

my natural place



ARISTOTLE



is to be with you

you send me

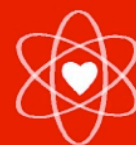


NIELS BOHR

into a very

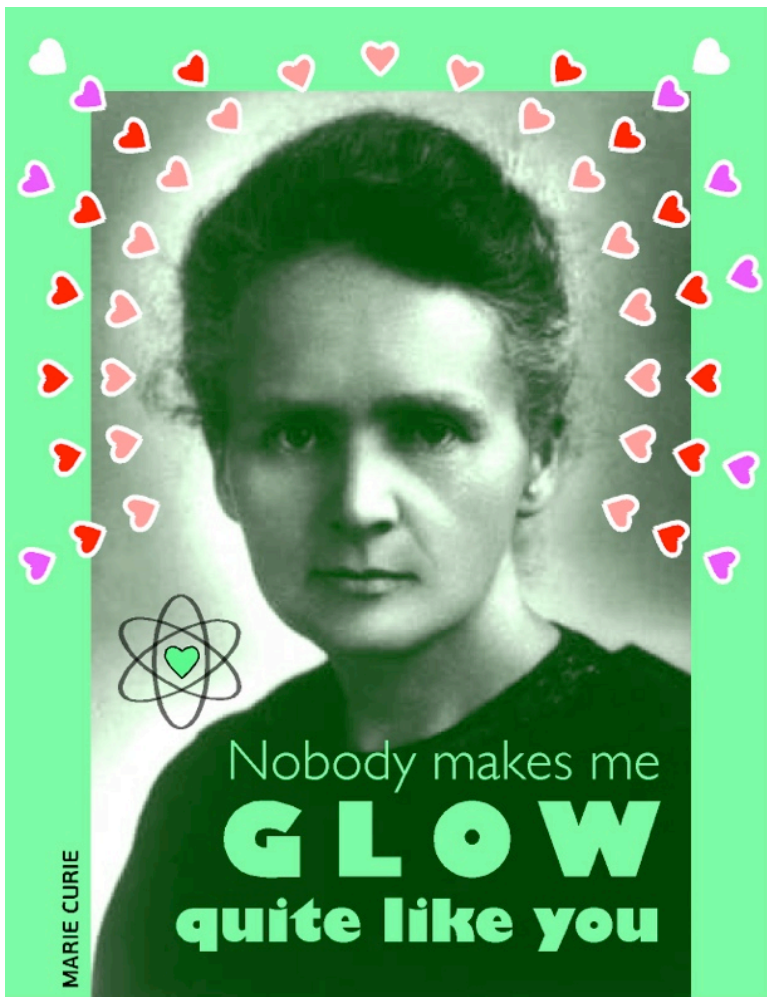


**excited
state**



ANDERS CELSIUS

**My temperature
goes off the scale
when you're nearby**



MARIE CURIE

Nobody makes me
GLOW
quite like you

Happy Valentine's Day

The Bohr Atom is an early quantum model of atomic structure. In it, electrons can absorb specific amounts of energy from photons by jumping from their ground state to higher energy ("excited") states. When they jump back down, the atom emits a photon having a specific amount of energy.

SCIENTIST VALENTINES

Happy Valentine's Day

Aristotle's system of the world had the stationary Earth at the center. Above it, water, and above water, air. Above air was fire. An object's natural place in the world was determined by its make-up. Natural motion involved solids falling to earth (the ground), liquids flowing to bodies of water, gases flowing to the atmosphere, and fire seeking the heavens.

