

Plum Pudding and the Things We Believe(d)

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Christina R. Harris, Ph.D.

#1 Something so small can't make a difference!

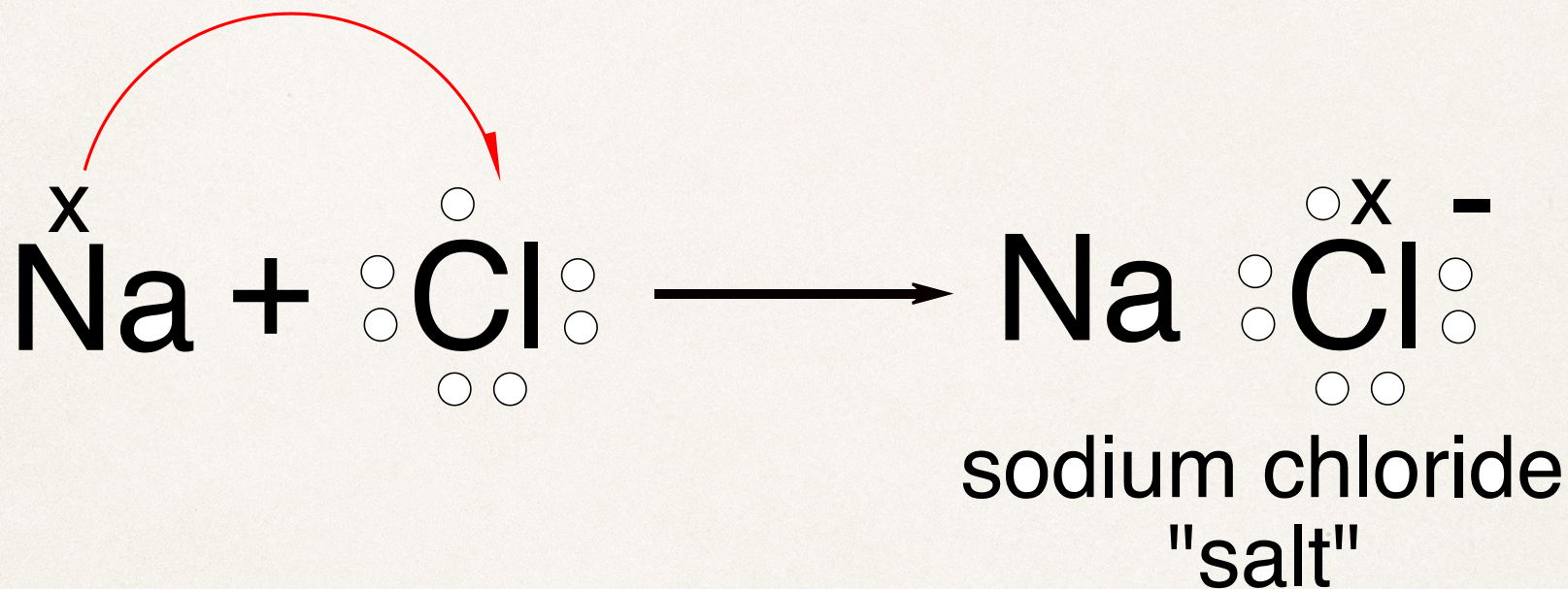
- ❖ Nobel Prize in physics in 1906 for his discovery of the electron in 1897.

J. J. Thomson

- ❖ Could anything at first sight seem more impractical than a body which is so small (**the electron**) that its mass is an insignificant fraction ($1/3000^{\text{th}}$) of the mass of an atom of hydrogen (**a proton**)? —J.J.Thomson

#1 Something so small can't make a difference!

- ❖ Although apparently insignificant, electrons govern the reactivity of atoms.



- ❖ Sodium loses an electron to become complete.
- ❖ Chlorine gains an electron to become complete.
- ❖ Together they become "salt."

Truth: God works IN and FOR us!

Most assuredly, I say to you, **he who believes in Me, the works that I do he will do also; and greater works than these he will do,** because I go to My Father...whatever you ask in My name, that I will do....

