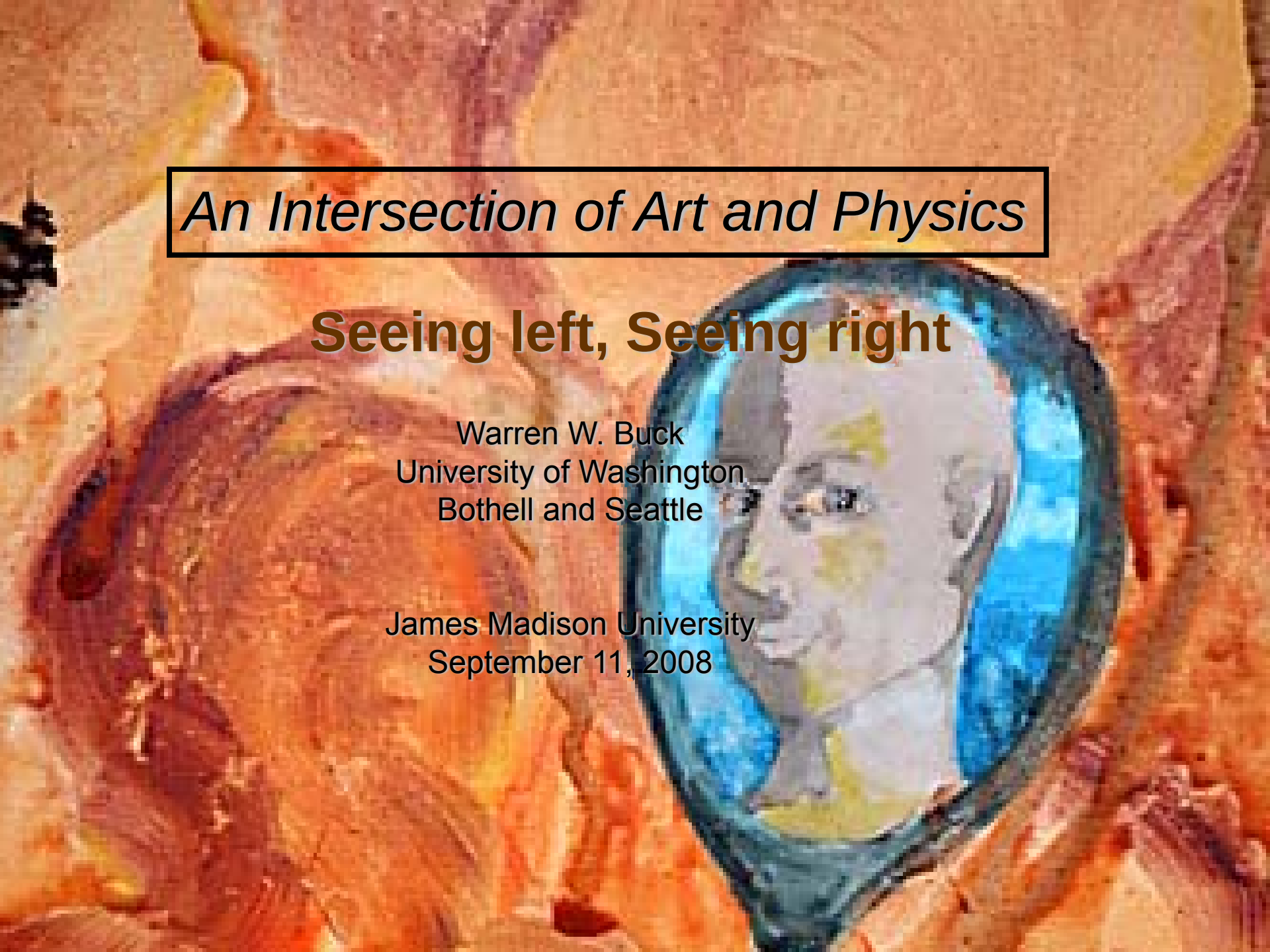


An Intersection of Art and Physics

Seeing left, Seeing right

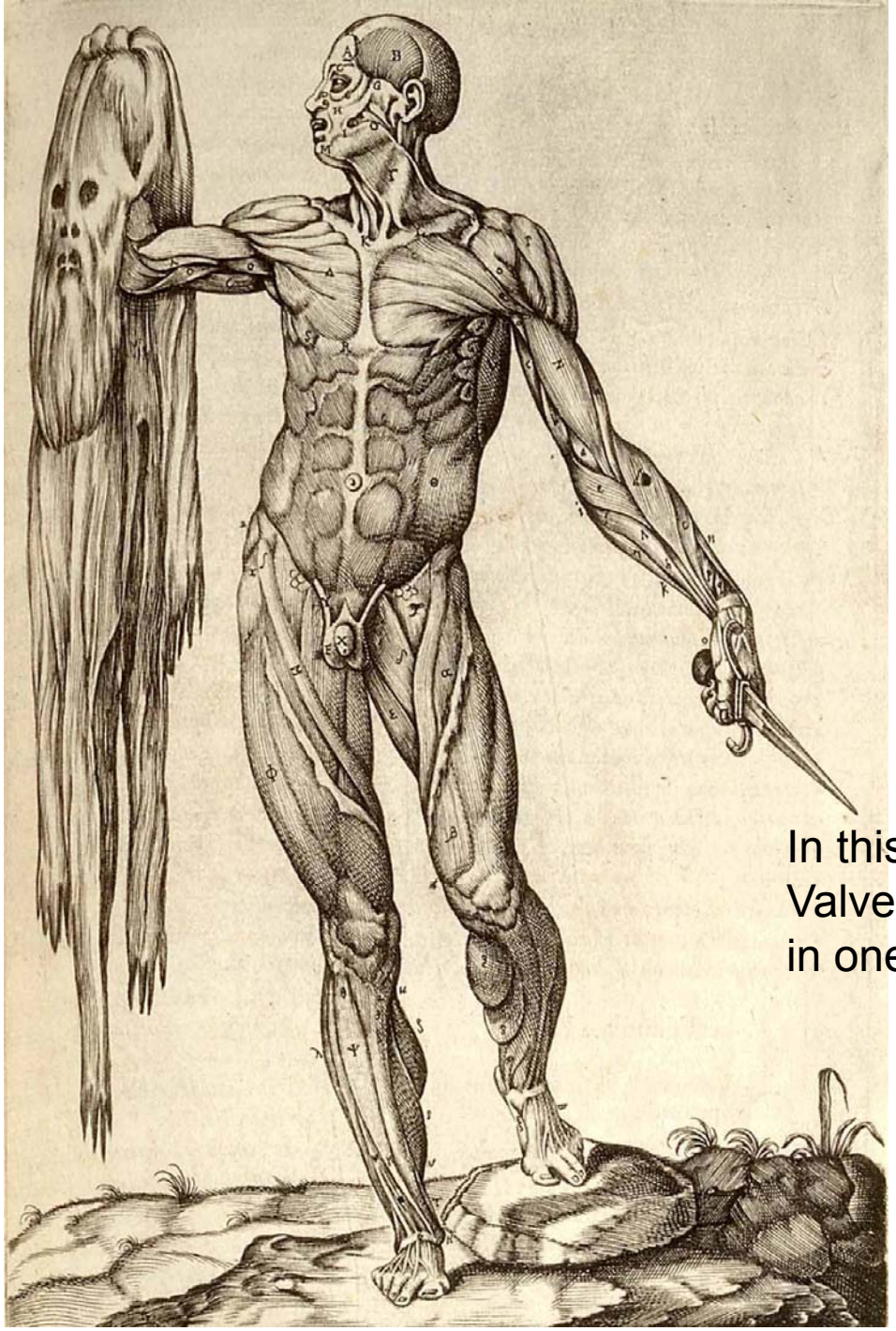
Warren W. Buck
University of Washington
Bothell and Seattle

