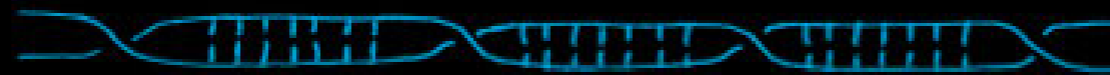




Brilliant Blunders

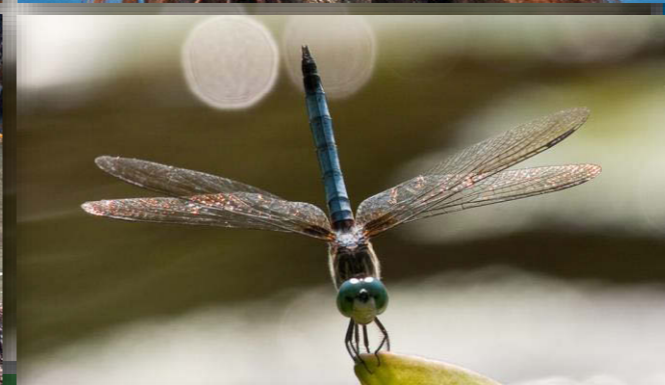
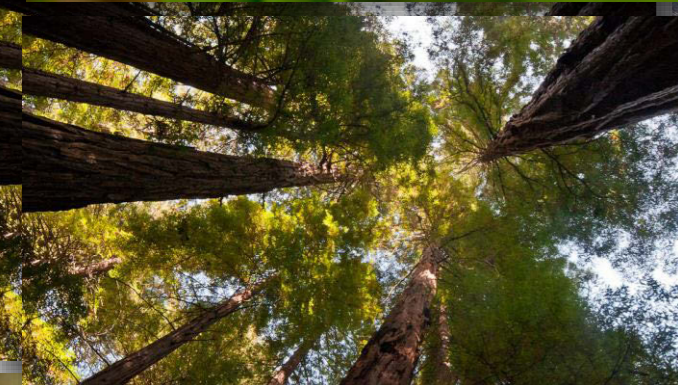
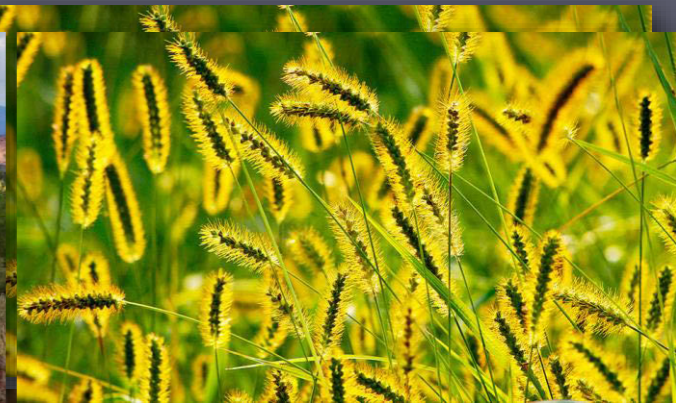
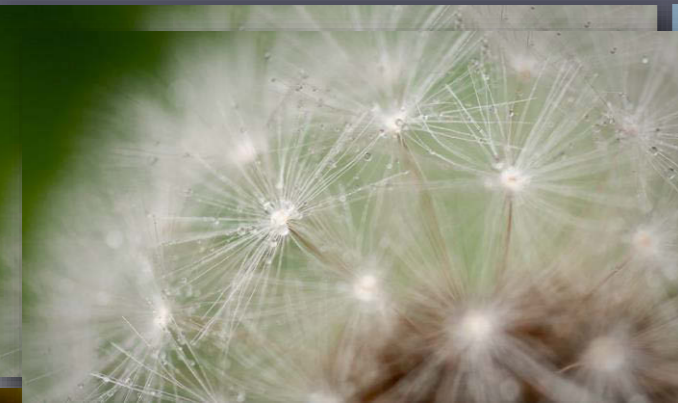


FROM DARWIN TO EINSTEIN:

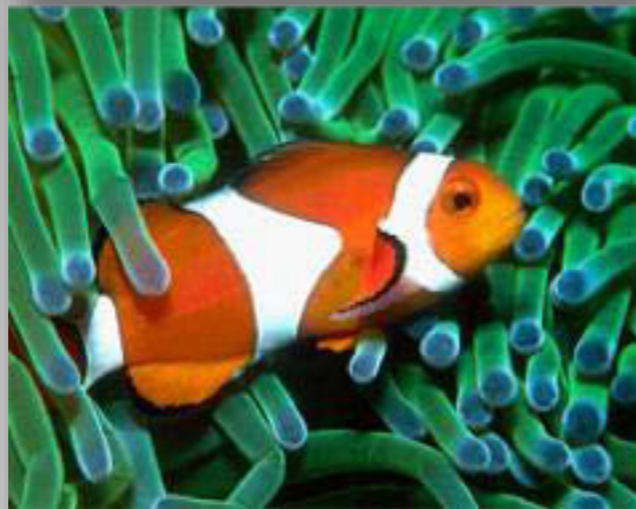
Colossal Mistakes by Great Scientists That Changed
Our Understanding of *Life and the Universe*