SCIENTIST VALENTINES

Happy Valentine's Day

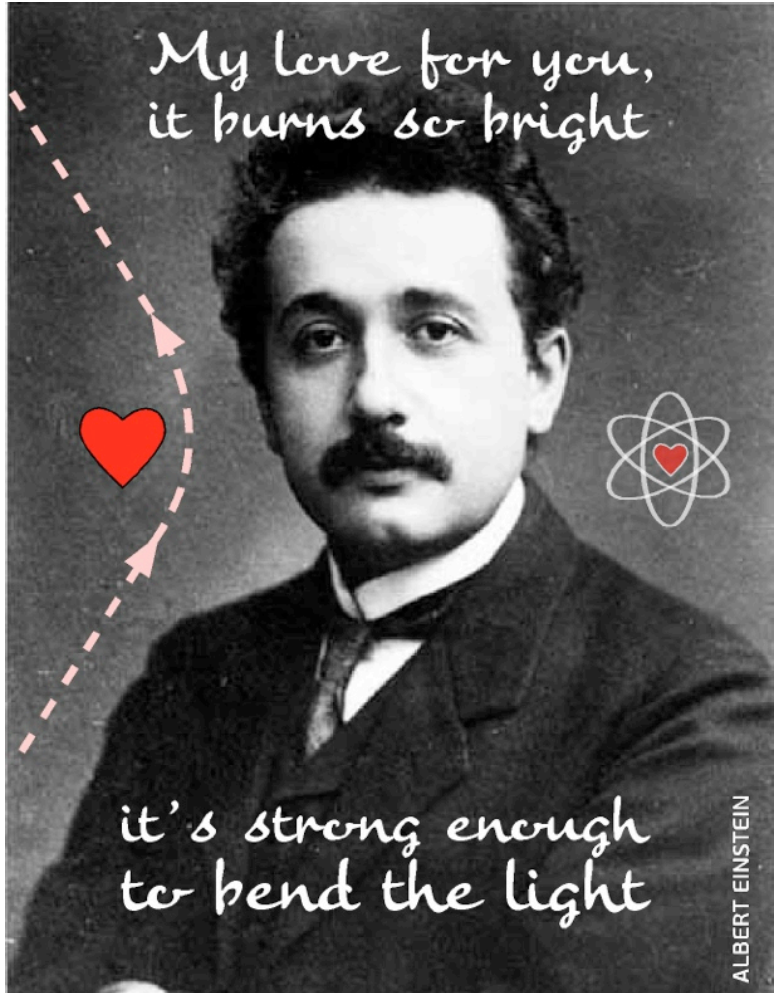
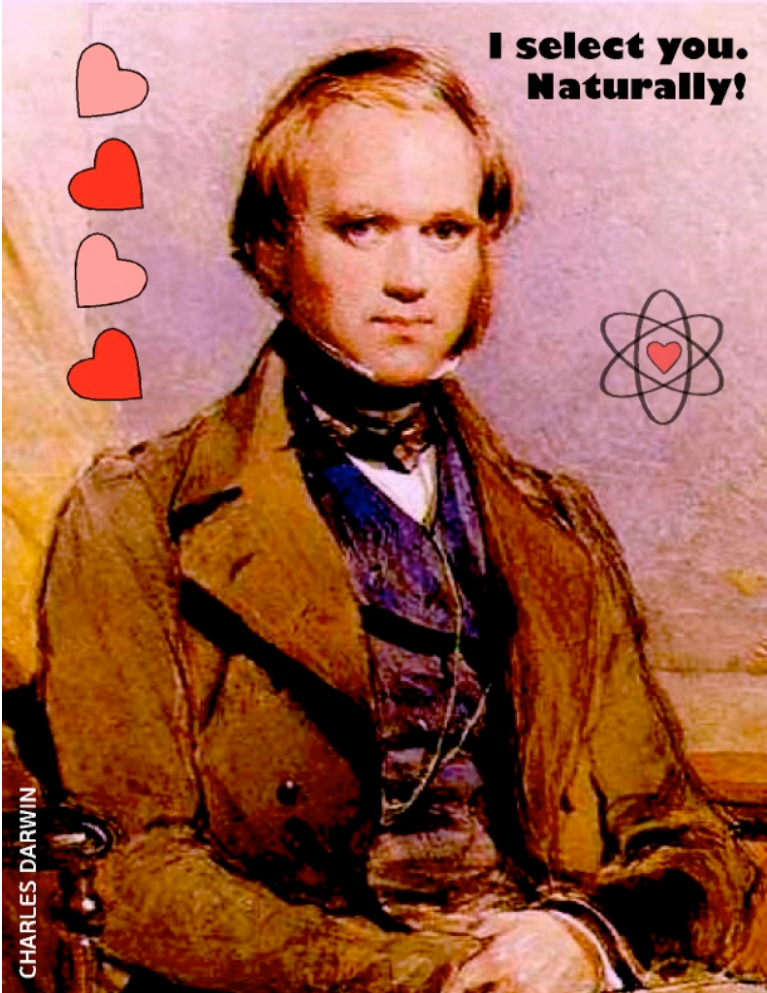
Marie Curie coined the term "radioactivity" and created the theory to explain it. She won Nobel Prizes in physics and chemistry.

SCIENTIST VALENTINES

Happy Valentine's Day

Anders Celsius is credited with developing the first centigrade temperature scale.

SCIENTIST VALENTINES



Happy Valentine's Day

One element of Einstein's General Theory of Relativity is the concept that gravity is not a force but rather the consequence of mass "warping" the geometry of spacetime. When "gravitational lensing" was confirmed, Einstein was elevated to a stature of celebrity.

SCIENTIST VALENTINES

Happy Valentine's Day

Charles Darwin's Natural Selection model of evolution was the biggest breakthrough in biology in the nineteenth century.