James Madison University
September 11, 2008

Historical Perspective of art with science

Mummification
Ca 2500 BC

Egyptian Pyramid building

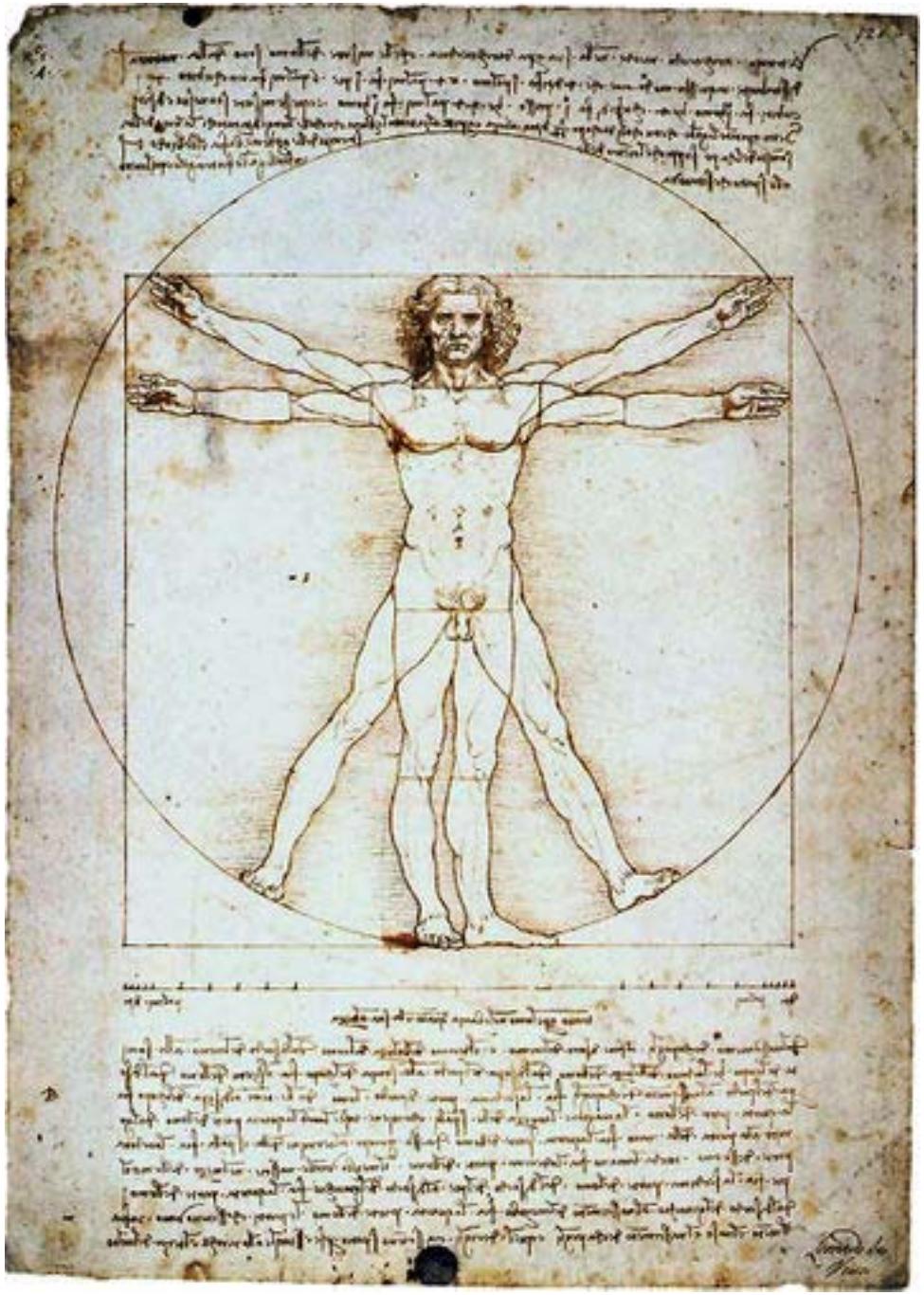


In this 1559 anatomical plate by Juan Valverde de Amusco, a figure holds a knife in one hand and his own skin in the other.

http://en.wikipedia.org/wiki/History_of_anatomy

David Teniers (1610-1690) *The Alchemist*, c.1645.

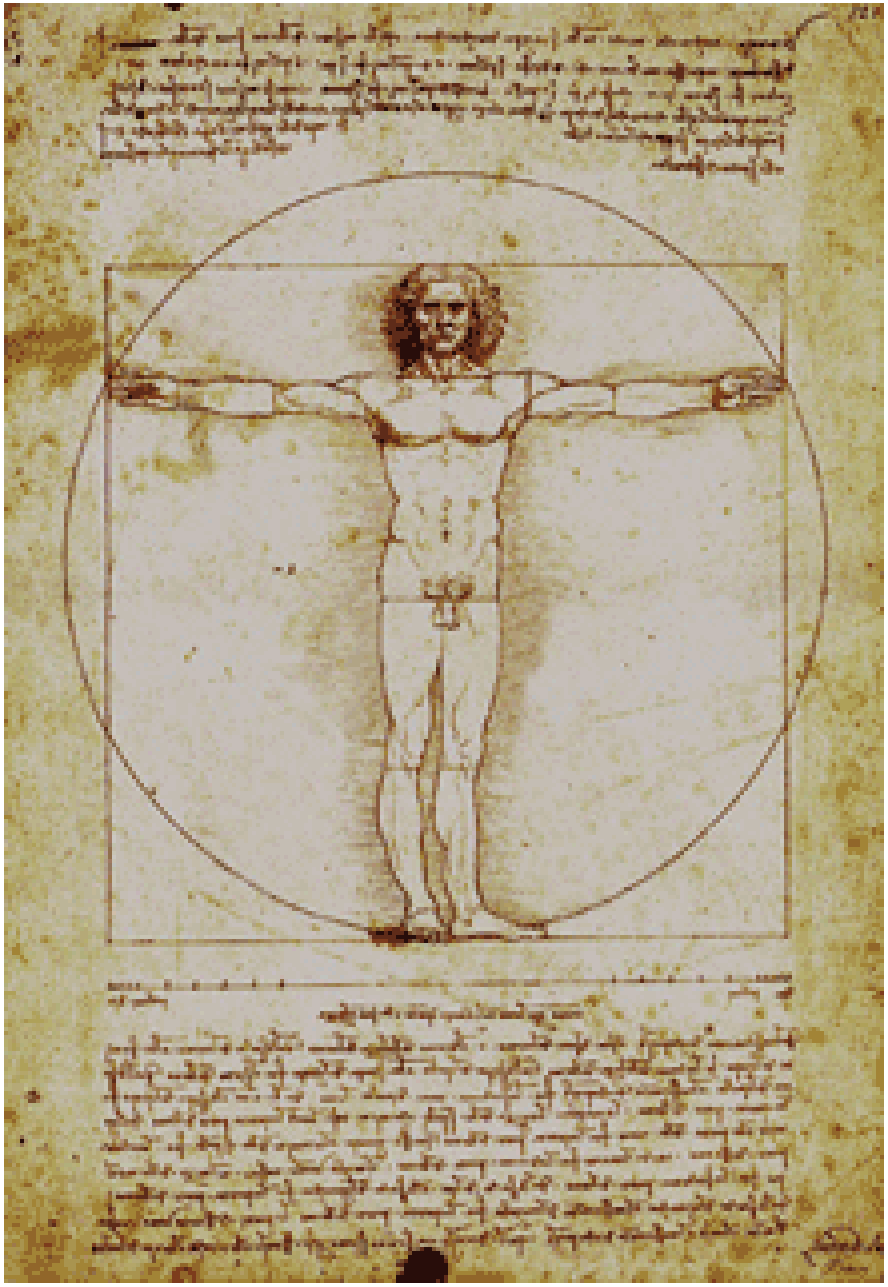
The Astronomer
Johannes Vermeer
C 1668



Vitruvian Man
Leonardo Da Vinci
(1471-1528)

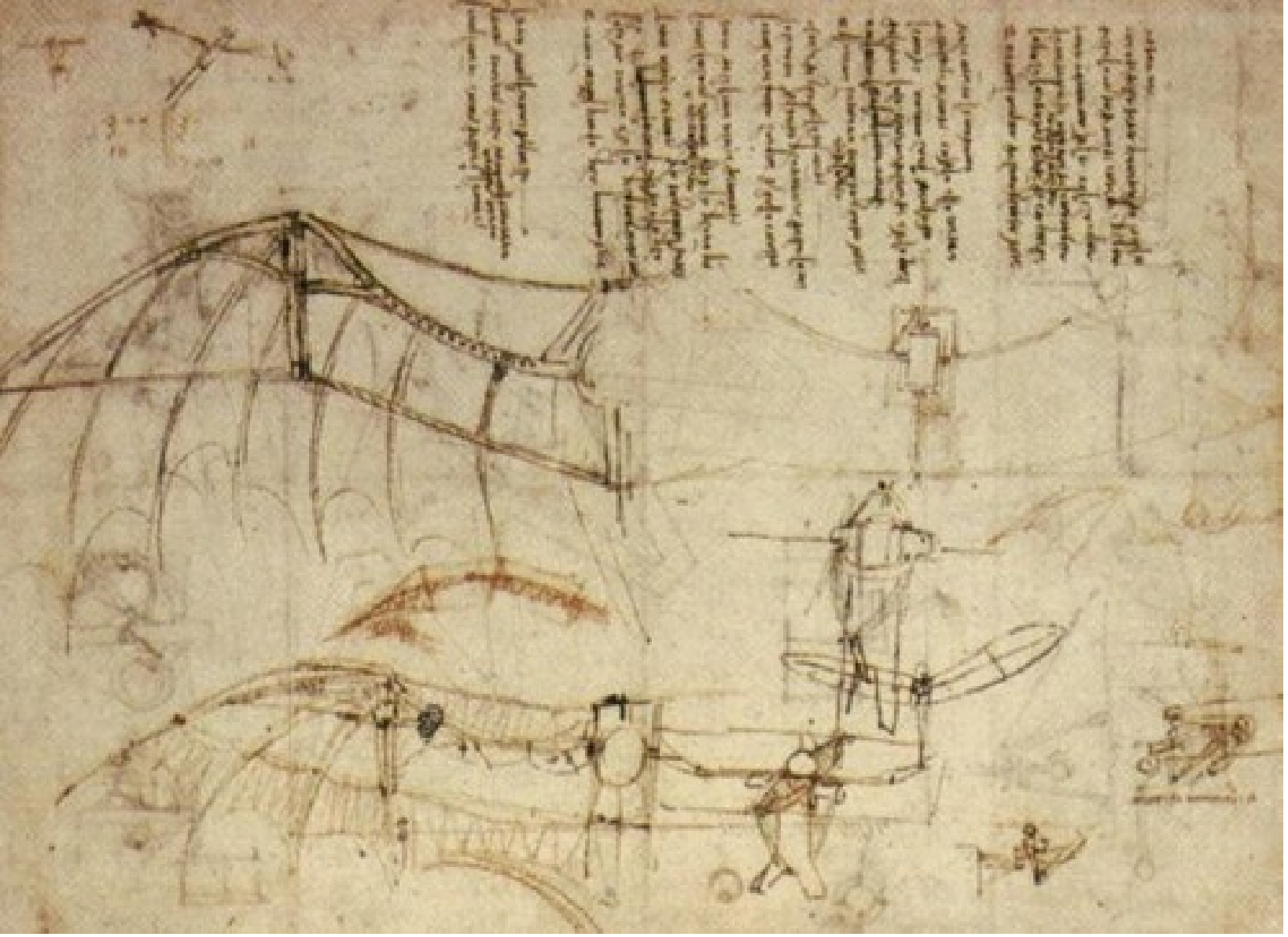
Heaven and Earth

Marcus Vitruvius Pollio (born ca. 80/70 BC?; died ca. 25 BC) was a Roman writer, architect and engineer