MARIO LIVIO

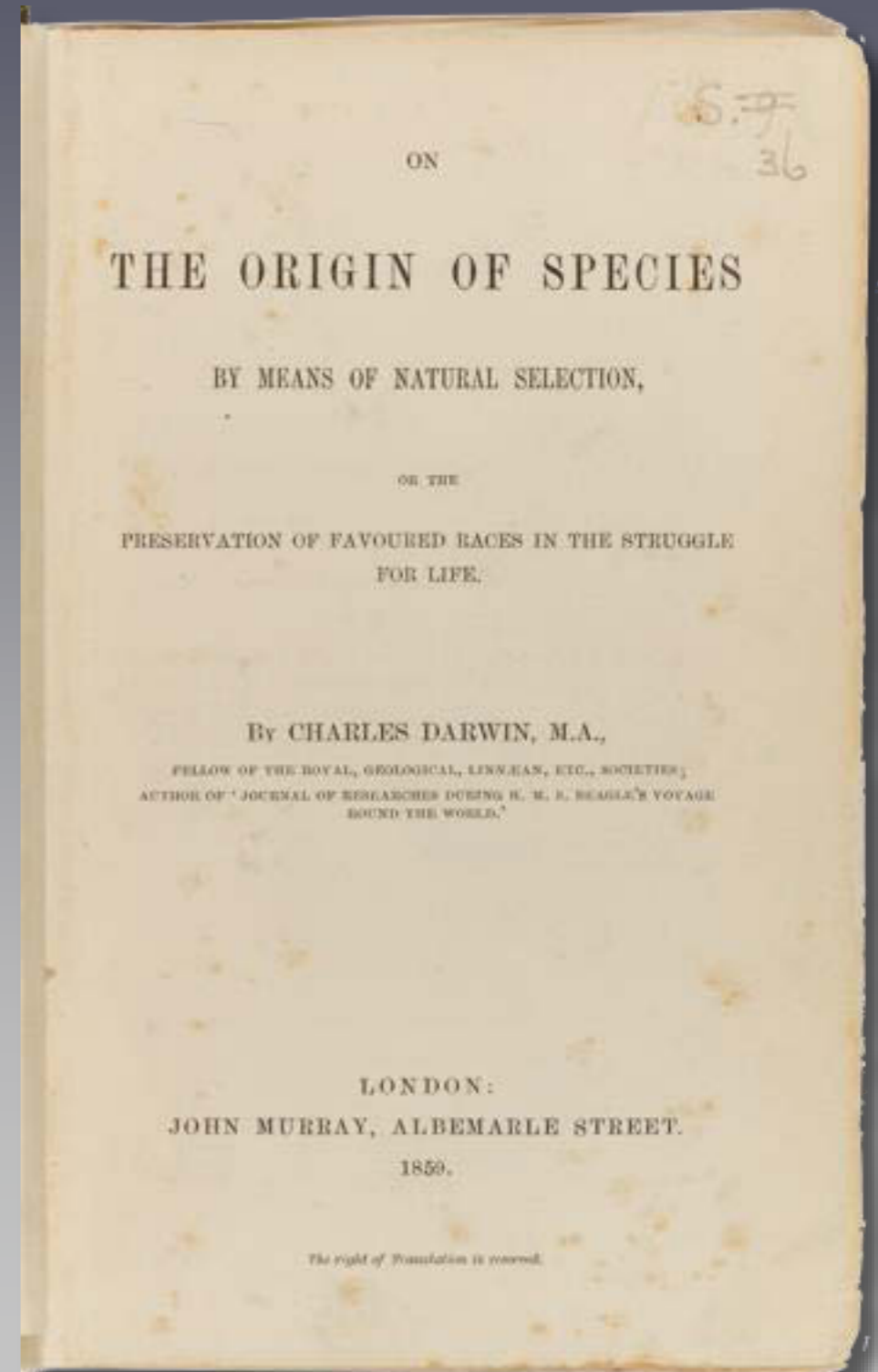
Diversity of life



Adaptation and symbiosis



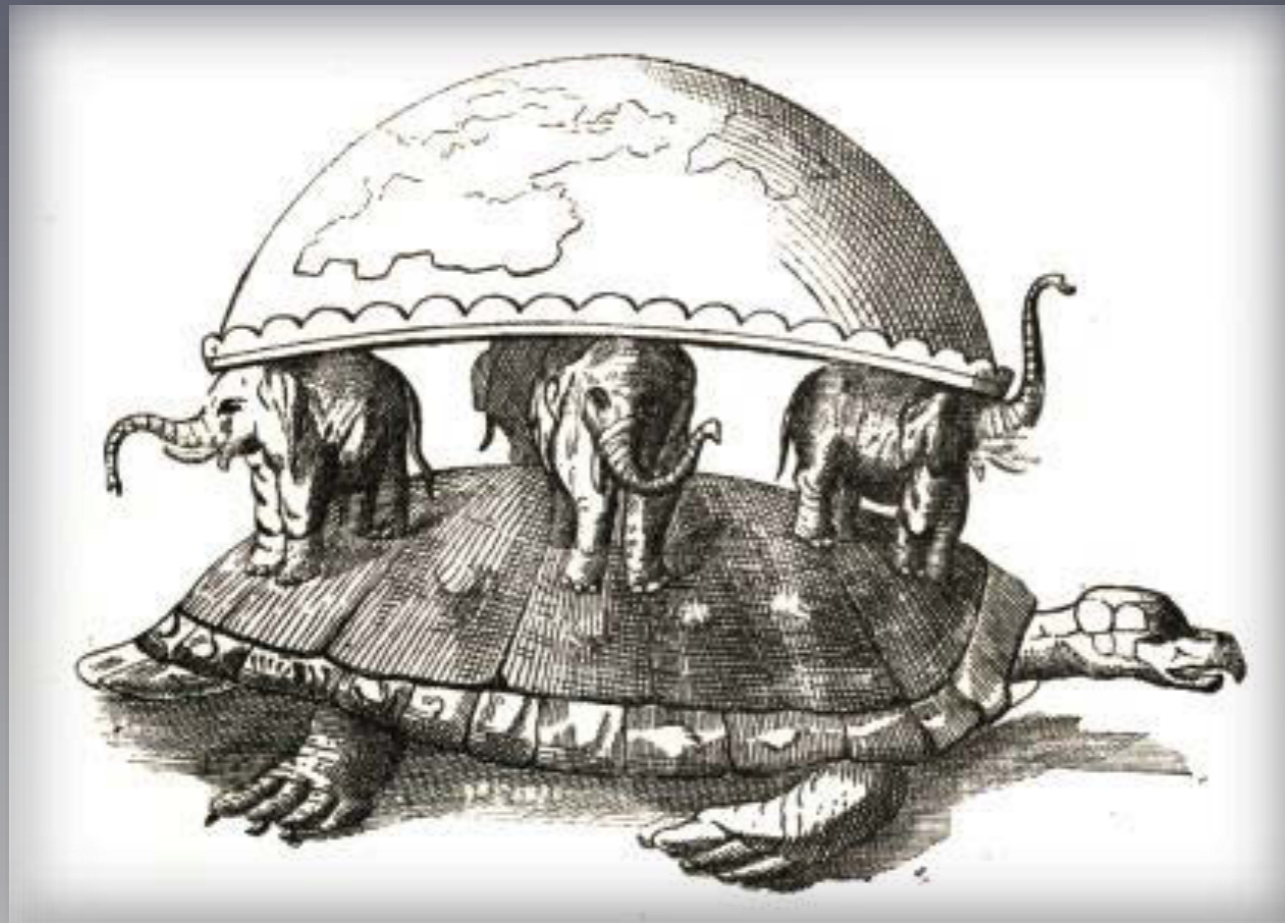
Darwin: Evolution



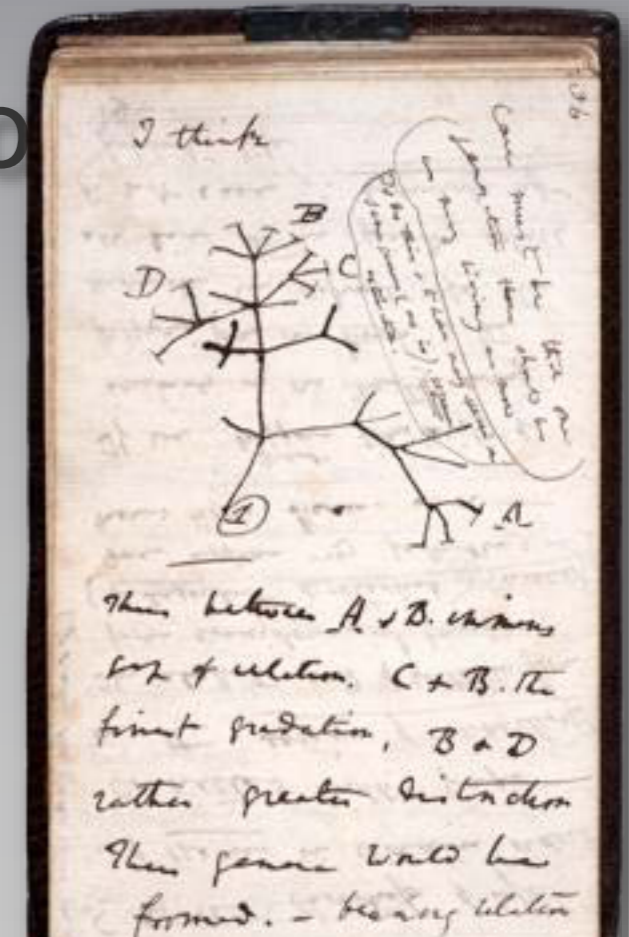
Evolution



Pillars of "The Origin"



- Evolution
- Gradualism
- Common Descent
- Speciation

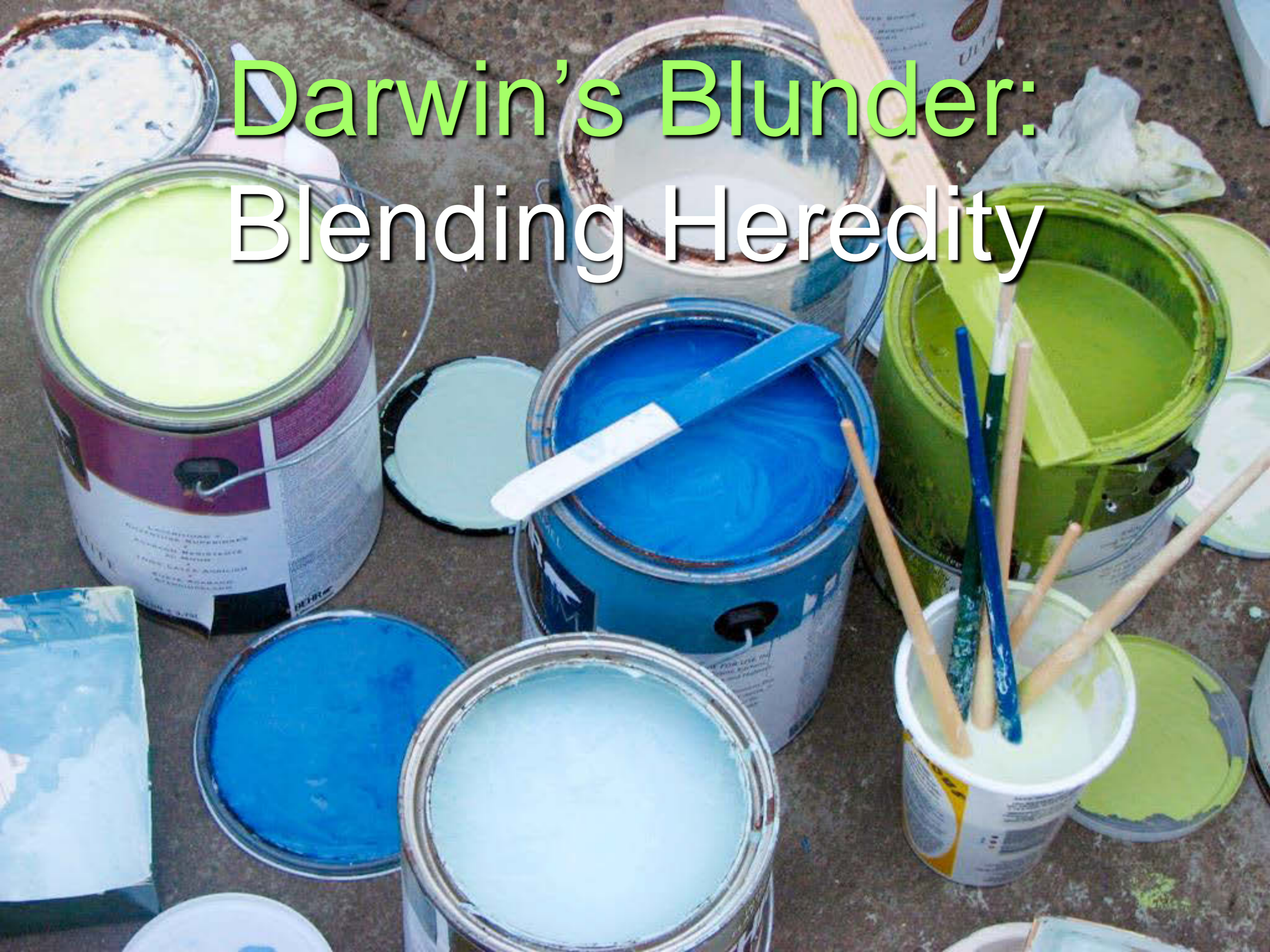


All supported by one mechanism.