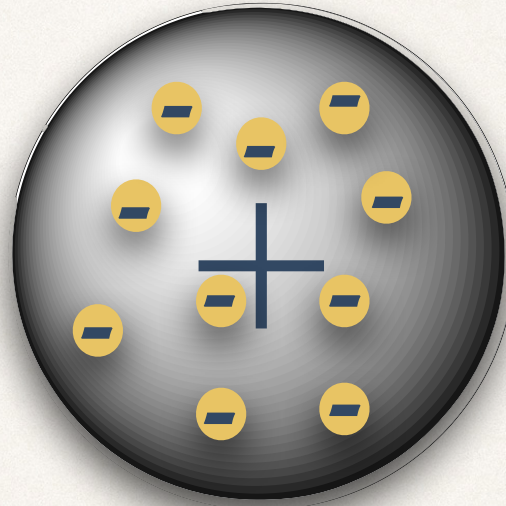
—John 14:12-13

All who will go to work, **trusting not in what they themselves can do, but in what God can do for and through them,** will certainly realize the fulfillment of His promise. The secret of their success would be in asking for strength and grace in His name....

—Desire of Ages, p. 667

#2 The Atom is Like Plum Pudding...

- ❖ J.J. Thomson developed the “plum pudding model” of the atom.



... the atoms of the elements consist of a number of negatively electrified corpuscles (**electrons**) enclosed in a sphere of uniform positive electrification (**protons**), ...

—J.J. Thomson

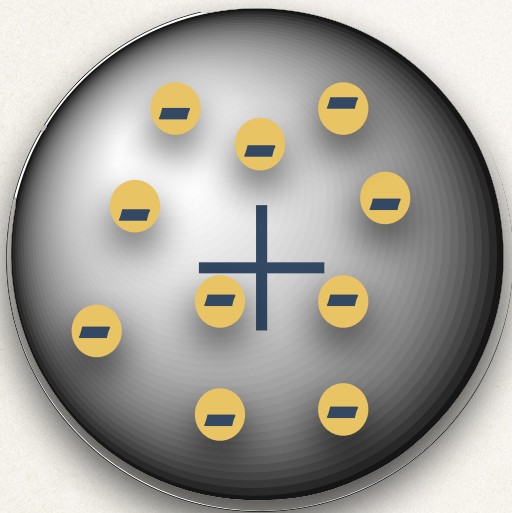
Philosophical Magazine, **1904**, Series 6, Vol. 7, p. 237–265
original artwork by CR Harris

A New Paradigm for the Atom...

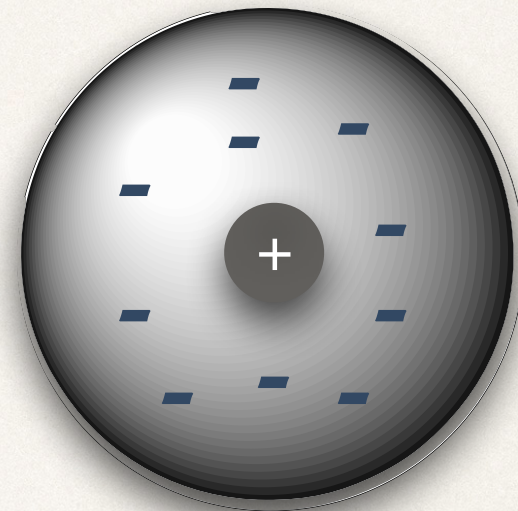
- ❖ Father of nuclear physics. Identified both the α and β particles.
- ❖ Won the Nobel Prize in chemistry in 1908 for this discovery.
- ❖ His greatest contribution was still in the _____.

- ❖ He would later discover the atomic nucleus...AND the neutron (together with Chadwick).

J. J. Thomson
1897



Ernest Rutherford
1912



Rutherford Gold Foil Experiment (1909)



Rutherford Experiment:
Nuclear Atom

https://www.youtube.com/watch?v=5pZj0u_XMbc

Philosophical Magazine, **1911**, Series 6, Vol. 21, p. 669-688

A New Paradigm for the Atom...

- ❖ "It was quite the most incredible event that has ever happened to me in my life. It was almost as incredible as if you fired a 15-inch shell at a piece of tissue paper and it came back and hit you."

—Ernest Rutherford, 1909

#3 Abiogenesis is Possible

Louis Pasteur
(1822-1895)

- ❖ Chemist and microbiologist
- ❖ Disease caused by germs
- ❖ Rabies vaccine
- ❖ Pasteurization process
- ❖ Disputed spontaneous generation
- ❖ **Law of Biogenesis: Life comes from Life**

Abiogenesis & the Deadly Wound

- ❖ Never will the doctrine of spontaneous generation recover from the mortal blow struck by this simple experiment.”