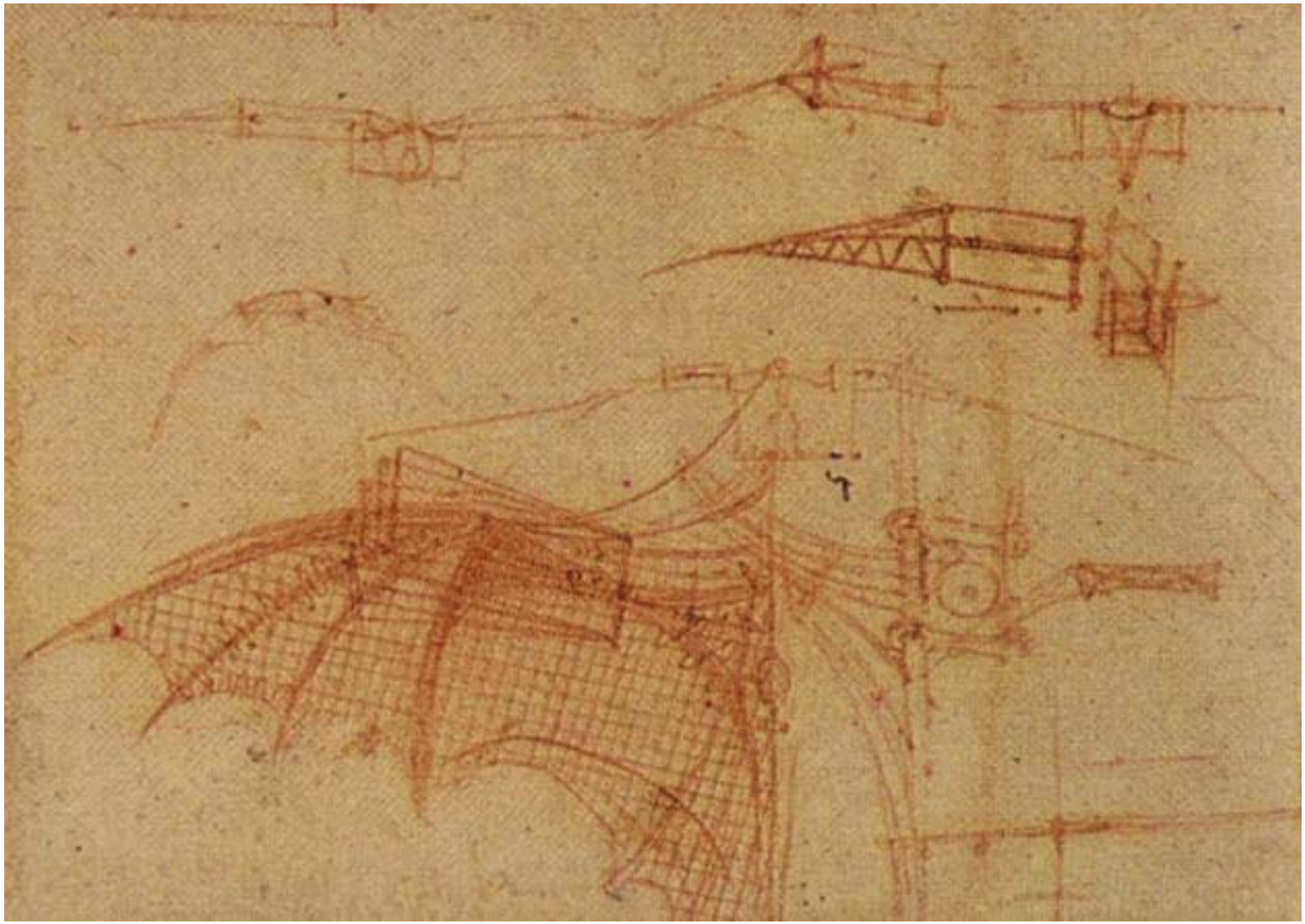


A mathematical algorithm!

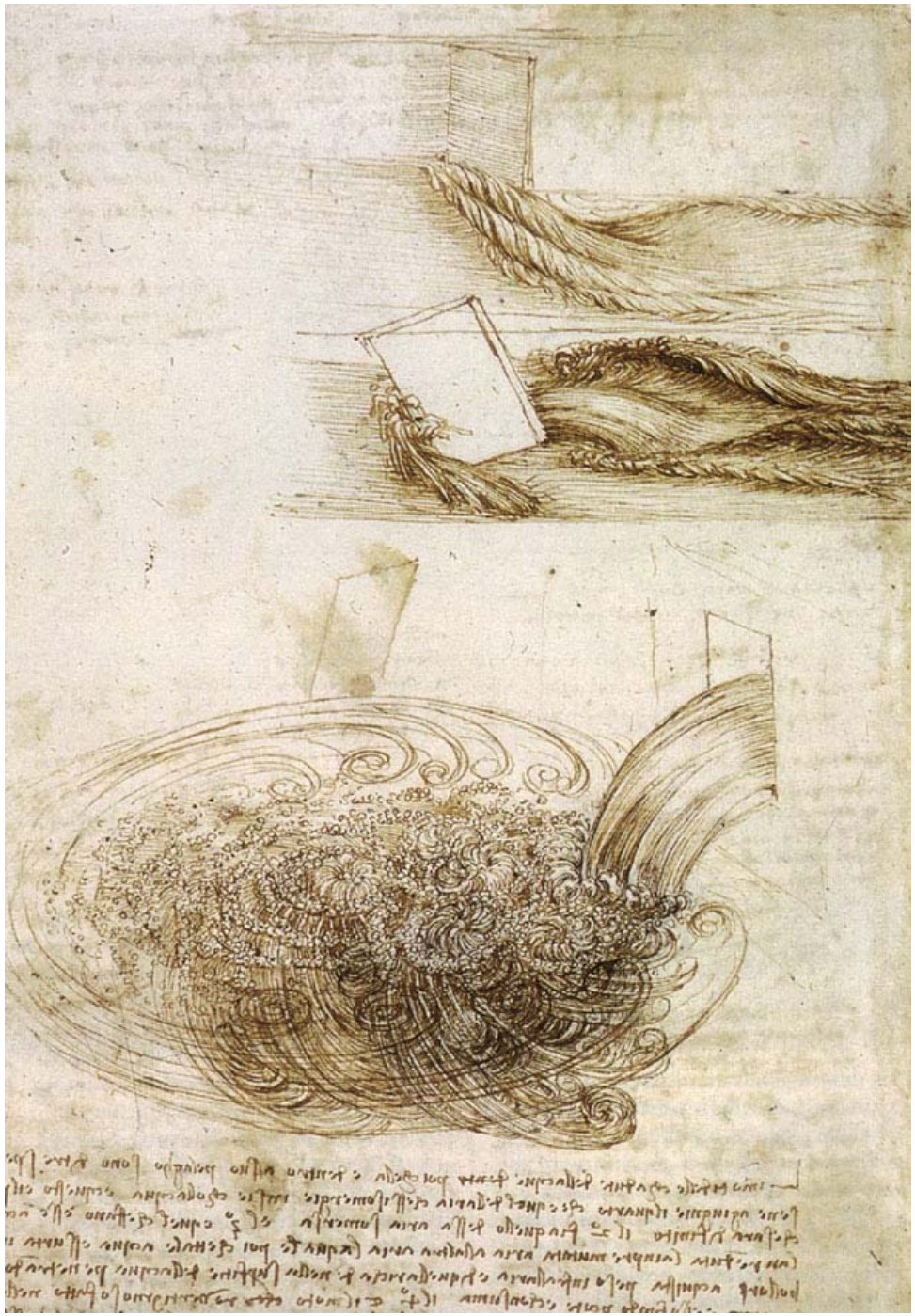
“Ich aber quadriere den Kreis ...”
Leonardo da Vincis Proportionsstudie
by Klaus Schröer / Klaus Irle
148 pages, 61 pictures
MV-Verlag, Münster
ISBN: 978-3-86582-547-6



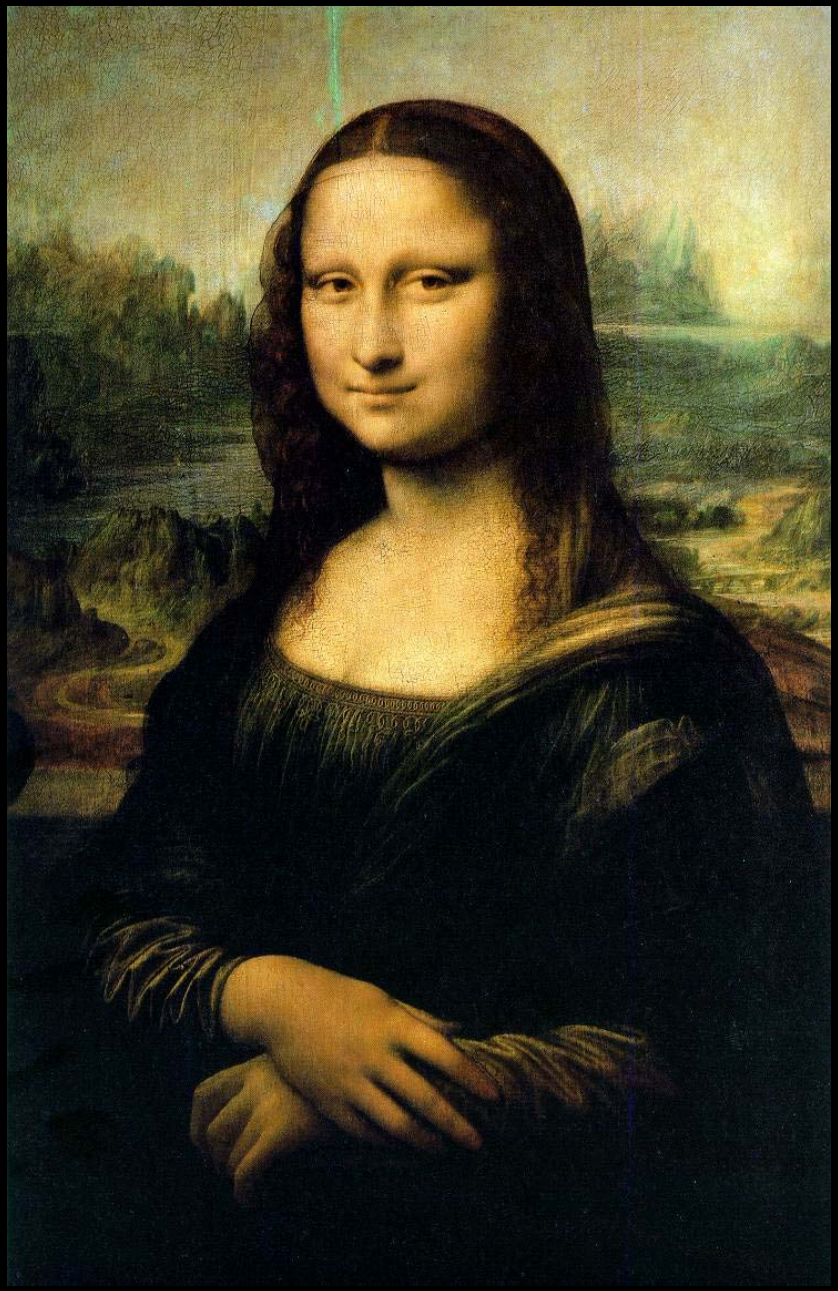
drawing of a flying machine, Leonardo da Vinci, 1488