Natural Selection



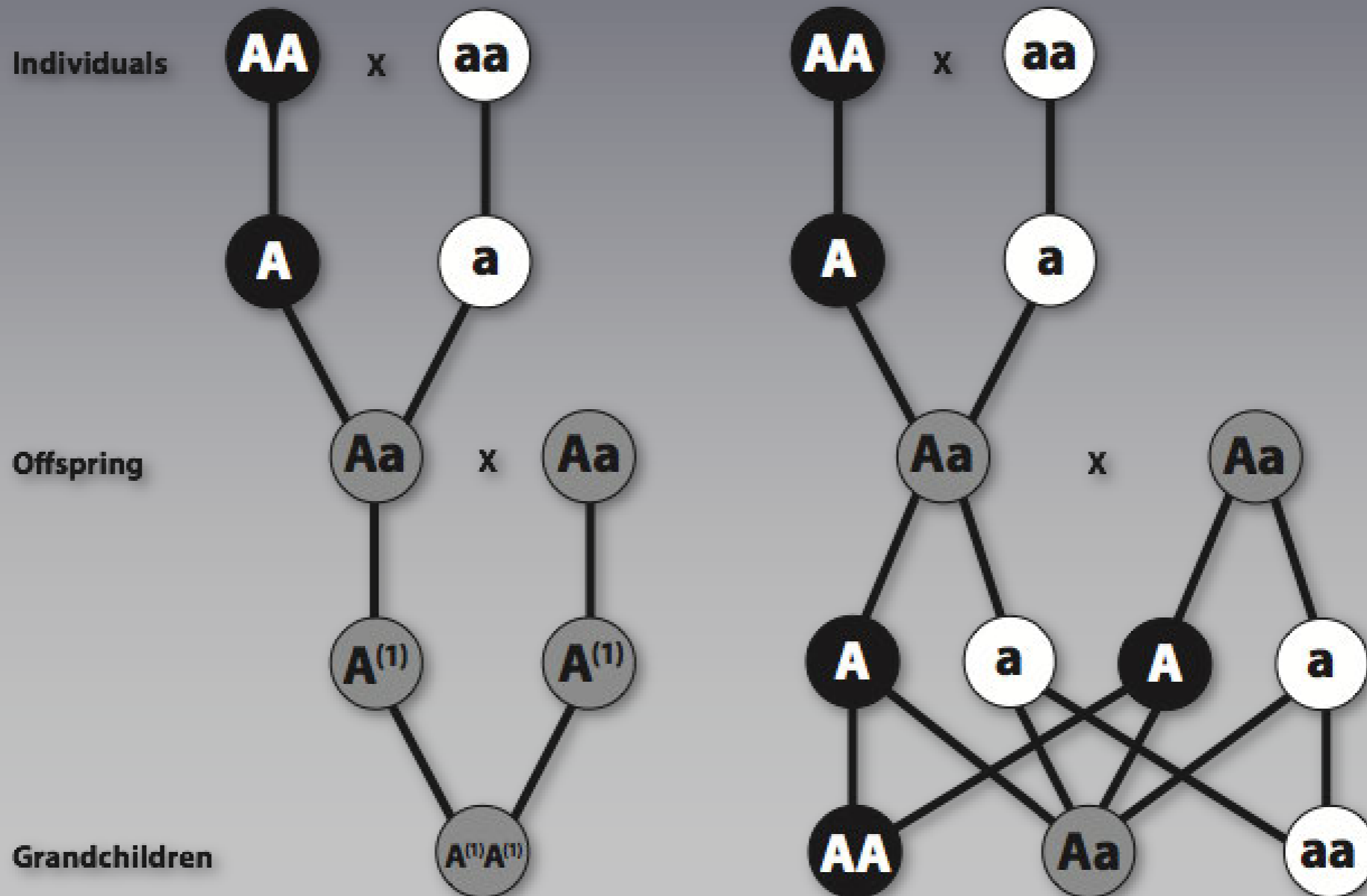
Darwin's Blunder: Blending Heredity



Blending vs. Particulate Heredity

Blending heredity

Mendelian heredity

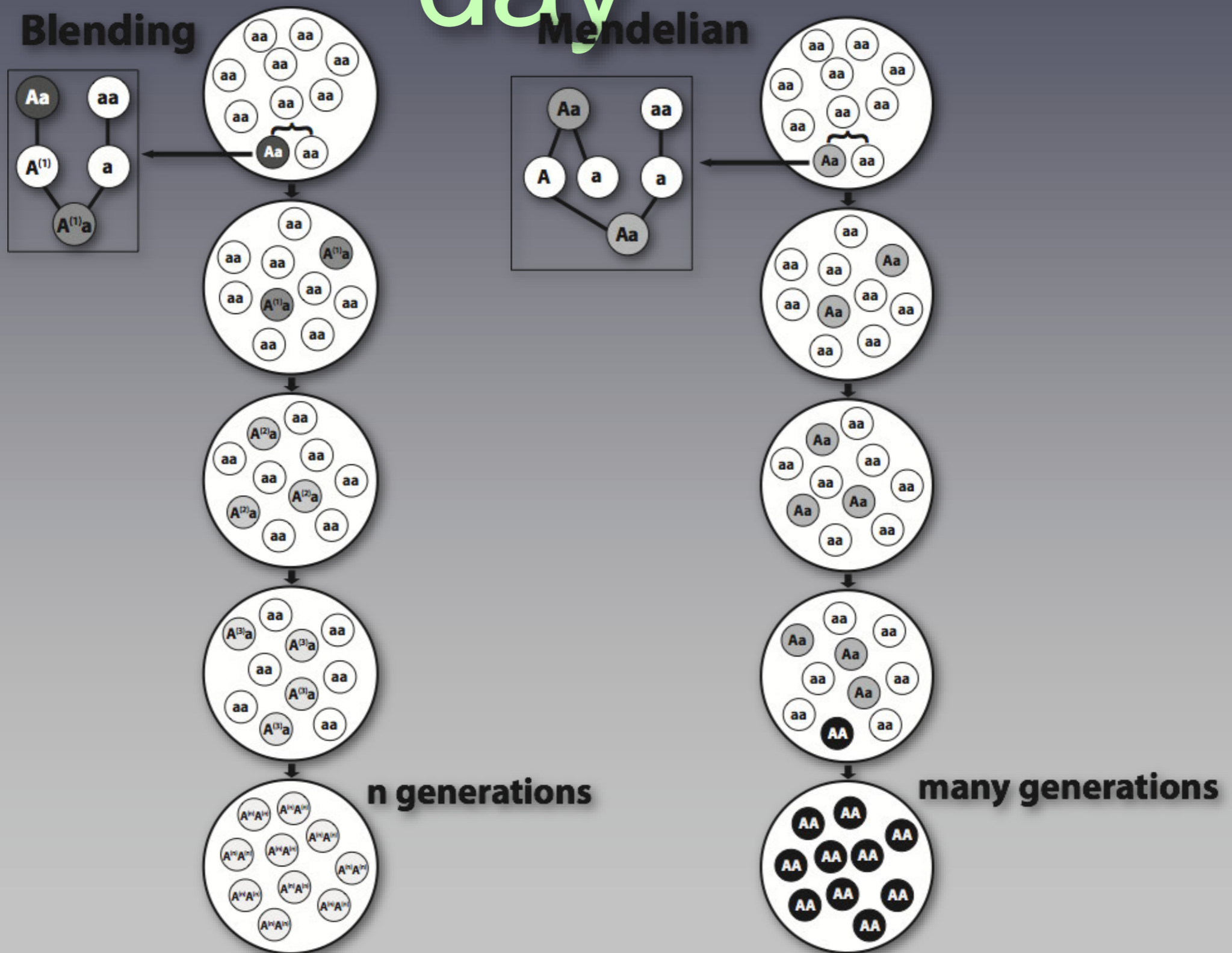


Thoughts on particulate heredity?

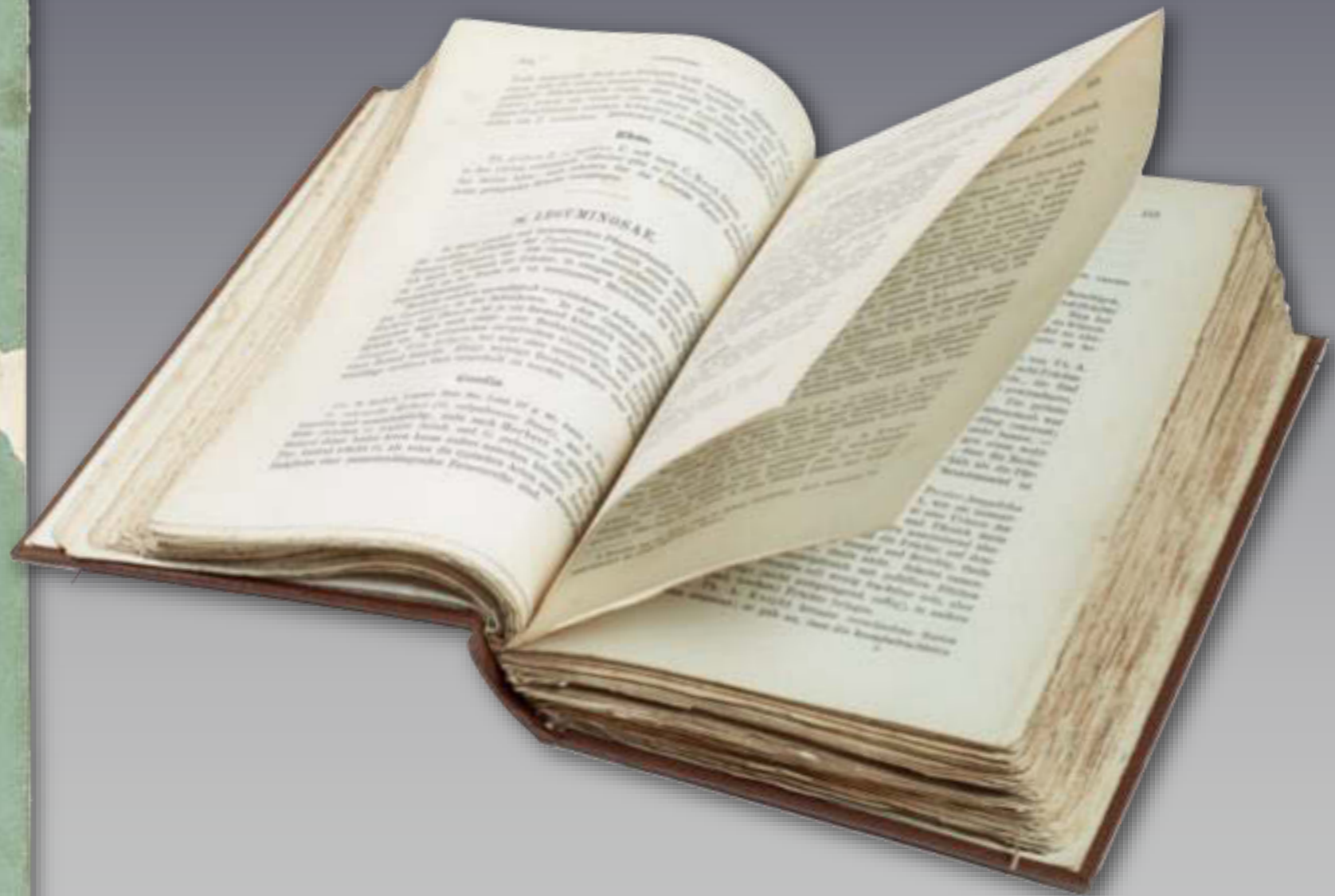
- Darwin (1857):
“propagation by true fertilization, will turn out to be sort of mixing and not true fusion.”
- Darwin (1866):
“every female in the world producing distinct male and female offspring”