SCIENTIST VALENTINES

Happy Valentine's Day

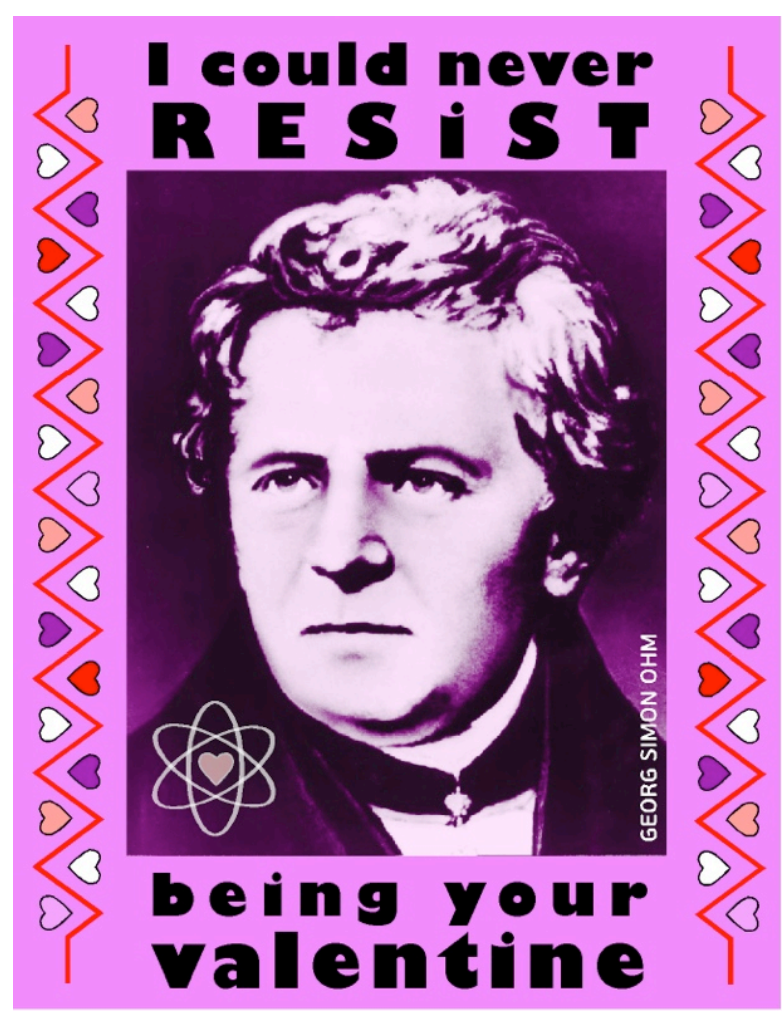
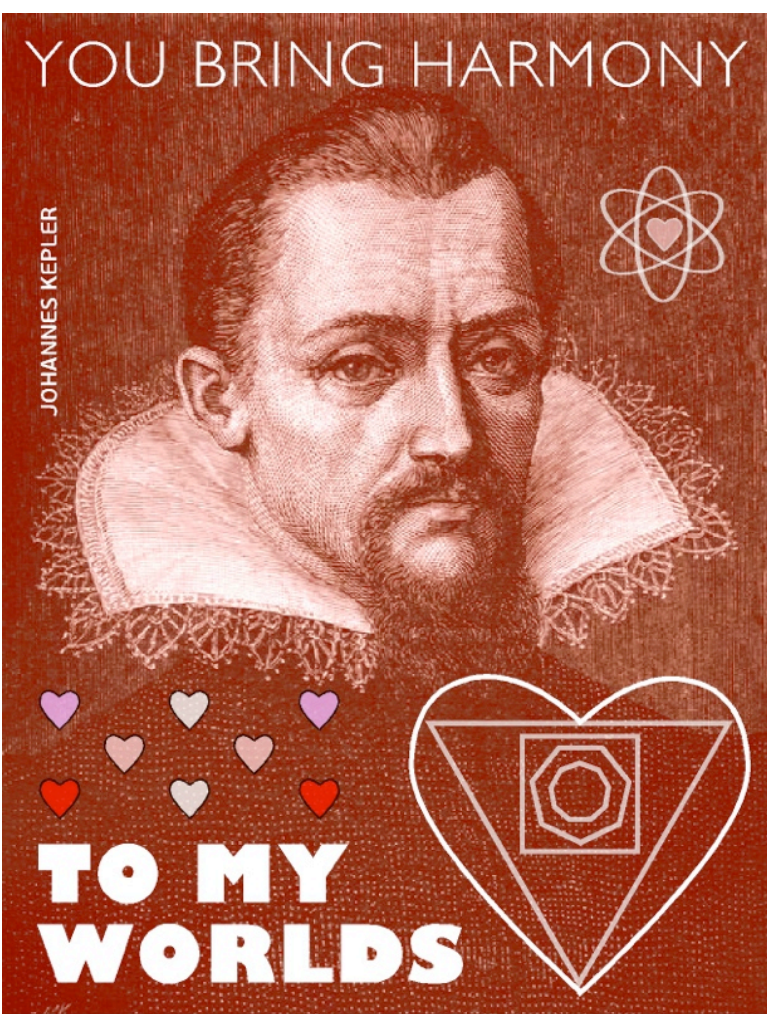
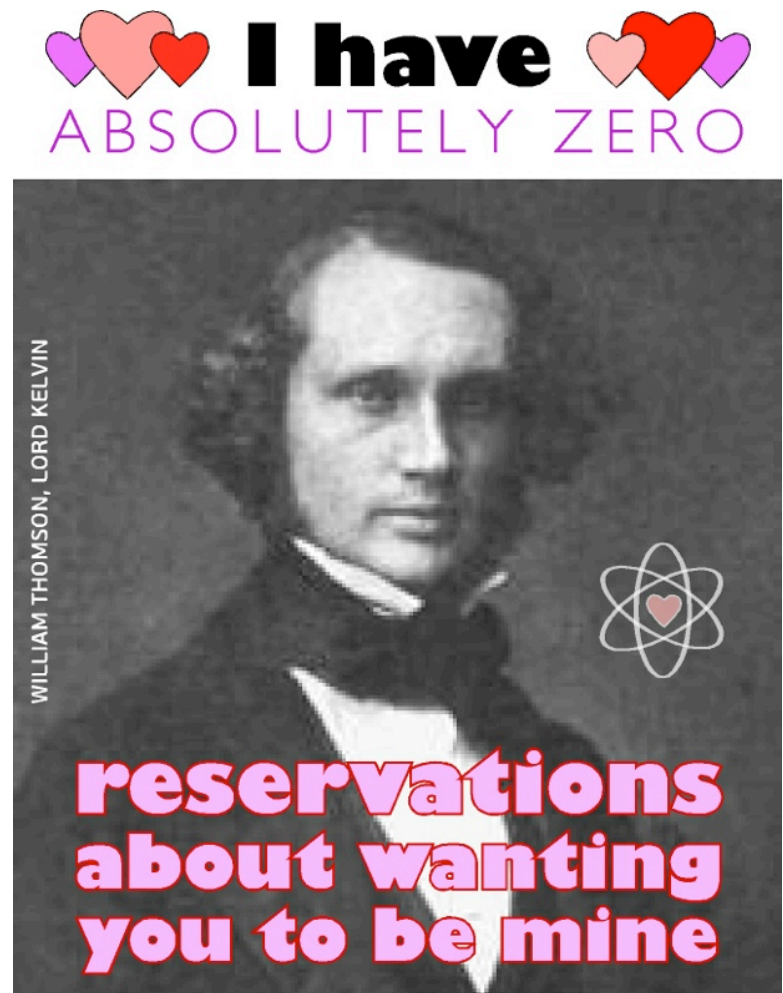
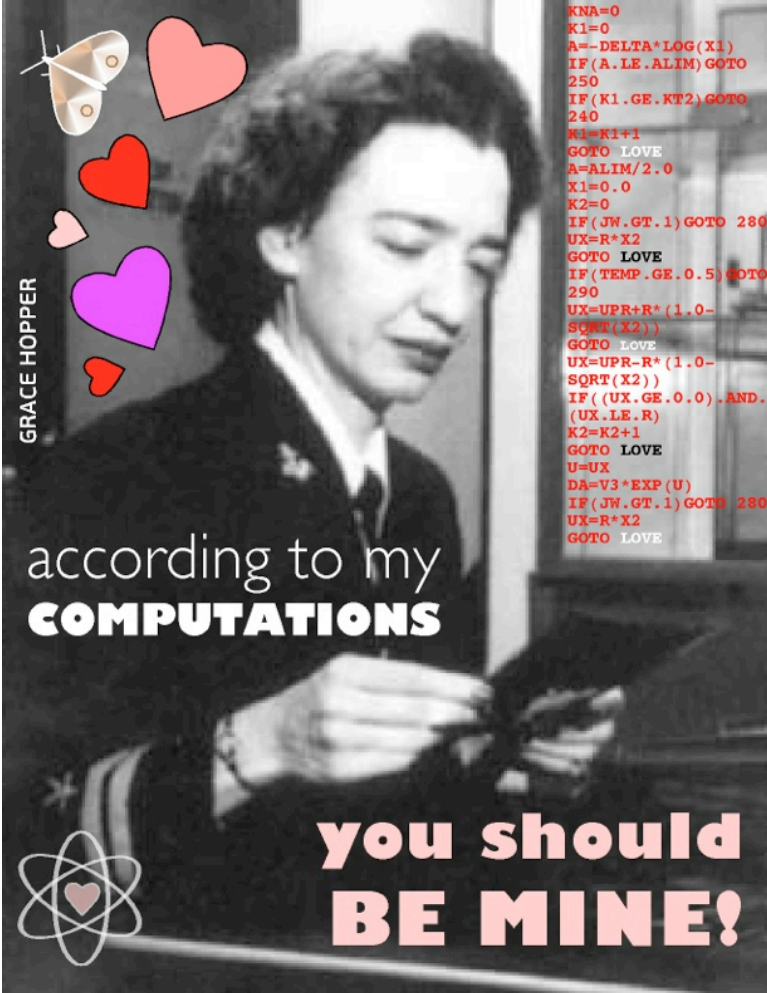
Werner Heisenberg is credited with the idea that we cannot know both the position and momentum of a particle (such as an electron) beyond a certain limit. If you know the momentum, you don't know the position (or vice versa). This is the Heisenberg Uncertainty Principle.