Design for a Flying Machine
Da Vinci c. 1505



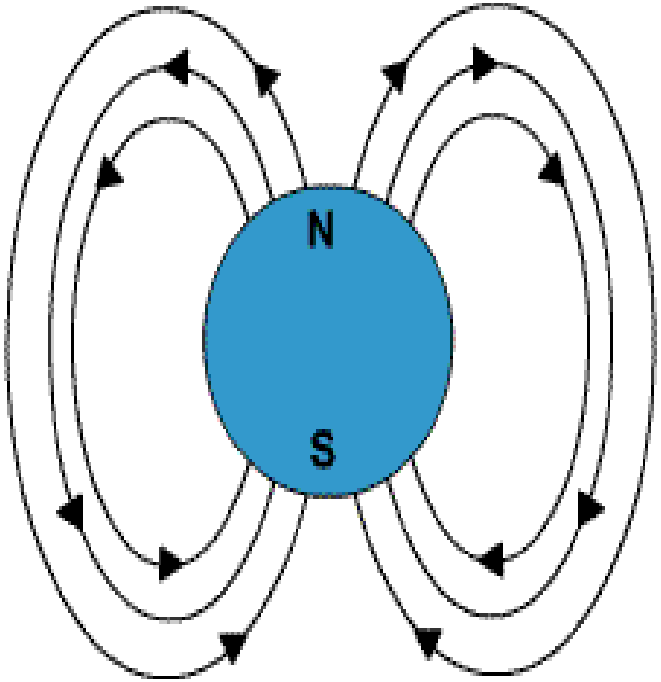
Studies of Water passing Obstacles and falling,
Da Vinci c. 1508-9