Mendel saves the day

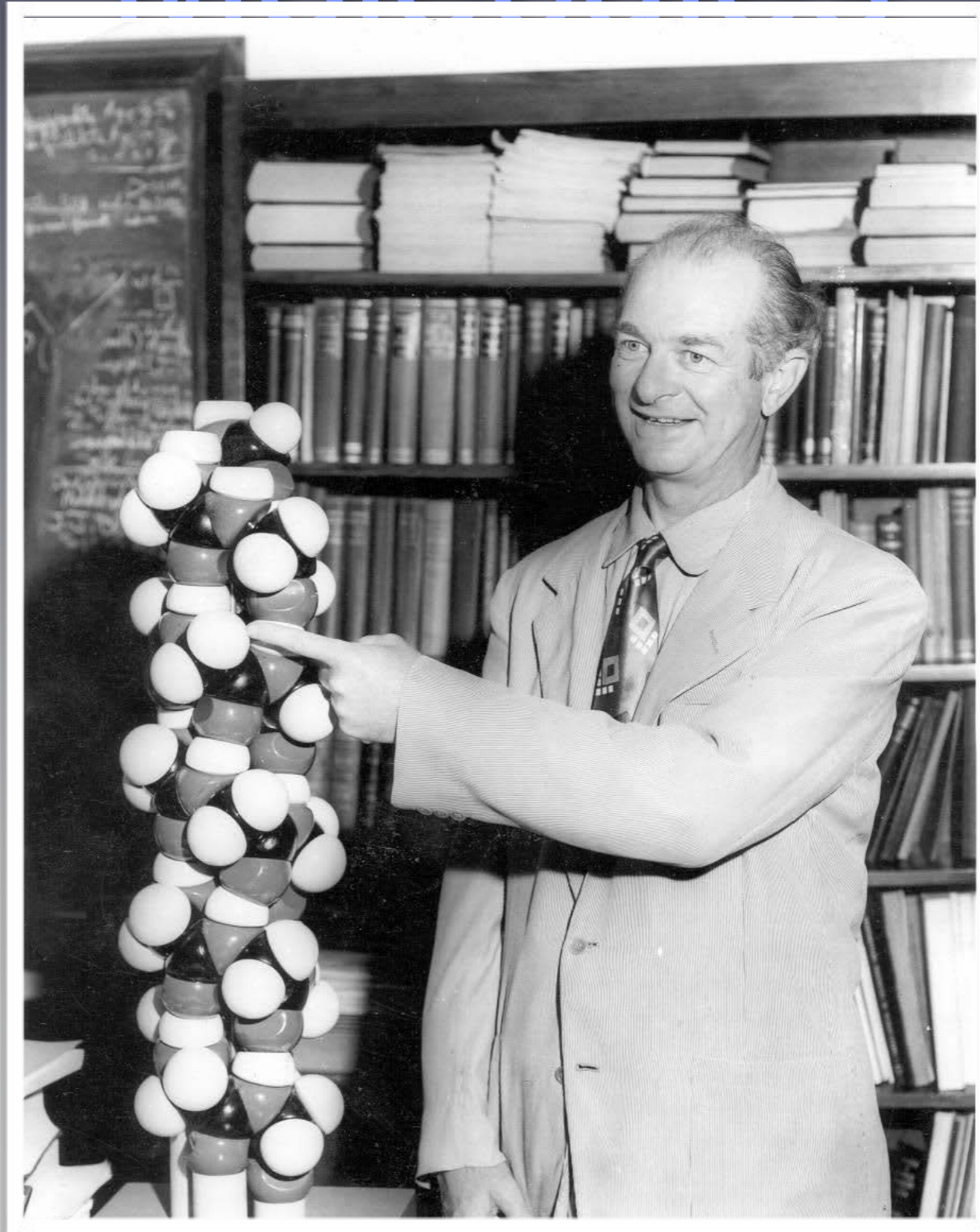


Did Darwin know of Mendel's 1865 work?