SCIENTIST VALENTINES

Happy Valentine's Day

Though he recanted his support of heliocentrism under threat of torture from The Church, Galileo was found guilty of heresy. As he was led into the confines house arrest, he is purported to have said "E pur si muove" ("and yet it moves", or—with some inferring applied— "Nevertheless, the world moves").

SCIENTIST VALENTINES



Happy Valentine's Day

William Thomson, Lord Kelvin developed a temperature scale that was absolute rather than relative. Zero on the Fahrenheit and Celsius scales is relative; negative temperatures must be used on those scales. There is no temperature colder than zero on the Kelvin scale: that temperature is "absolute zero."

SCIENTIST VALENTINES

Happy Valentine's Day

Rear Admiral Grace Hopper conceptualized machine-independent computer programming languages. She is credited with popularizing the term "debugging," which originated with the removal of an actual moth from the circuitry of a computer.

SCIENTIST VALENTINES

Happy Valentine's Day

Ohm's law relates current, voltage, and resistance: $V=IR$. The unit of electrical resistance is named in Ohm's honor.

SCIENTIST VALENTINES

Happy Valentine's Day

After 30 years of work and over 900 pages of calculations, Johannes Kepler published the spoils of victory from his "War on Mars" in his monumental book, Harmony of the Worlds. Kepler's laws of planetary motion included the Law of Ellipses, the Law of Equal Areas, and the Law of Harmony.

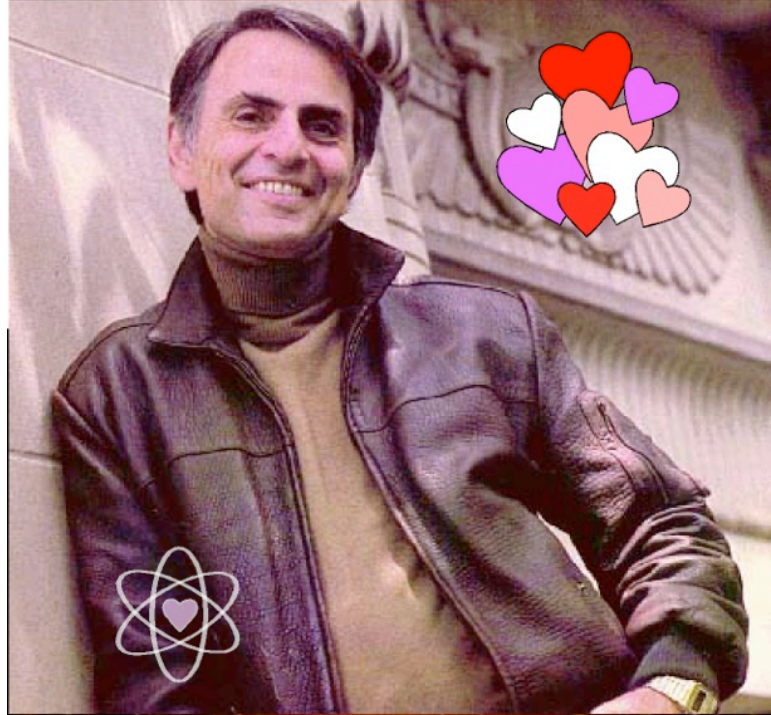
SCIENTIST VALENTINES

I ♥ U



to the **exclusion**
of all others

I'M SAGAN



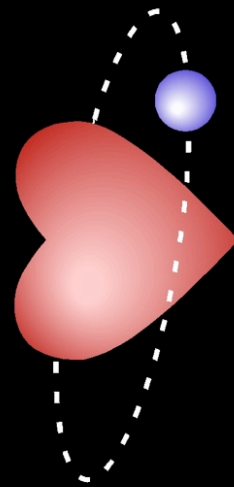
all my love for you!