–Louis Pasteur, 1864

Alexander Oparin (1894-1980)

- ❖ Professor of Biochemistry, Moscow State University
- ❖ Wrote “*Origin of Life*” (1924)—primordial soup hypothesis on *chemical evolution*.
- ❖ Proposed that methane, ammonia, hydrogen, and water vapor were responsible for the origin of life on Earth.

Stanley Miller
(1930-2007)

Harold Urey
(1893-1981)

Miller-Urey Experiment (1953)

<https://goo.gl/images/BE80Jq>

–*Science* **1953**, *117*, 528-529, *A production of amino acids under possible primitive Earth conditions*

Deadly Wound Healed

- ❖ Spontaneous generation is rejected for organisms that are now living but accepted for the first organisms that allegedly appeared billions of years ago.

Problems with the Miller Urey Experiment

- ❖ **Synthetic failure**—yield of biologically useful amino acids was <2%.
- ❖ **Toxic intermediates**—CO, formaldehyde and cyanide
- ❖ **Product stability**—No useful amino acids would have been isolated if the products had not been rescued from the conditions.
- ❖ **Complexity**—results are trivial compared to the immensity of the overall problem.
- ❖ **Chirality**—In living systems amino acids exist in a single form—the Miller-Urey experiment afforded a mixture of forms—only half of which would be relevant for living systems.

Pasteur's Encore

- ❖ Chiral—“hand” (Greek) or handedness
- ❖ An object is chiral if it is not superimposable on its mirror image.

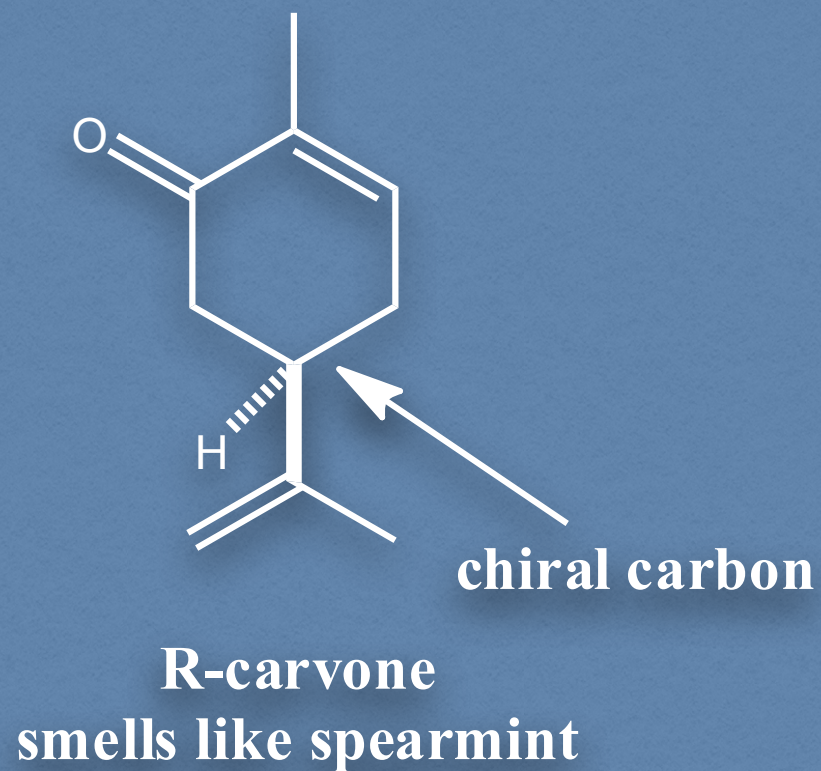
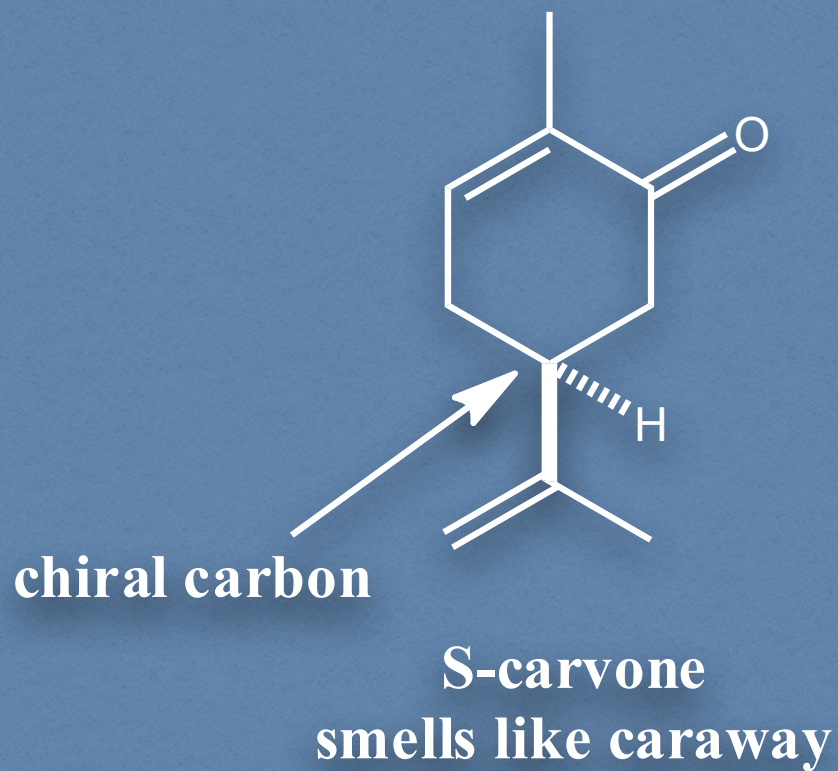
Pasteur's Encore