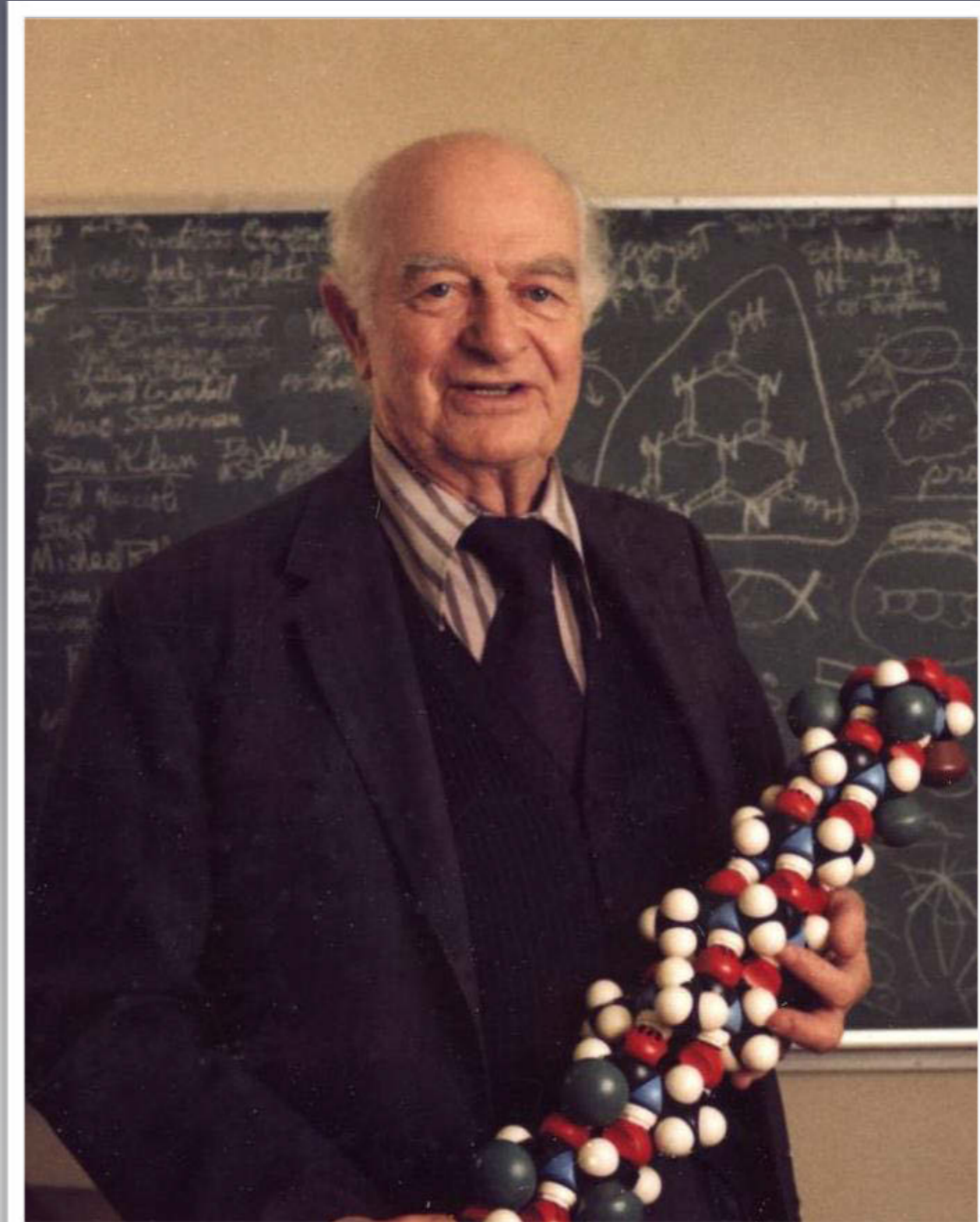
Pauling: Life's Molecules

Proteins

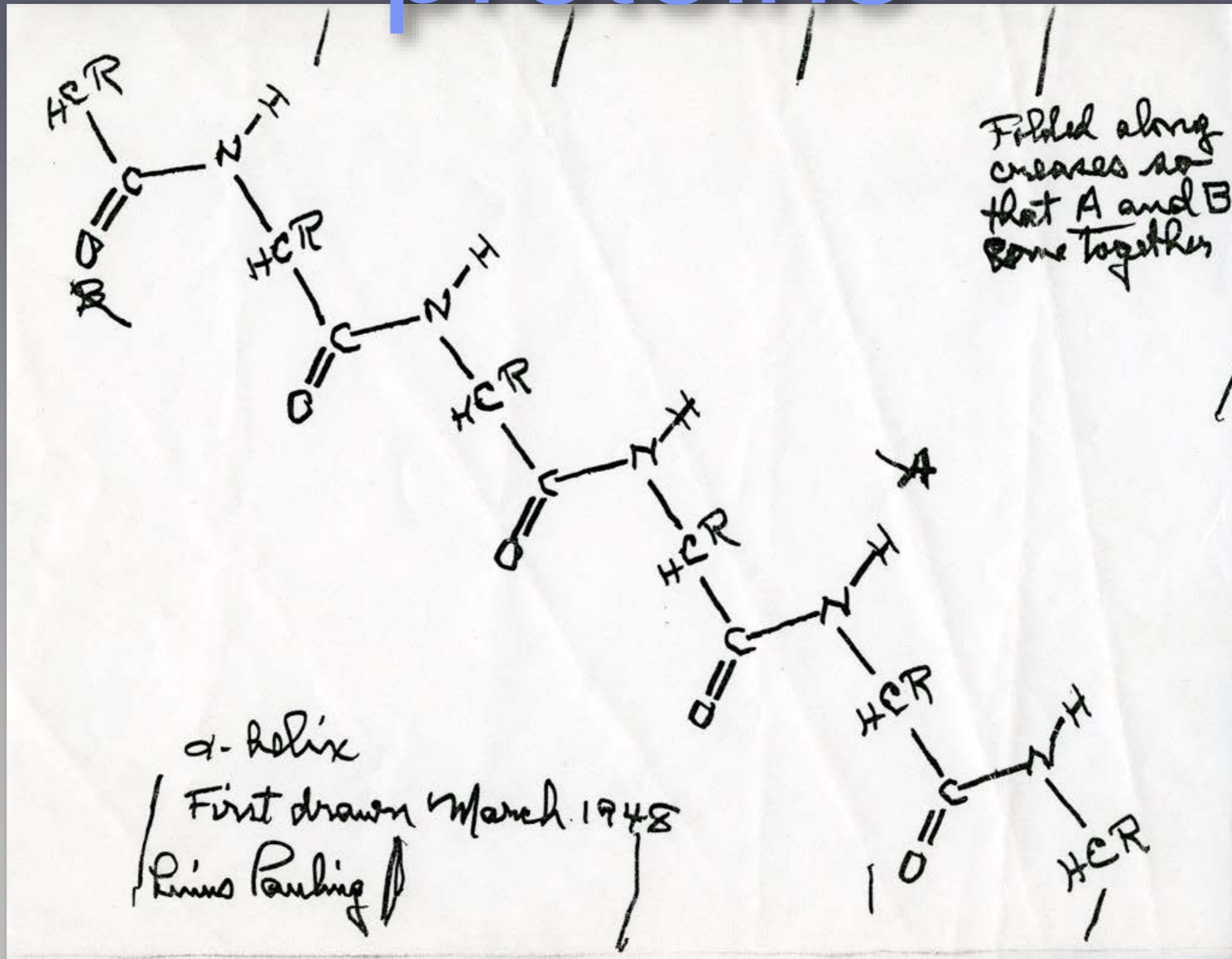


Life's Molecules

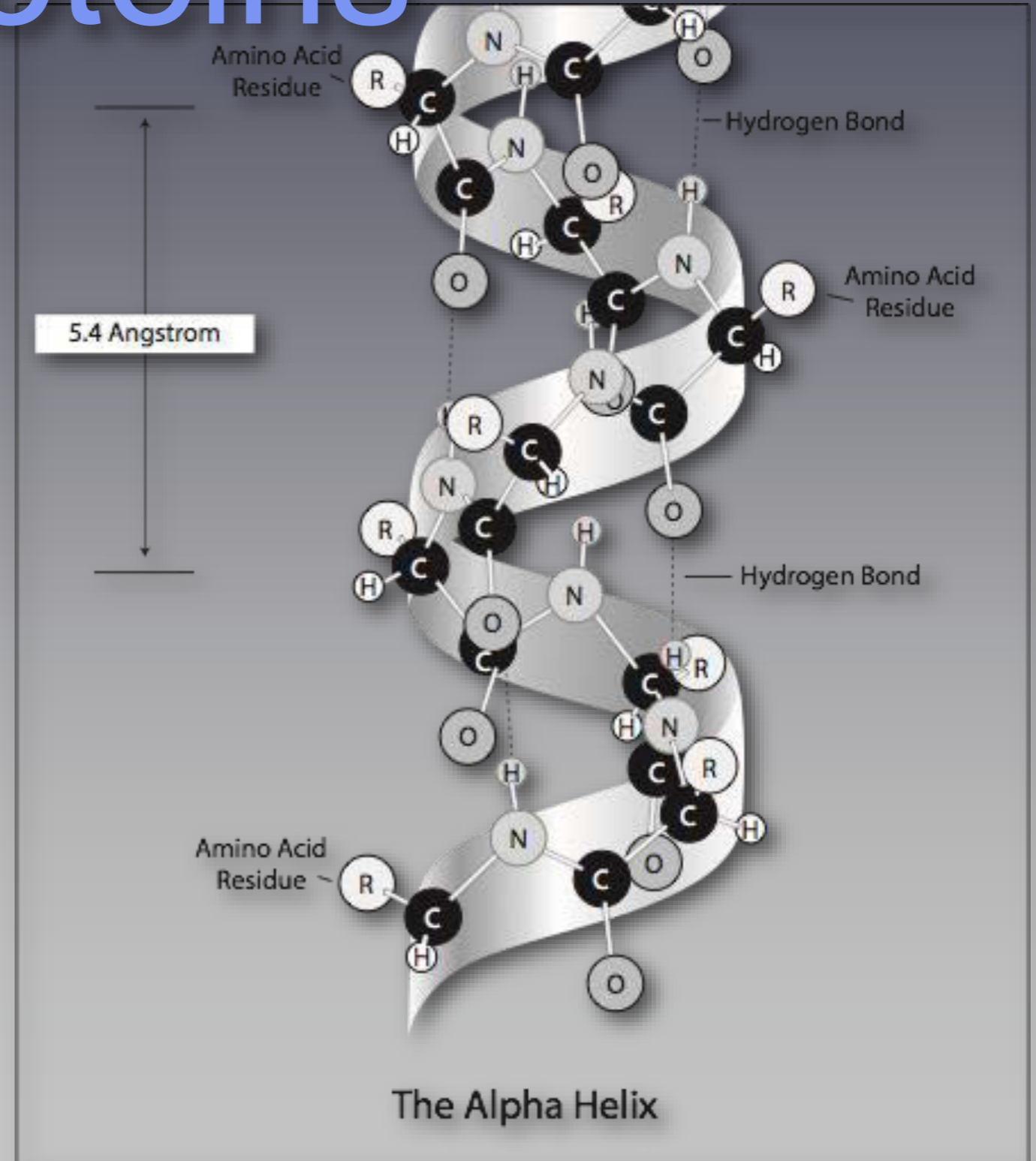
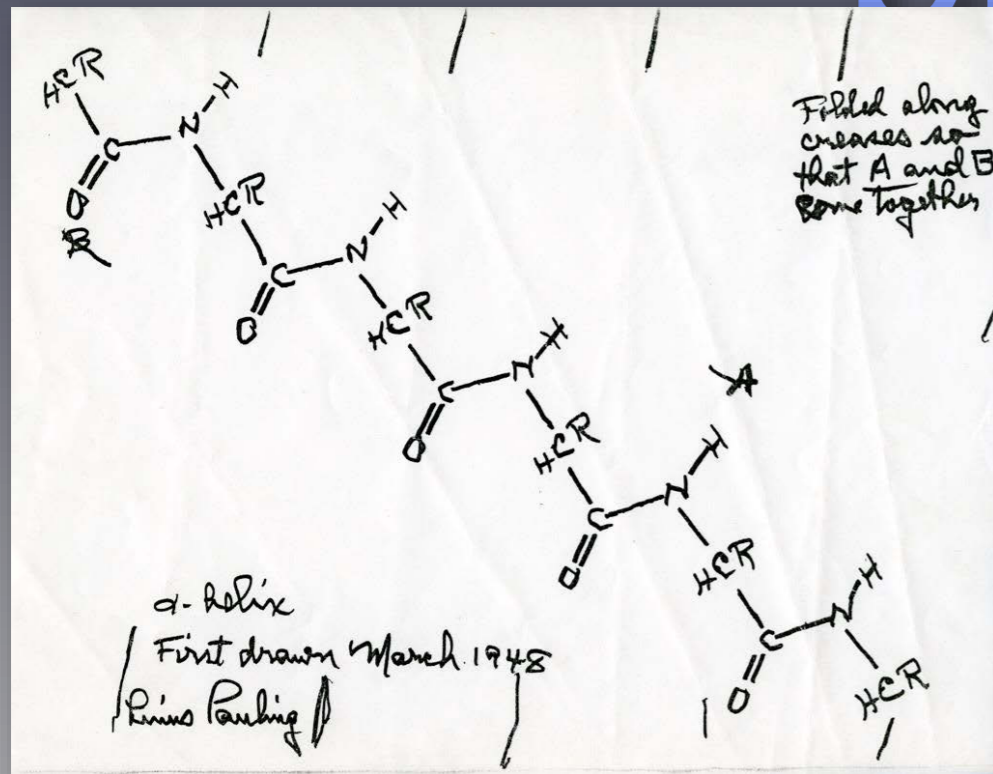
Proteins



The structure of proteins



The structure of proteins



But why 5.1Å in x-ray diffraction image?