ALESSANDRO VOLTA

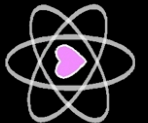


You and I
have great
POTENTIAL



My
whole
world

revolves
around
YOU



Happy Valentine's Day

Astrophysicist Carl Sagan was a prolific author and popularizer of science. His landmark PBS series, *Cosmos*, continues to inspire audiences to this day.

SCIENTIST VALENTINES

Happy Valentine's Day

Each electron in an atom or molecule has a set of quantum numbers. One specifies energy level (shell), one for the subshell (s, p, d, f, etc.), one for the specific orbit in the subshell, and one for spin. The Pauli Exclusion Principle states that no two electrons in atom or molecule will have the same set of quantum numbers.

SCIENTIST VALENTINES

Happy Valentine's Day

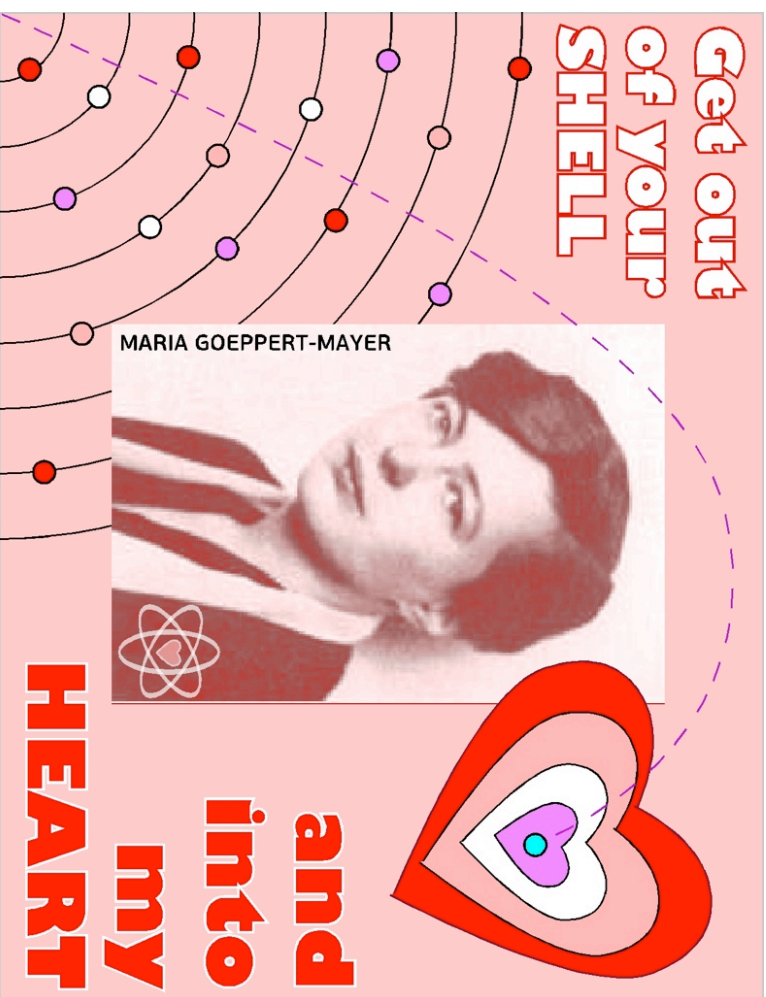
Alessandro Volta is credited with the invention of the electrochemical cell battery. The SI unit of electric potential (volt) is named in his honor.

SCIENTIST VALENTINES

Happy Valentine's Day

The heliocentric model of the solar system conceived by Aristarchus lay dormant until the publication of Copernicus' *On the Revolution of Heavenly Orbs*. The Polish monk went against Church dogma to place the sun at the center with the Earth merely one of several planets in orbit around it.

SCIENTIST VALENTINES



Michael Faraday visualized electric and magnetic fields by drawing lines of force. The lines indicated the direction and strength of the field. The patterns of lines also indicated attraction and repulsion. Such field representations are still used today.

SCIENTIST VALENTINES

Happy Valentine's Day

Maria Goeppert-Mayer won a Nobel Prize in physics for her shell model of the nucleus. Her model explained the existence why certain "magic numbers" of nucleons formed highly stable nuclei.

SCIENTIST VALENTINES

Happy Valentine's Day

Rosalind Franklin used X-ray crystallography to significantly advance the understanding of several molecular structures. Her work on DNA was pivotal to the establishment of the double-helix model.