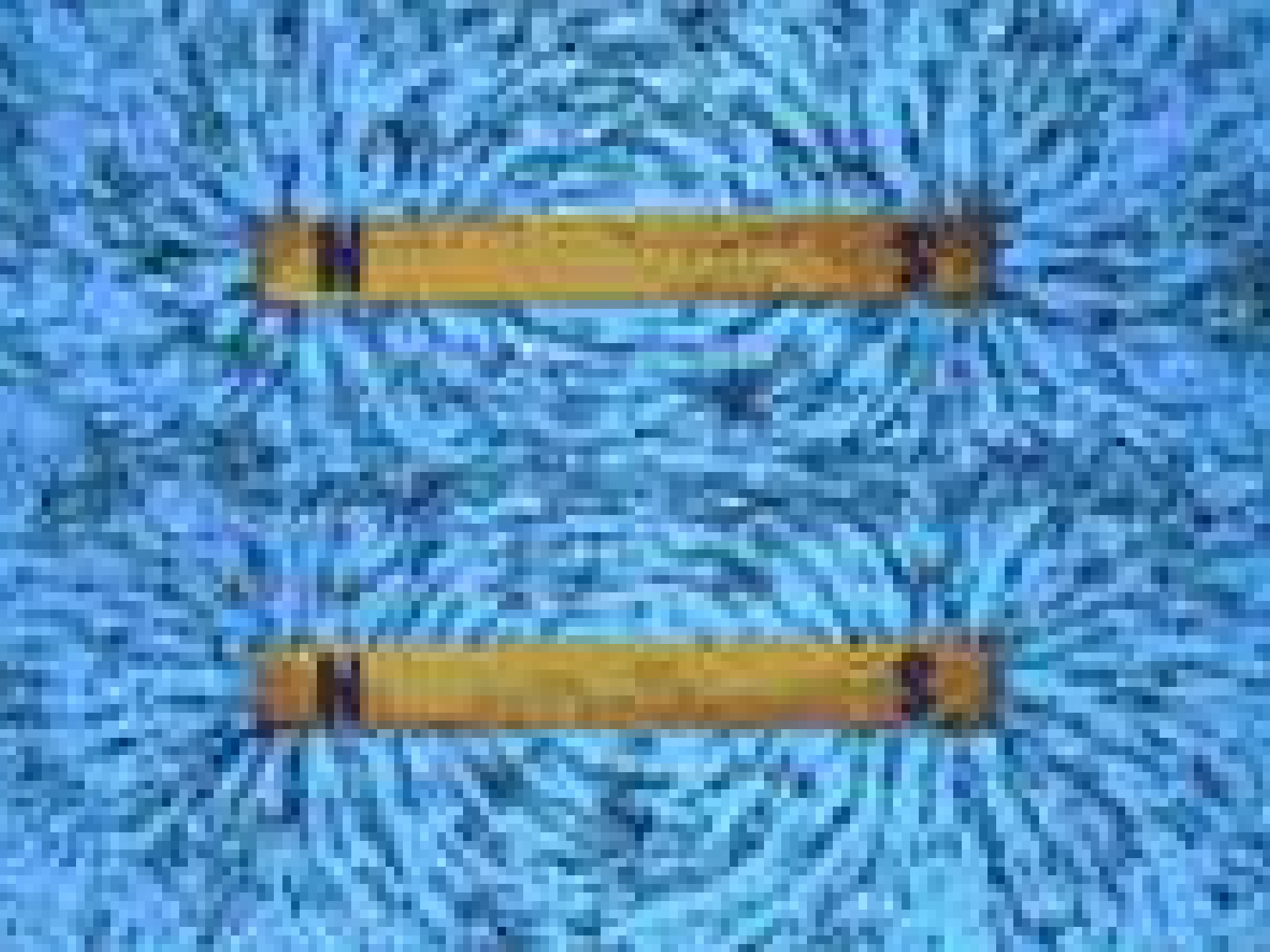
Physics of fields

Astronaut Photography of Earth - Quick View
AS04-1-504
JPL

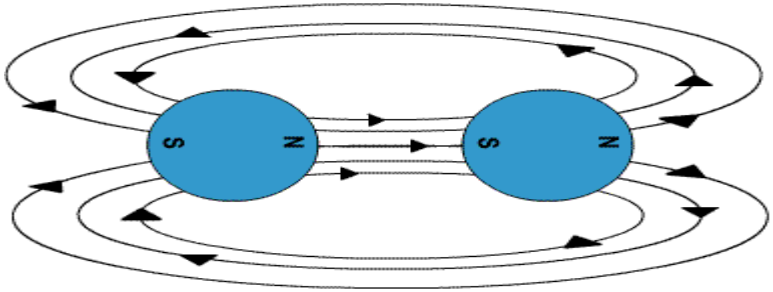
Magnetic Field Lines

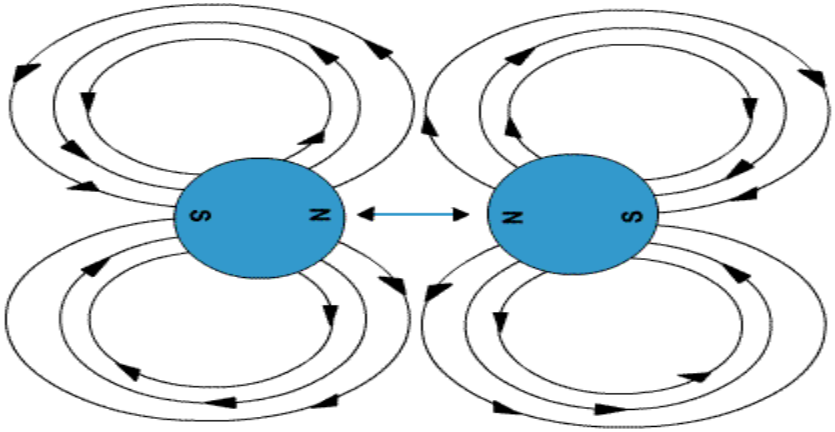


http://www.school-for-champions.com/science/magnetism.htm



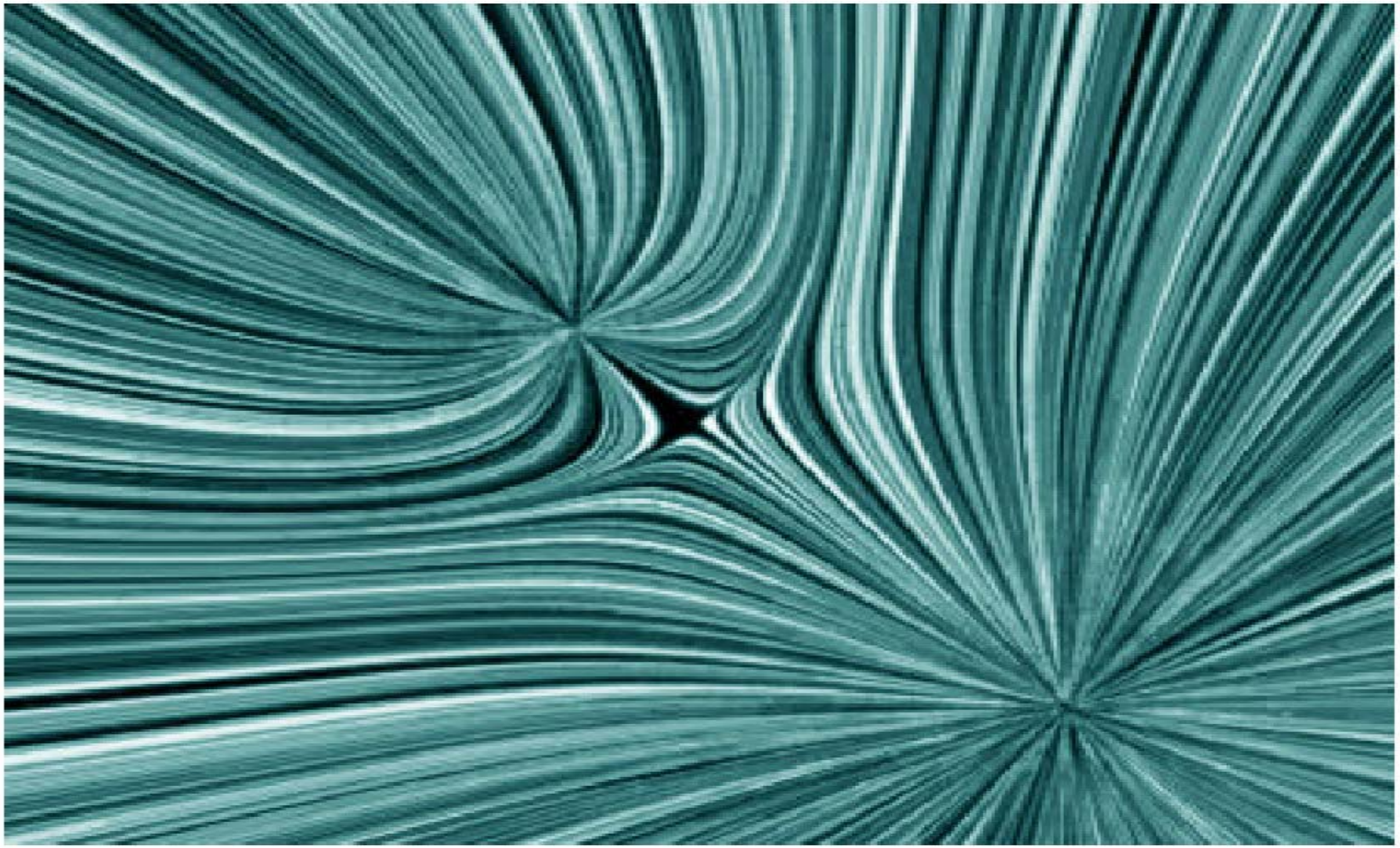
Interacting Magnetic Field Lines





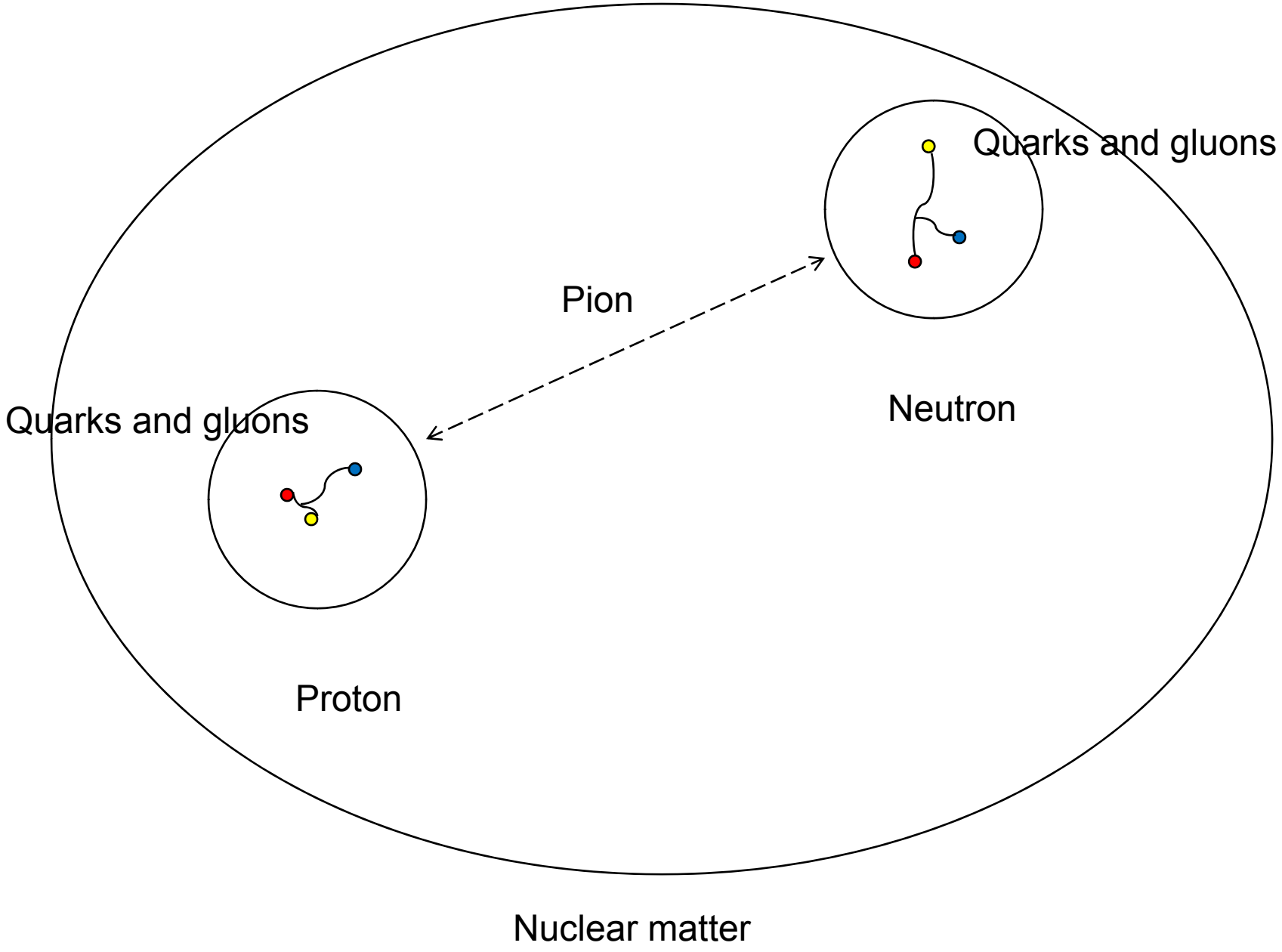
http://www.school-for-champions.com/science/magnetism.htm

Electric Field lines between two charges



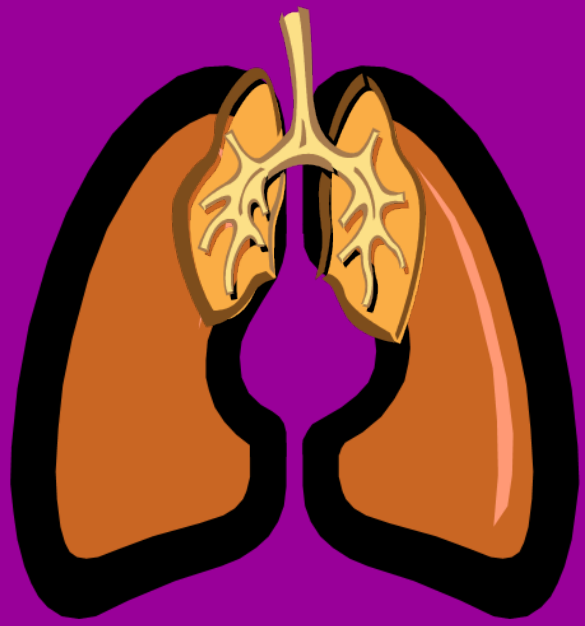
From an MIT physics website

ocw.mit.edu/NR/rdonlyres/hs/physics/k/8_02t_spring_2005_prs_w01d2.pdf


Quarks and gluons
Pion
Quarks and gluons
Neutron
Proton
Nuclear matter

Reflect on those who you enjoy sharing breath with.

And then reflect on those who you have aversion to sharing breath with



And then think about the space that holds all of that.