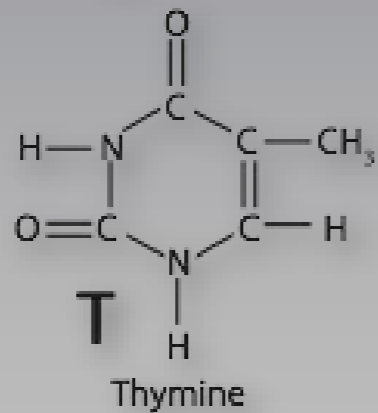
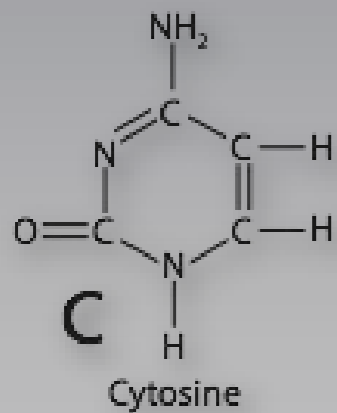
The secret of life!

- Pauling (1948)

“If the structure that serves as a template consists of, say, two parts,

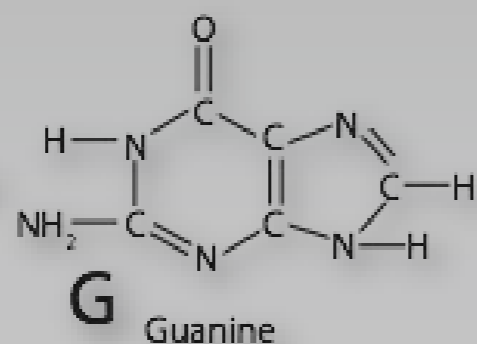
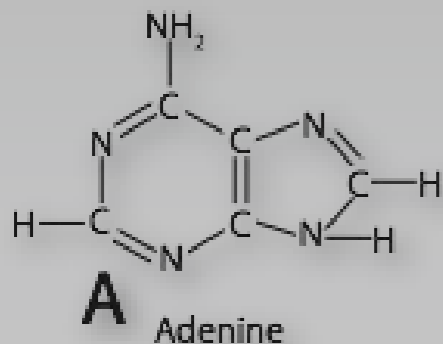
... of duplicates of itself.”

Chargaff rules



A=T

C=G



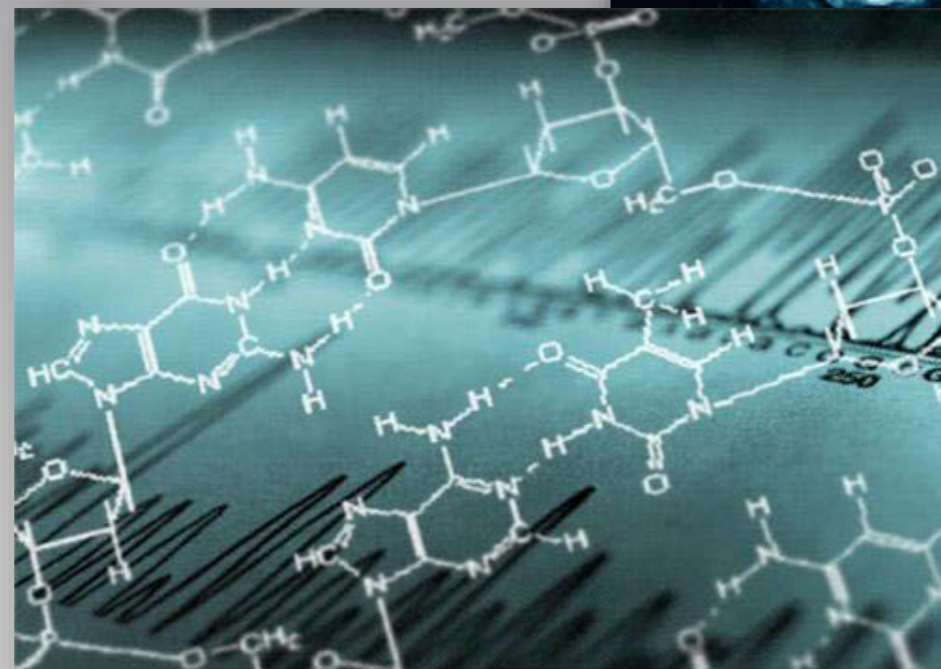
Triple Helix



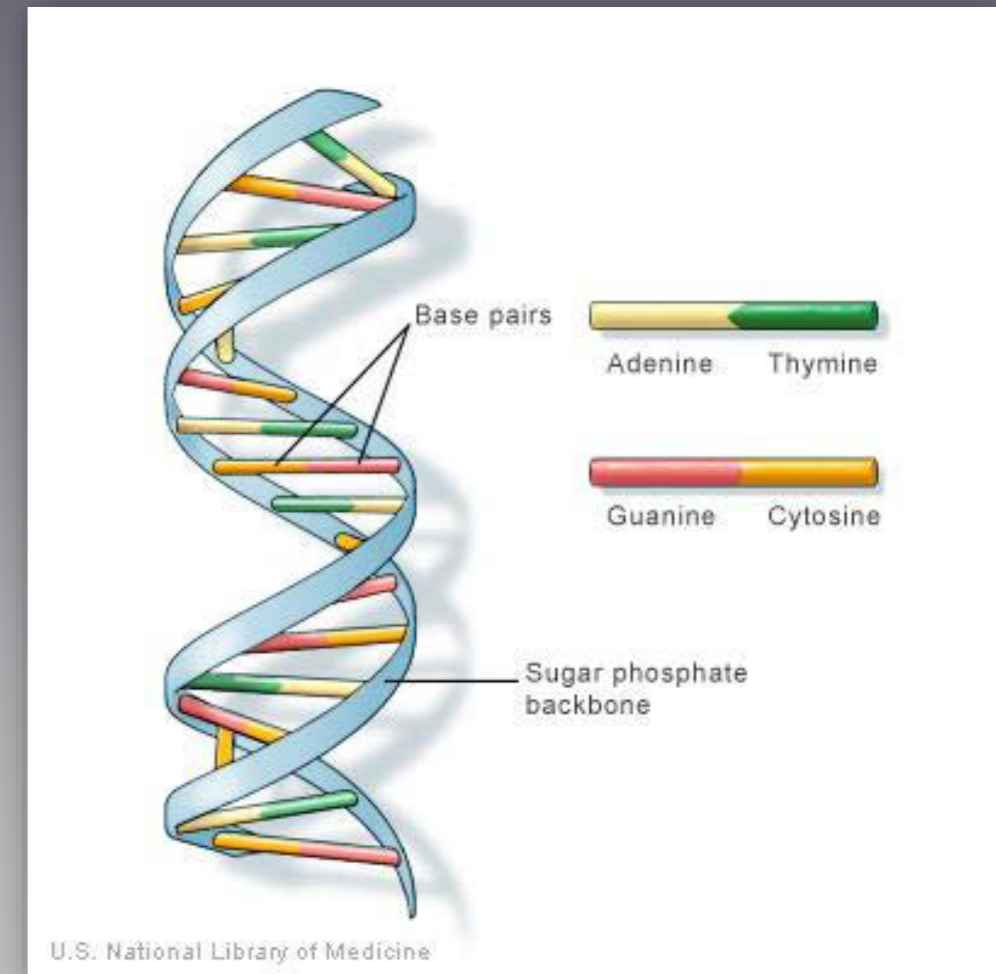
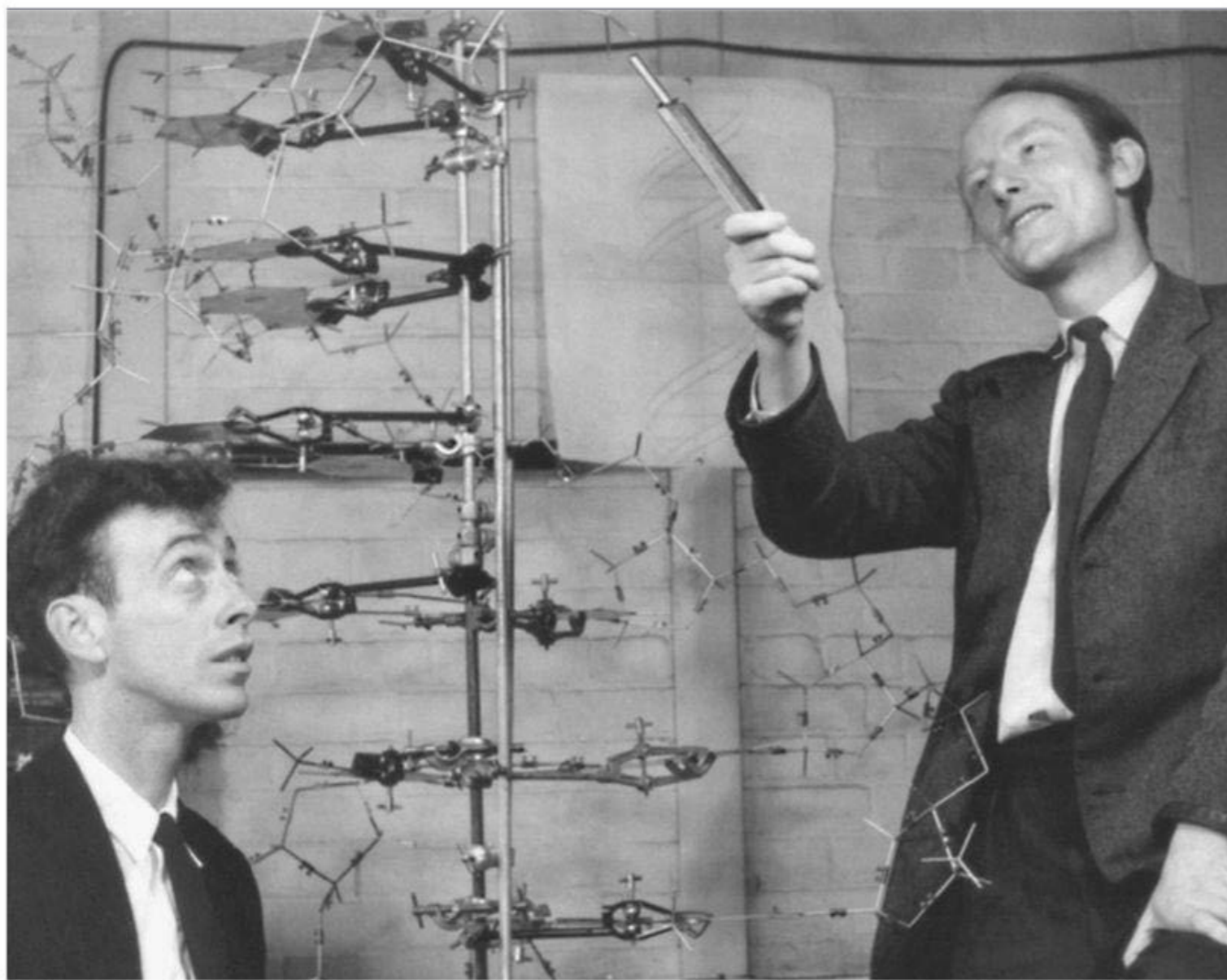
www.dnalc.org