- ❖ Most biological molecules exist in two forms.
- ❖ One is referred to as the “left-hand” form and the other the “right-hand” form.

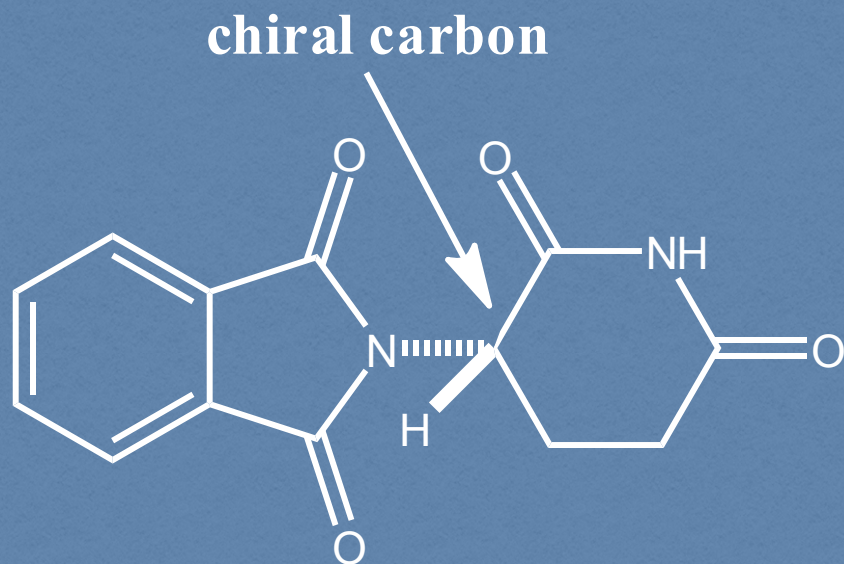
Does it even matter?

- ❖ In the body, only the left-hand form exists, but the Miller-Urey experiment could **ONLY** make a **MIXTURE** of both left- and right-hand forms.