Stroboscope photography

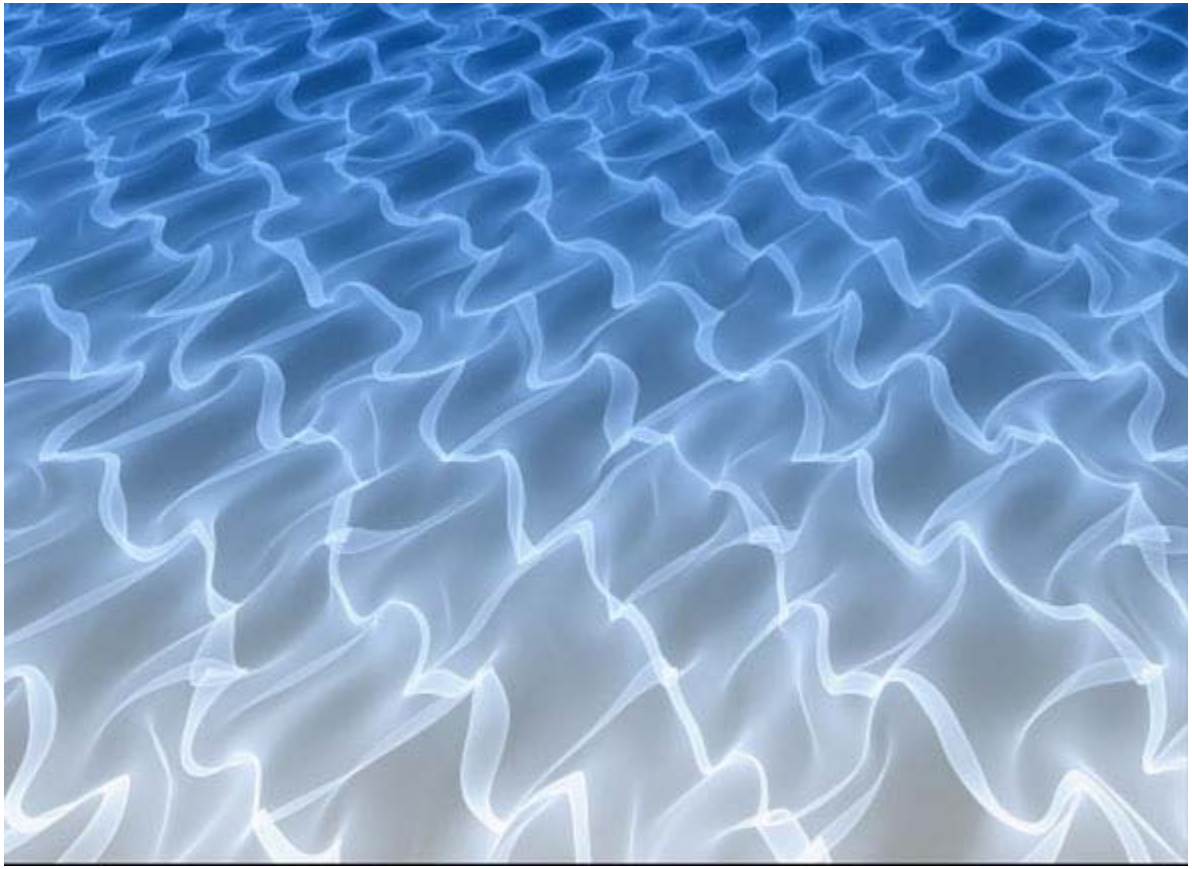
Shadowgraph (**Schlieren photography**) of a .22-caliber bullet in flight
Taken by an MIT freshman in 1962, in Edgerton's lab.
The flash was triggered by the shock wave (shown)
hitting a microphone (out of frame). The picture shows no solid object except the bullet.

Bubble Chamber Art

Lylie Fisher
“Beauty bubbles through” Symmetry Magazine V03, issue10, Dec 2006

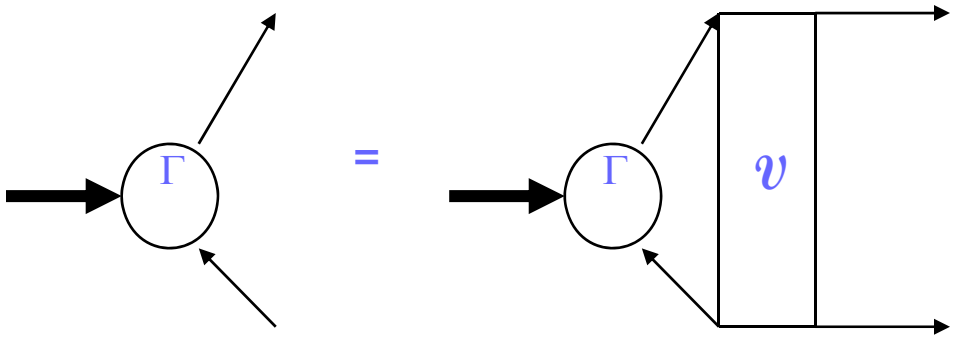
Hubble's view of
The Orion Nebula

Sea shell based on logarithmic spiral – created with fractals by Clifford Pickover

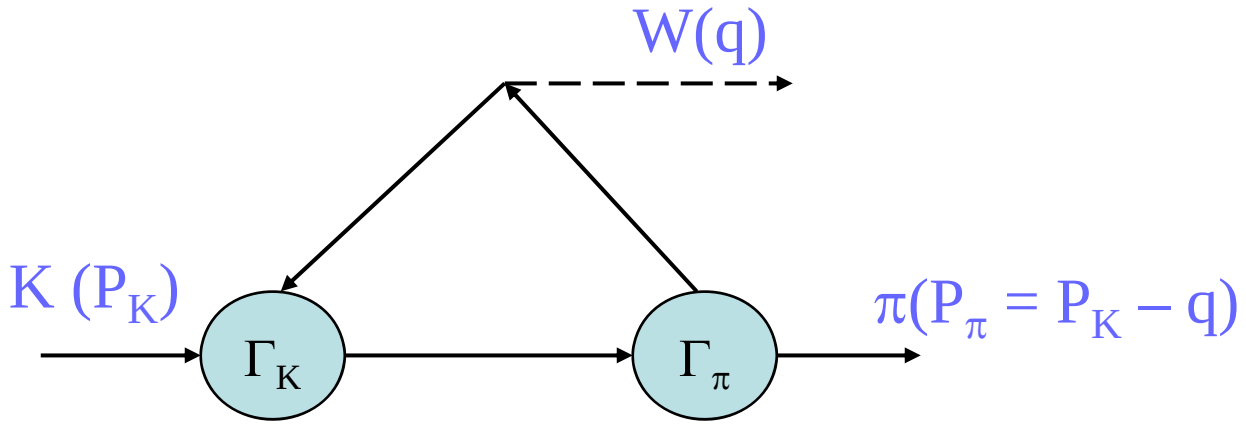


Caustic I by Eric Heller

http://www.ericjhellergallery.com/



J_μ =



$$J^\mu = (G_F/\sqrt{2})\, V_{us}\, [\, f_+(q^2)(P_K + P_\pi)^\mu + f_-(q^2)(P_K - P_\pi)^\mu]$$

prototype seven-cell superconducting accelerating cavity

Art Mirrors Physics Mirrors Art

Einstein, Picasso: Space, Time, and the Beauty That Causes Havoc
Arthur I. Miller
Basic Books (Perseus), New York, 2001. (357 pp.). ISBN 0-465-01859-X

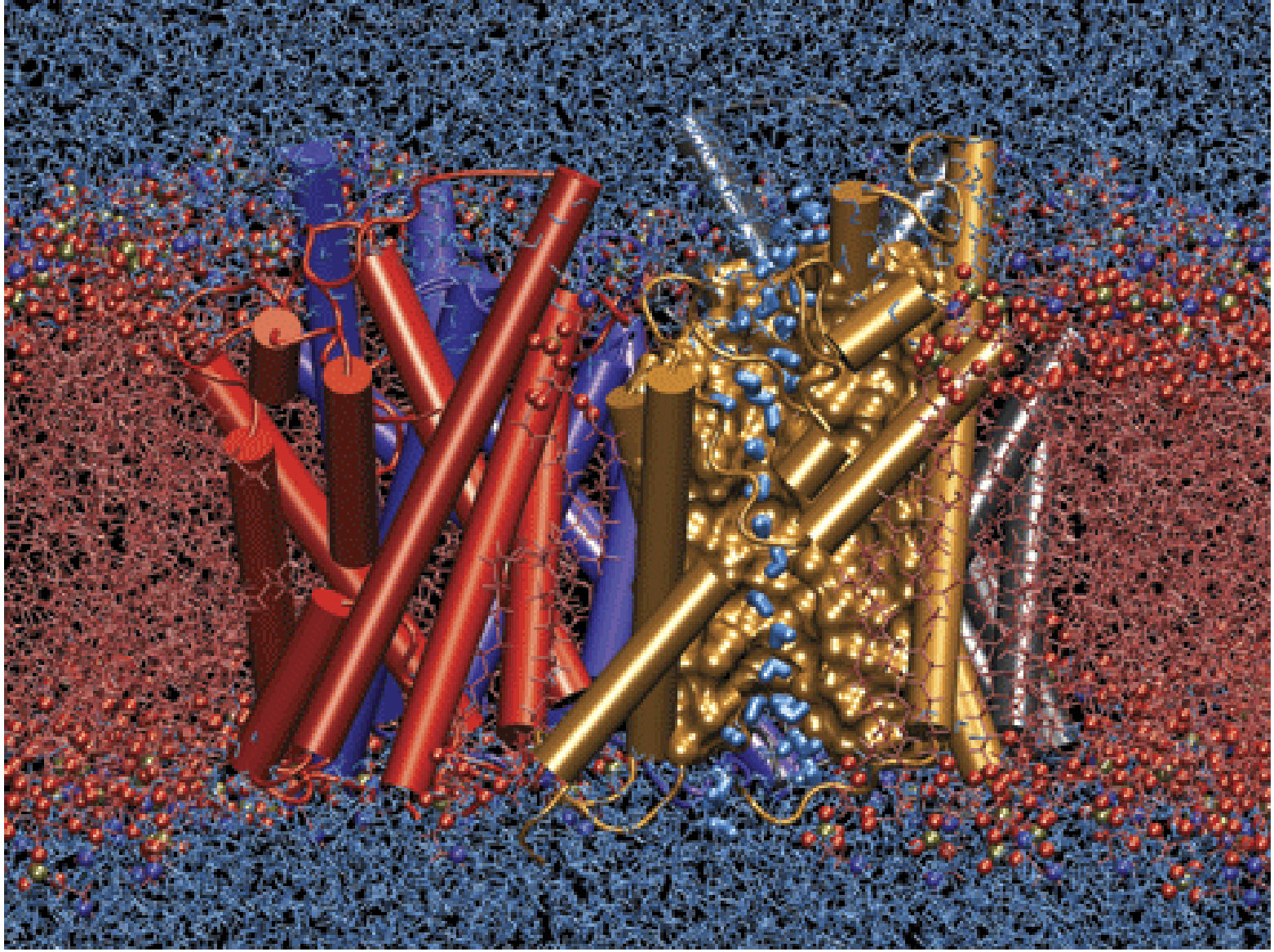
2001 Physics Today Review

Les Demoiselles d'Avignon:
Picasso's 1907 excursion into a fourth dimension.