Anatomy of a blunder

- Why the rush?
- Why the forgetfulness?
- What about rules of basic chemistry?



Life's Molecules

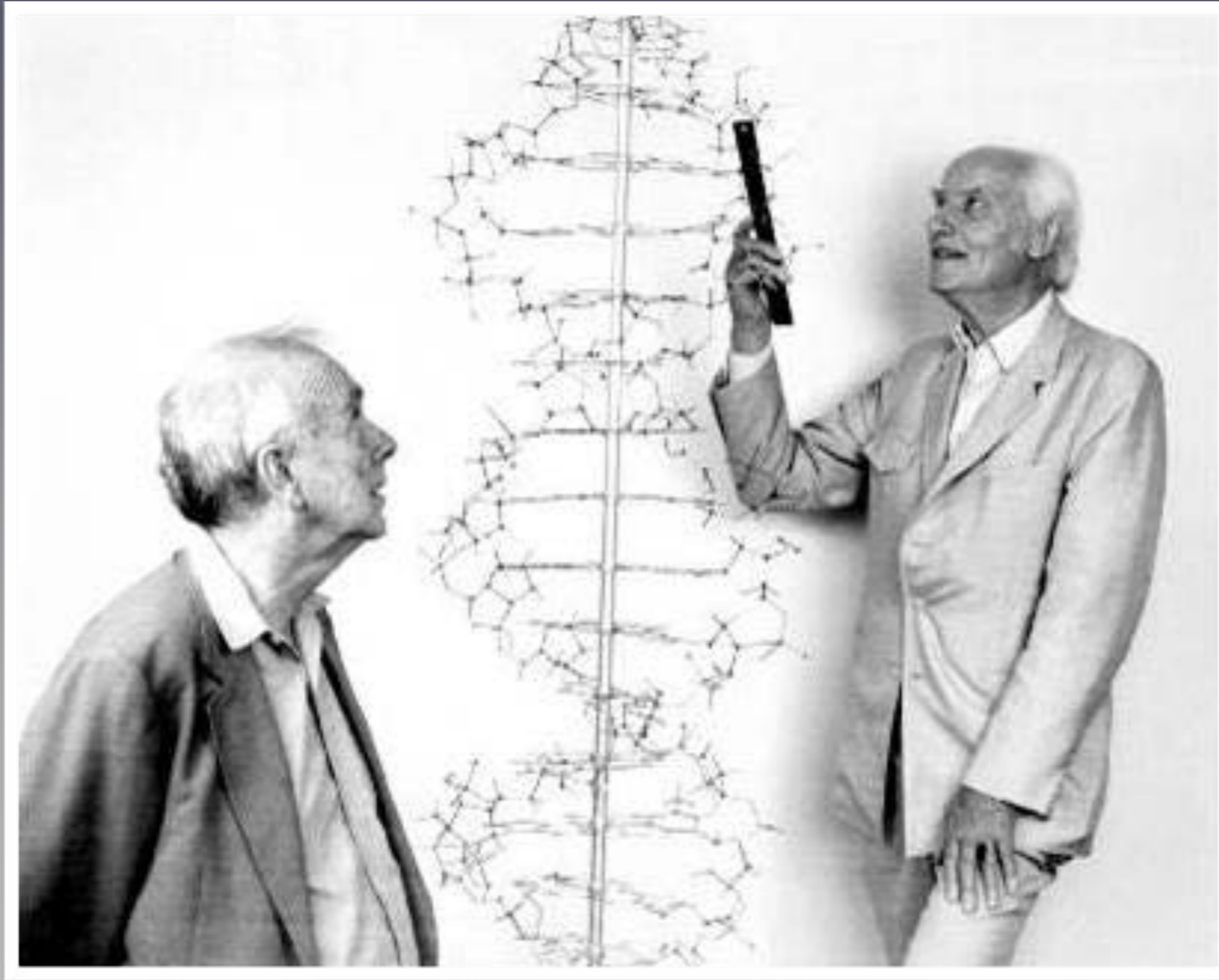


DNA

The Eagle Pub



Life's Molecules

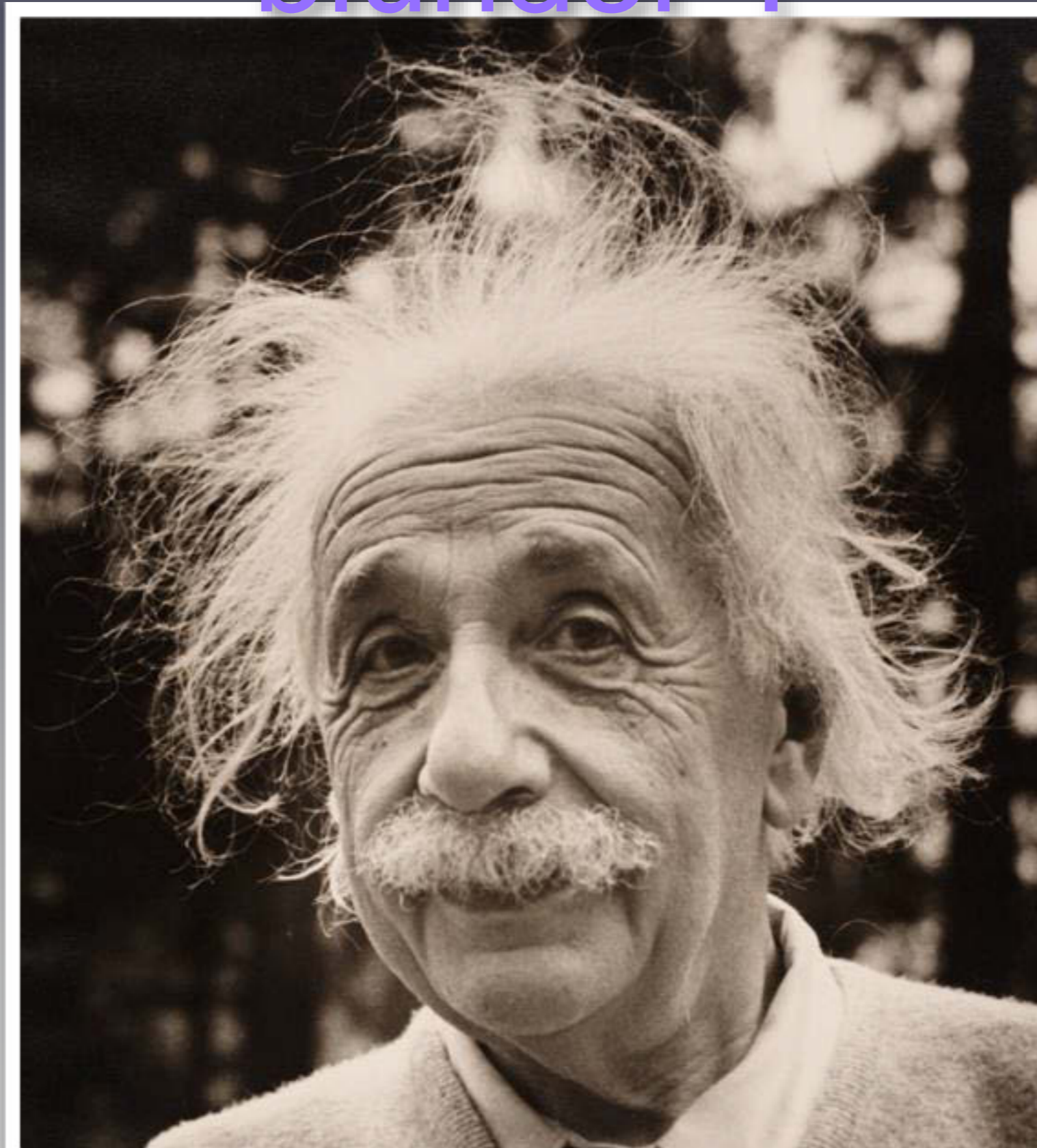


DNA

Key players in DNA story



Einstein: The biggest blunder”?



