. They seek the finer essences. They light the way to the Church of Christ. We use them, we make them our figures of speech. They are preparing the way for us." (My 345:7-12,25-30, speaker identification added)

Modern Advances



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34

We know that Mrs. Eddy patiently oversaw the efforts of William Dana Orcutt and her printer at the University Press to make the advancements necessary to print *Science and Health* on Oxford Bible paper. We also have anecdotes from her household about technical pursuits. Calvin Frye expressed interest in attending an air show in Squantum, Massachusetts. Several of the household also wished to attend. Mrs. Eddy divided the workers into two groups so that they could attend on two separate days. One group went with Mr. Frye at the wheel of the household's White steamer automobile. It might be added Mr. Frye was very interested in all things mechanical and subscribed to technical magazines.

At Chestnut Hill, some of Mrs. Eddy's household were interested in astronomy and spent evenings on the roof of the residence. Soon a telescope was acquired and stored on an upper floor so that it could be taken easily to the roof. A work on astronomy was acquired and a small group spent summer evenings looking at constellations. (From "Twelve Years with Mary Baker Eddy: Recollections and Experiences, Expanded Edition," by Rev. Irving C. Tomlinson, M.A., C.S.B.)

Recap

Simple laws of physics

Use of the word *physics* for medicine in Mrs. Eddy's writings

Physical and spiritual concepts of "light"

Matter and energy

The Bethlehem Star

Mrs. Eddy's view of physical science

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35



The pursuit of knowledge through the physical sciences can be fun, interesting, and extremely useful to mankind. Today, we have touched on some simple laws of physics, the use of the word *physics* for medicine in Mrs. Eddy's writings, the physical and spiritual concepts of "light", matter and energy, the Bethlehem Star, and Mrs. Eddy's view of physical science.

Conclusion

Divine Science alone
reveals the Truth.

July 26, 2007

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36



We are united in a quest for the truth - the spiritual sense of being. It won't be found through the physical or natural sciences. Divine Science alone reveals the Truth.