Jérôme Basserode's huge spinning tops are some examples of Signatures of the Invisible, a joint project by CERN and the London Institute, the world's largest college of art and design.

Feb 2002

“The Peanut” Not quite L = 1 orbital outside Physics-Astronomy Building
University of Washington, Seattle



Winner 2004 Visualization Challenge

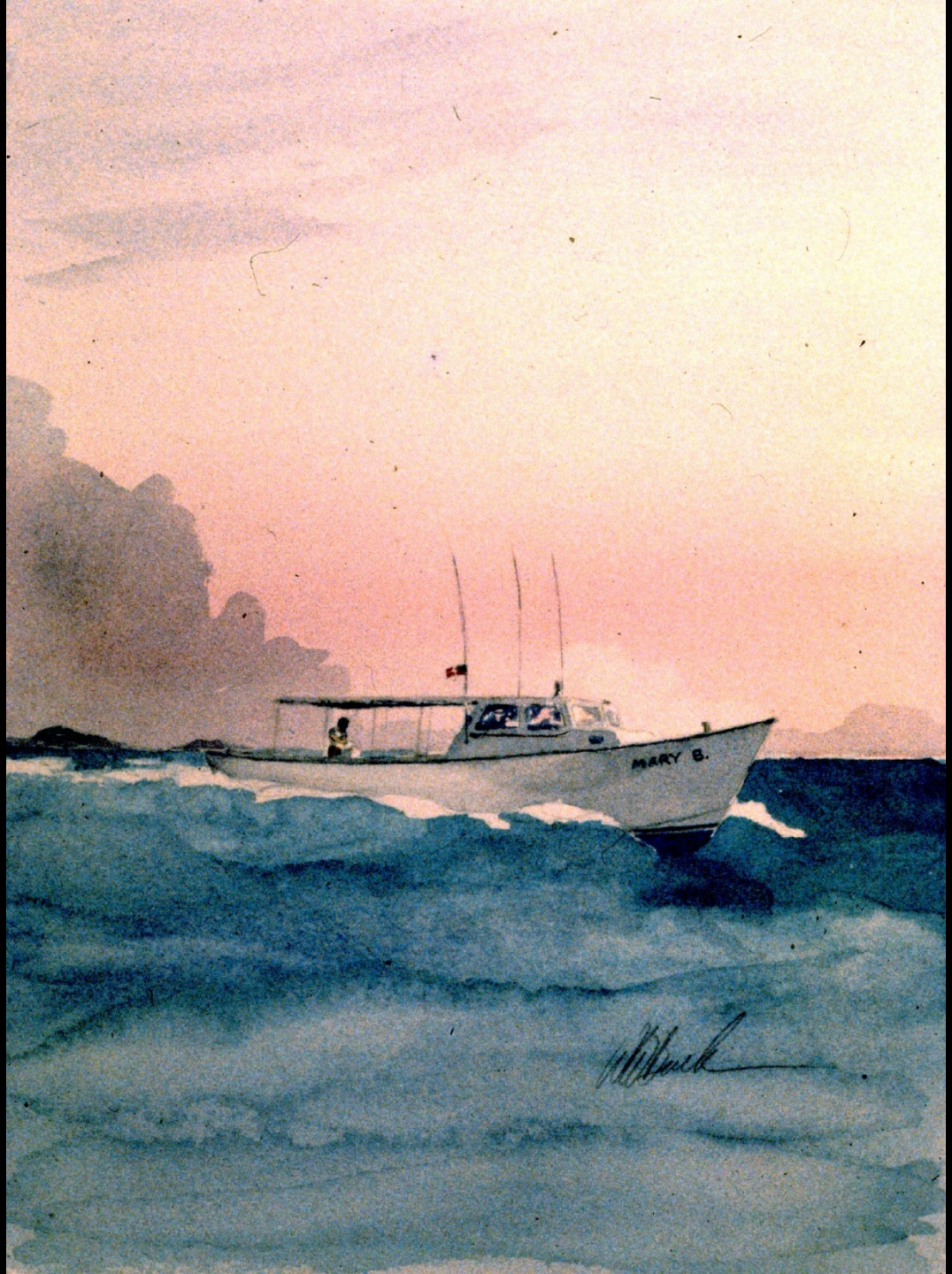
Water Permeation Through Aquaporins
Emad Tajkhorshid and Klaus Schulten,
Theoretical and Computational Biophysics Group,
University of Illinois, Urbana-Champaign

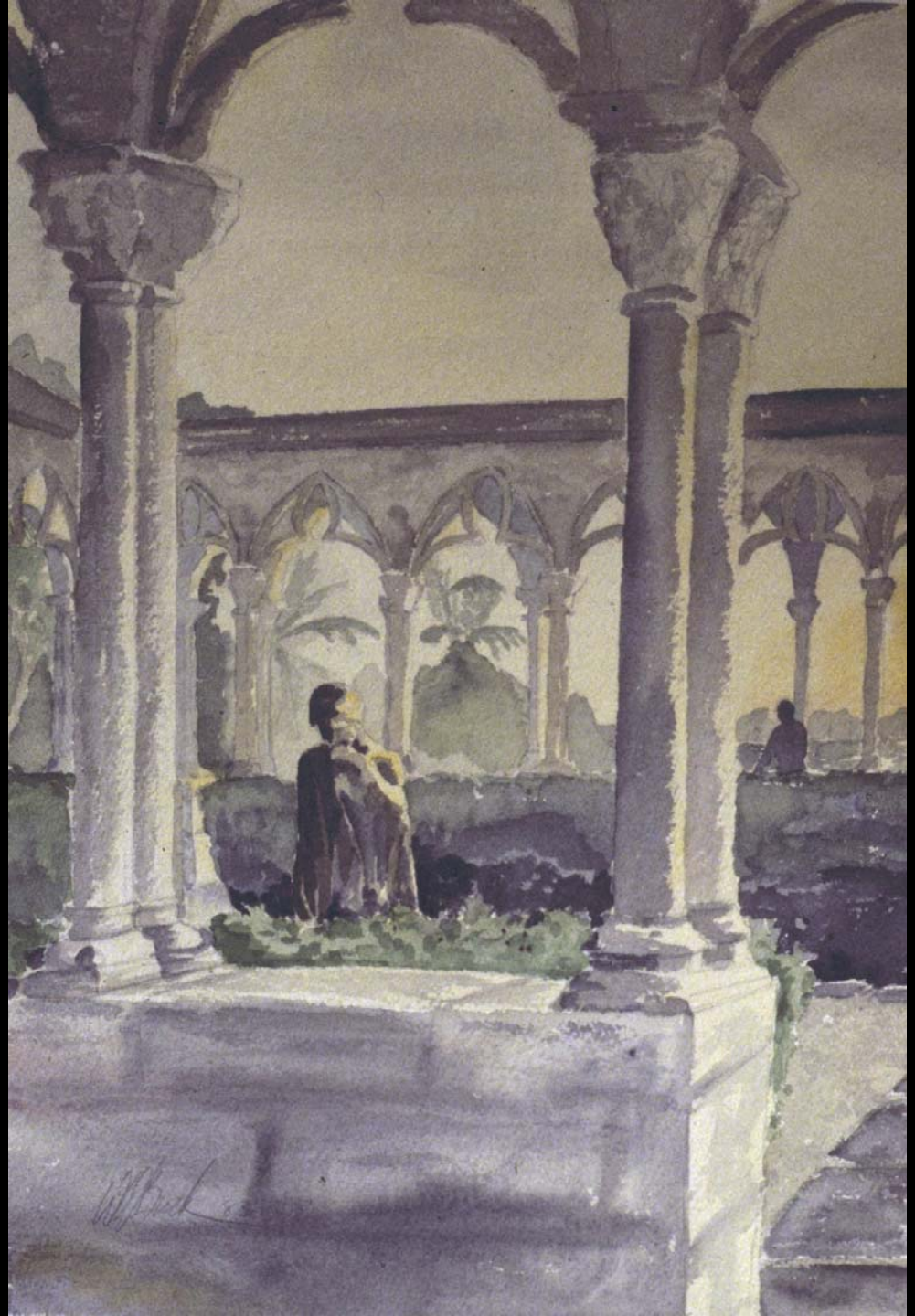
My art:

(1) My Artistic development

(2) Interacting fields art
(Ωmega Art)


W.C. Buck 1983

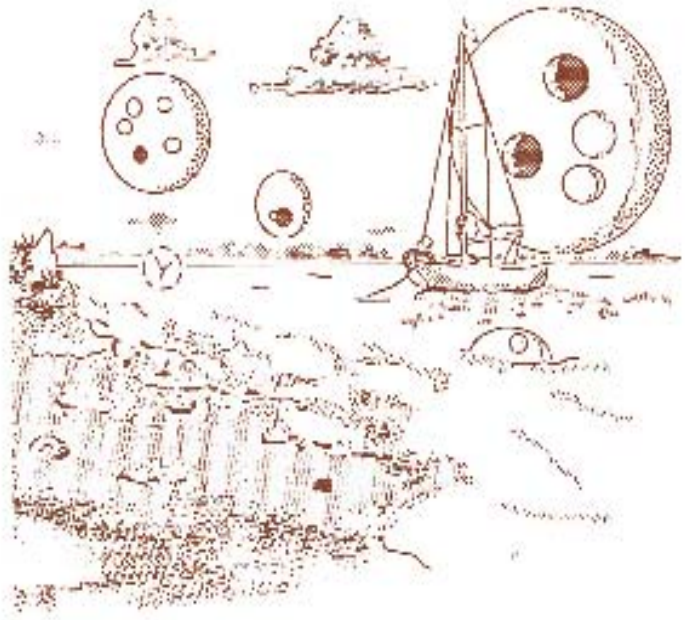

MARY B.