SCIENTIST VALENTINES

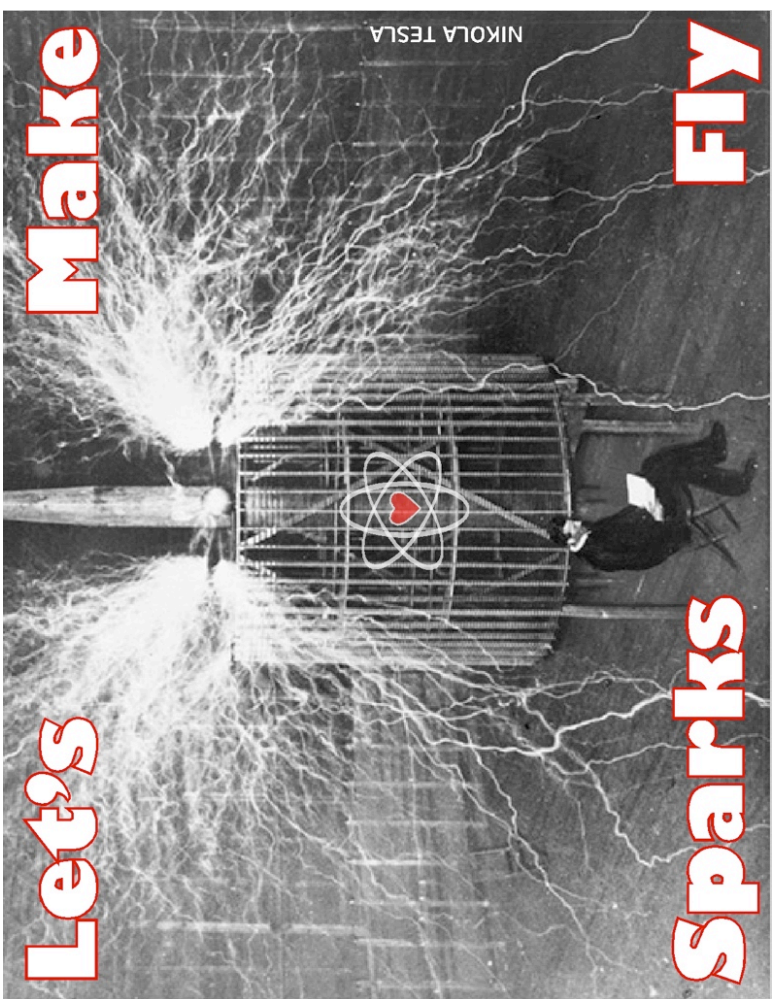
Jane Goodall is an English primatologist, ethologist, anthropologist, and UN Messenger of Peace. Considered to be the world's foremost expert on chimpanzees, Goodall is best known for her 55-year study of social and family interactions of wild chimpanzees in Gombe Stream National Park, Tanzania.

-Wikipedia

SCIENTIST VALENTINES

Happy Valentine's Day

Happy Valentine's Day



Happy Valentine's Day

Isaac Newton is purported to have connected his theory of universal gravitation to apples in his family's orchard. We think of his theory as unifying free fall and orbital mechanics.

SCIENTIST VALENTINES

Happy Valentine's Day

Nikola Tesla was an enigmatic inventor and proponent of alternating current during The War of the Currents. The iconic photograph here was intended to show how safe alternating current was.

SCIENTIST VALENTINES

Happy Valentine's Day

Although Lise Meitner was part of a team that discovered nuclear fission, she was not included in the Nobel Prize awarded to her colleague, Otto Hahn, in recognition for the discovery.

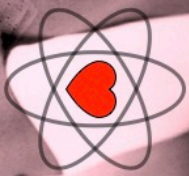
SCIENTIST VALENTINES

Happy Valentine's Day

Max Planck was a "founding father" of quantum mechanics. He theorized that blackbody radiation was emitted only as multiples of a specific "quantum" of energy rather than as a continuous spectrum.

SCIENTIST VALENTINES

RACHEL CARSON



SPRING

into love!

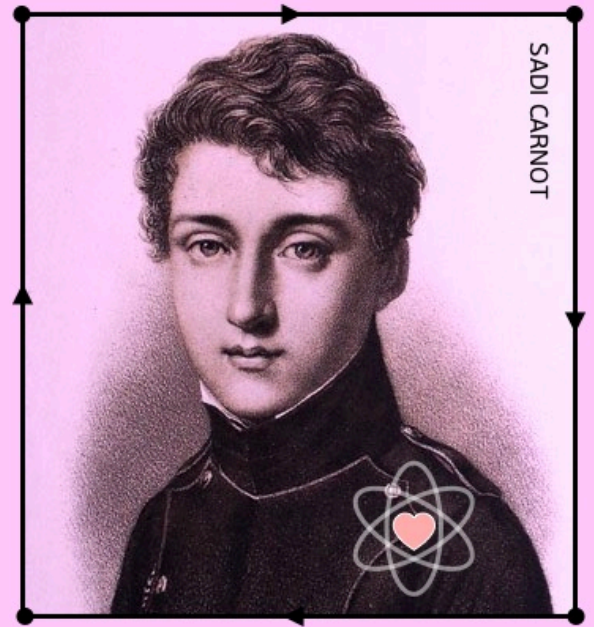
Let's

SILENT?