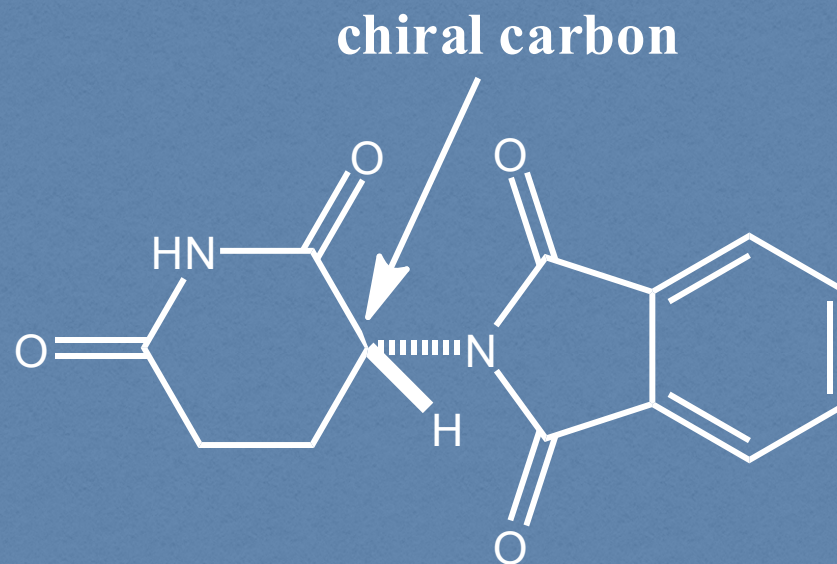
#4 It doesn't really matter...



Pasteur's Encore



S-thalidomide
teratogen causing
birth defects



R-thalidomide
prevents nausea

Things we believe...

- ❖ Lack of information
- ❖ Led to a conclusion
- ❖ Led to consequences resulted in death

Does it even matter?

Charles Darwin (1809-1882)

- ❖ Lack of information
- ❖ Led to a conclusion
- ❖ Led to consequences resulted in death

And the Lord God commanded the man, saying, “You may surely eat of every tree of the garden, but of the tree of the knowledge of good and evil you shall not eat, for in the day that you eat of it you shall surely die.”

Did God actually say, ‘You shall not eat of any tree in the garden’....So when the woman saw that the tree was good for food, and that it was a delight to the eyes, and that the tree was to be desired to make one wise, she took of its fruit and ate, and she also gave some to her husband who was with her, and he ate.”

—Genesis 2:16, 17; 3:1, 6

#5 I'm on my own, I can't trust God.

Belief: God could pull the rug out from under me at any time...just to teach me a lesson. God is just like the people who have betrayed me in the past. I can take care of myself.

The blessing of the Lord makes one rich,
And He adds no sorrow with it.

—Proverbs 10:22 (NKJV)

For I know the thoughts that I think toward you, says
the Lord, thoughts of peace and not of evil, to give
you a _____ and a hope.

—Jeremiah 29:11 (NKJV)

How often would I have gathered your children
together as a _____ gathers her brood
under her wings, and you were not willing!

—Luke 23:37

#6 It's risky to be happy or grateful.

Belief: Anytime something good happens, something equally bad waits around the corner.

...things I used to believe

Sacrifice of Praise

....let us continually offer up a _____
of praise to **God**, that is, the fruit of lips that
acknowledge His name.

—Hebrews 3:15

Sacrifice of Praise

However black the clouds that roll upon the world at the present time, there is _____ beyond.

— *In Heavenly Places*, p. 96

#7 I don't belong anywhere

Belief: I'm like a puzzle piece trying to fit into the wrong picture. It's always been that way... and it always will be.

...things I used to believe

#7 I don't belong anywhere.

And she brought forth her firstborn son, and wrapped him in swaddling clothes, and laid him in a manger; because **there was no room** for them in the inn.

—Luke 2:7

In my Father's house are many mansions; if it were not so, I would have told you; for **I go to prepare a place for you.**

—John 14:2

For he satisfies the longing soul, and the hungry soul he fills with good things.

—Psalm 107:9

#8 God won't forgive me

Belief: I can't be forgiven. I don't feel forgiven.

Therefore He is also able to save to the uttermost those who come to God through Him, since He always lives to make intercession for them.

—Hebrews 7:25

And behold, a leper came and worshiped Him, saying, “Lord, if You are willing, You can make me clean.”

Then Jesus put out His hand and touched him, saying, “I am willing; be cleansed.

—Matthew 8:2-3

...the t

I used to think that when I prayed for forgiveness of sins, I must have in my heart a feeling that my sins were forgiven, before I could know that my prayer had been answered. **I do not wait for this feeling anymore.**

—Sermons and Talks, Volume 2, p. 235

The things we believe...

- ❖ For the weapons of our warfare are not carnal but mighty in God for pulling down strongholds, casting down arguments and every high thing that exalts itself against the knowledge of God, bringing every thought into captivity to the obedience of Christ.

—2 Corinthians 10:4-5