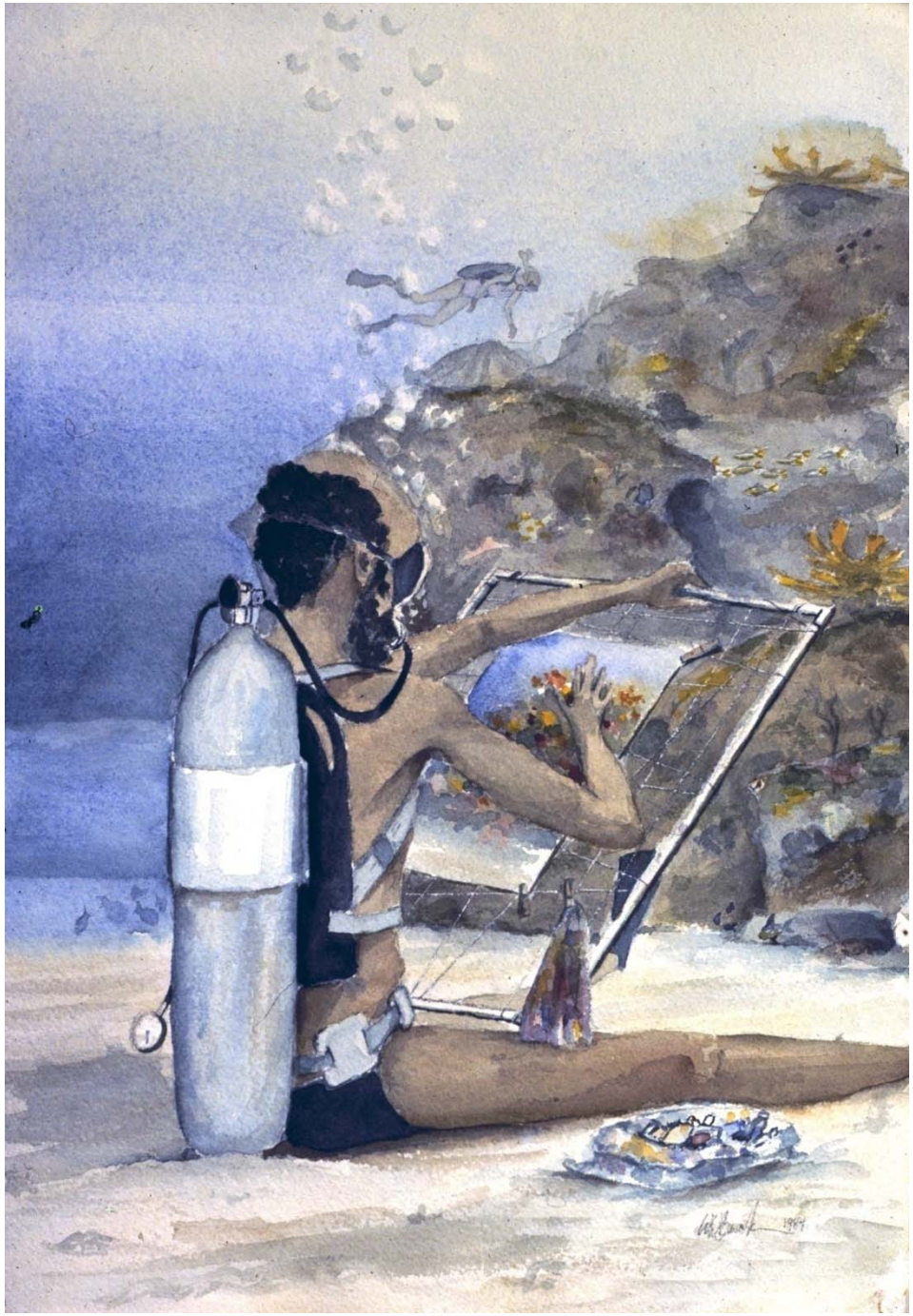
FIFTH ANNUAL

HUGS AT CEBAF

MAY 29 - JUNE 16, 1990



Art and Physics



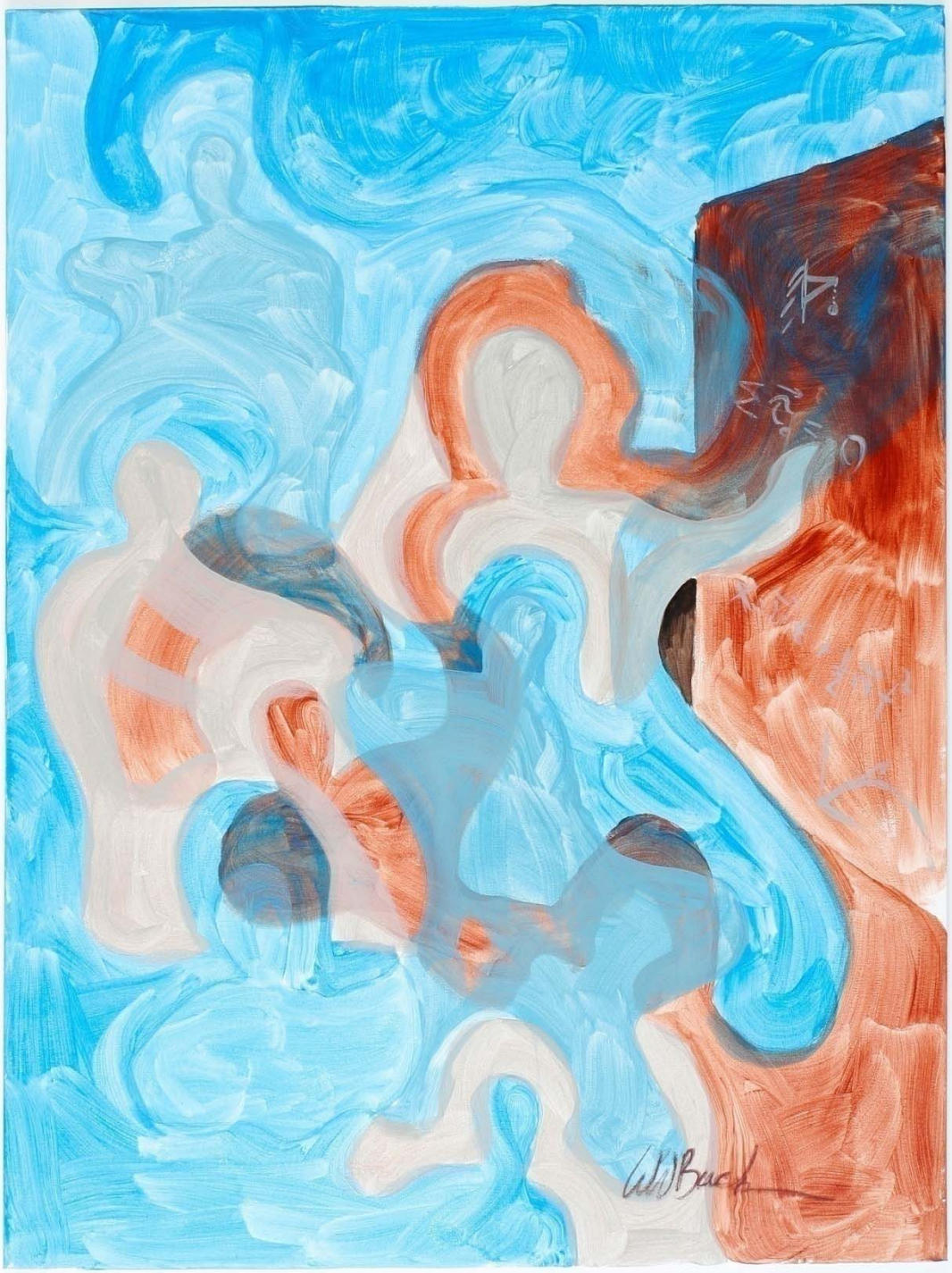
Self Portrait –
Developing Underwater Painting
On the ocean floor in the Bahamas
1981-83

Painted in watercolor above sea level

Underwatercolour 2 (oil on wood)

My Art of Interacting Fields

3/12




$F_{\mu\nu}$
$\partial_\mu J^\mu$


$E = mc^2\left(1 + \frac{p^2}{m^2c^2}\right)^{1/2}$


2009

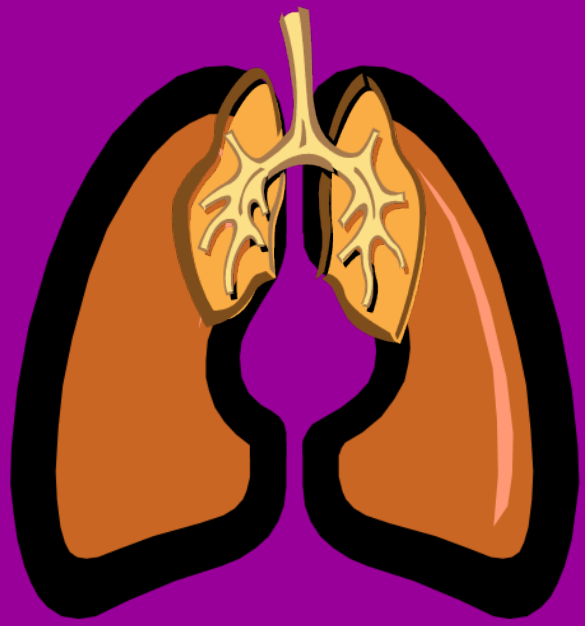
Reflections (seeing what we want to see)

Or

My version of interacting fields

Reflect on those who you enjoy sharing breath with.

And then reflect on those who you have aversion to sharing breath with



And then think about the space that holds all of that.

http://faculty.washington.edu/wbuck/WWBindex.html

WWW.WARRENBUCK.COM

Art and Physics