Why remain

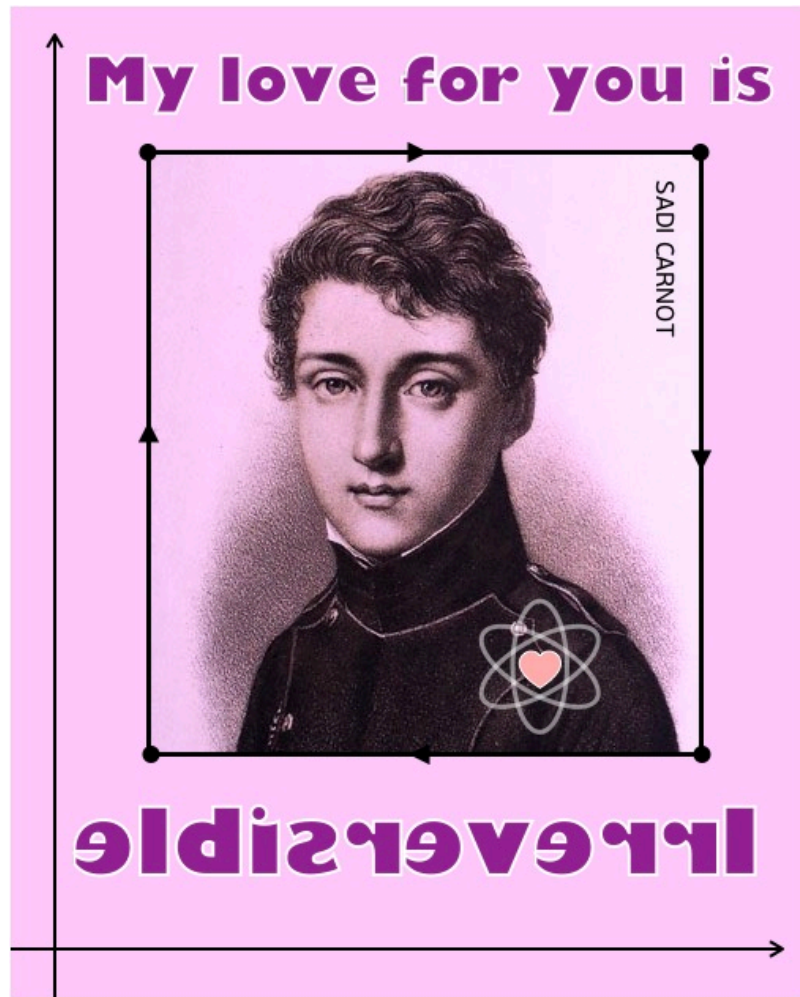


My love for you is



SADI CARNOT

old is never



JAMES CLERK MAXWELL



*If electricity and magnetism
can be united, then darling*

SO CAN WE!



I'm weightless



MAE JEMISON

in love with you!



Happy Valentine's Day

Sadi Carnot was a mechanical engineer in the French Army. He published only one book, in which he expressed, at the age of 27 years, the first successful theory of the maximum efficiency of heat engines. Carnot's work attracted little attention during his lifetime, but it was later used to formalize the second law of thermodynamics and define the concept of entropy (roughly thought of as disorder).

An irreversible process is one in which the entropy of the universe is increased.

SCIENTIST VALENTINES

Happy Valentine's Day

Rachel Carson was an American marine biologist, author, and conservationist whose book *Silent Spring* and other writings are credited with advancing the global environmental movement.

SCIENTIST VALENTINES

Happy Valentine's Day

Mae Jemison is an American engineer, physician, and former NASA astronaut. She became the first black woman to travel into space when she served as a mission specialist aboard the Space Shuttle *Endeavour*. Jemison joined NASA's astronaut corps in 1987 and was selected to serve for the STS-47 mission, during which she orbited the Earth for nearly eight days in September, 1992.

SCIENTIST VALENTINES

Happy Valentine's Day

James Clerk Maxwell was a Scottish scientist in the field of mathematical physics. His most notable achievement was to formulate the classical theory of electromagnetic radiation, bringing together for the first time electricity, magnetism, and light as different manifestations of the same phenomenon. Maxwell's equations for electromagnetism have been called the "second great unification in physics" after the first one (projectile motion and orbital mechanics) realized by Isaac Newton.

SCIENTIST VALENTINES