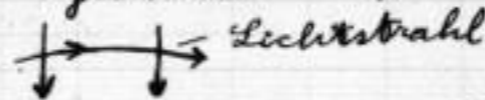
Einstein's thoughts on general relativity

Zürich. 14. I. 13.

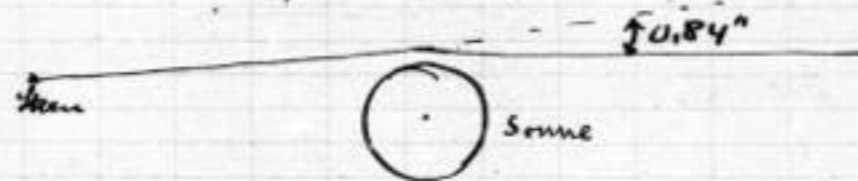
Aus

Hoch geehrter Herr Kollege!

Eine einfache theoretische Überlegung macht die Annahme plausibel, dass Lichtstrahlen in einem Gravitationsfelde eine Deviation erfahren.



Am Sonnenrande müsste diese Ablenkung $0,84''$ betragen und wie $\frac{1}{R}$ abnehmen (R = ^{Abstand vom Sonnenmittelpunkt} Sonnenradius).



Es wäre deshalb von grösstem Interesse, bis zu wie grosser Sonnen-nähe ^{heller} Fixsterne bei Anwendung der stärksten Vergrösserungen bei Tage (ohne Sonnenfinsternis) gesehen werden können.


$$G_{\mu\nu} = 8\pi G (T_{\mu\nu} + \rho_{\Lambda} g_{\mu\nu})$$

Recognition

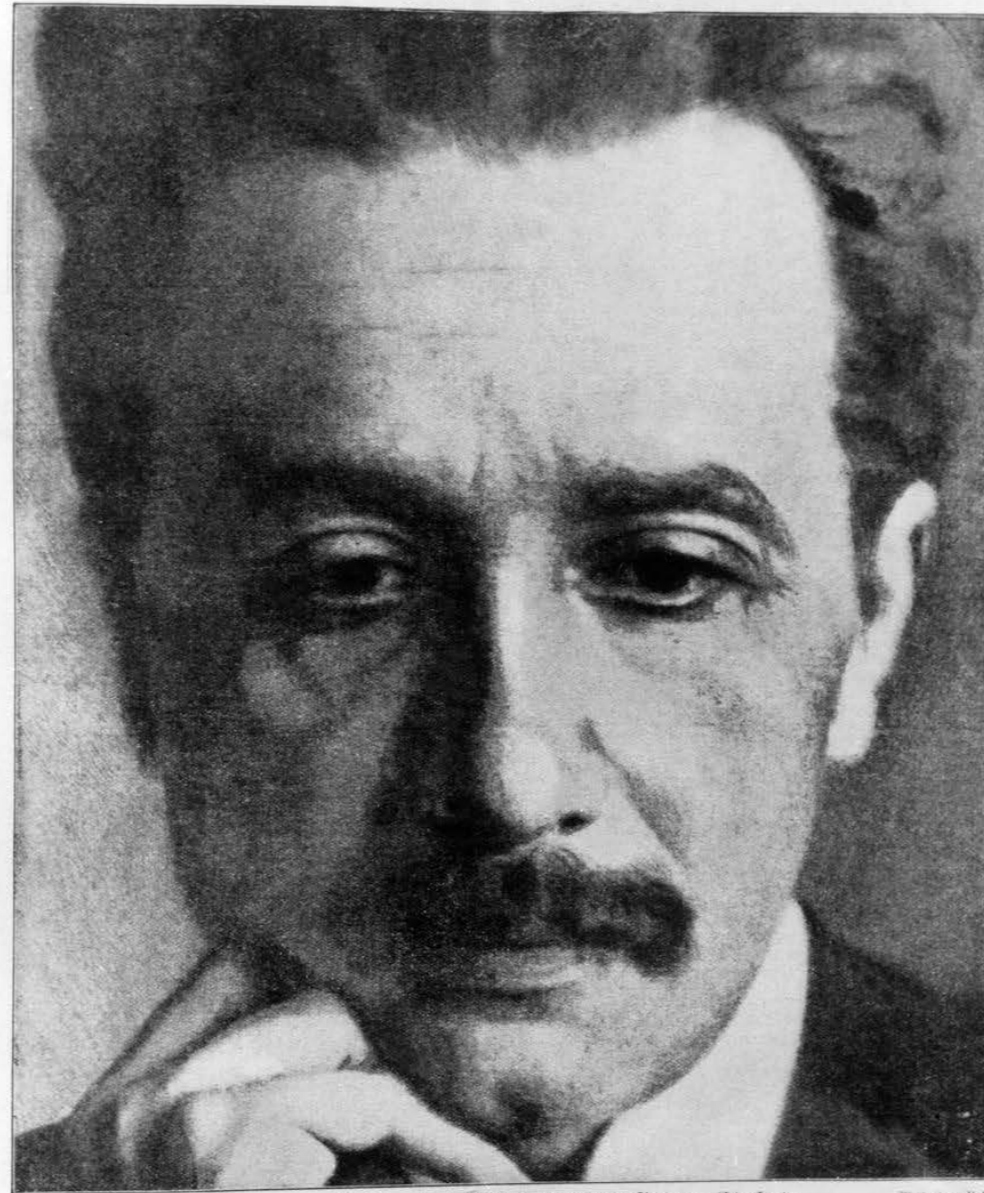
14. Dezember
1919
Nr. 50
28. Jahrgang

Berliner

Einzelpreis
des Heftes
25 Pfg.

Illustrierte Zeitung

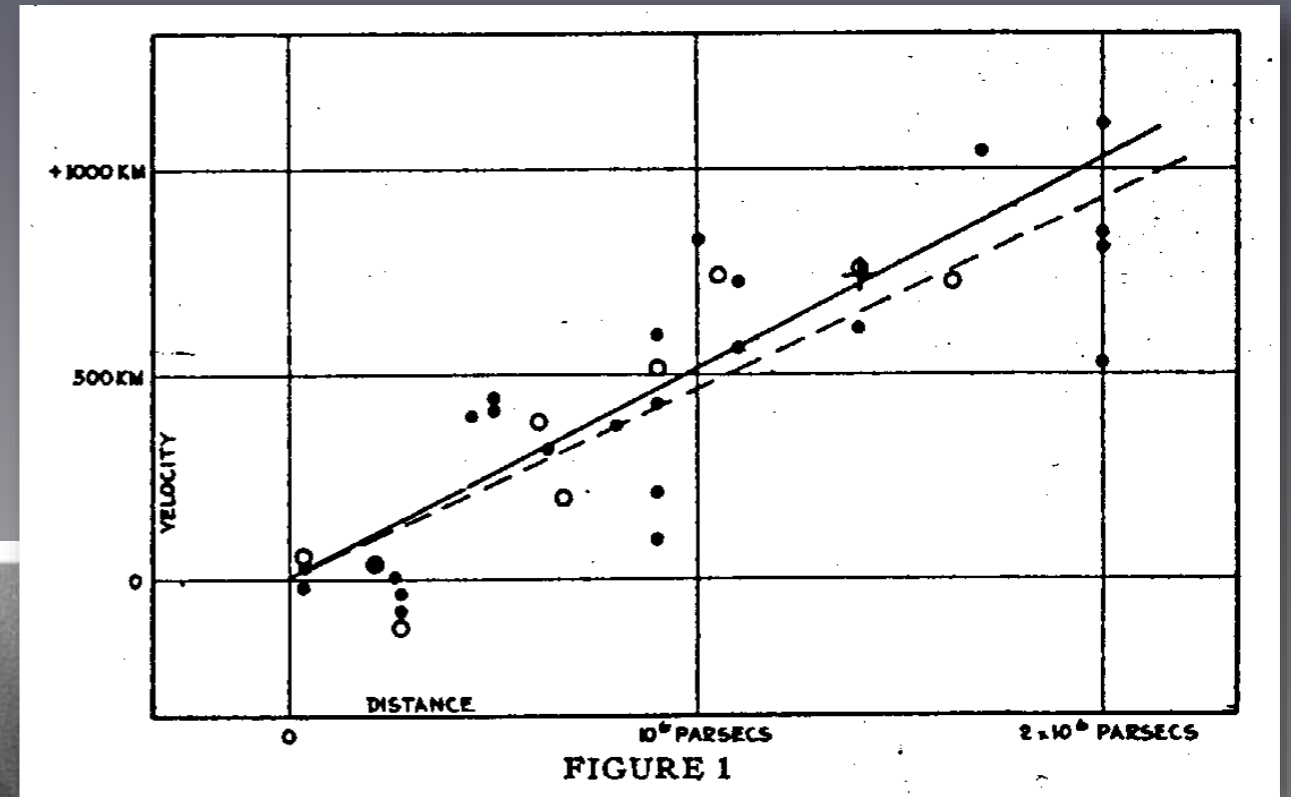
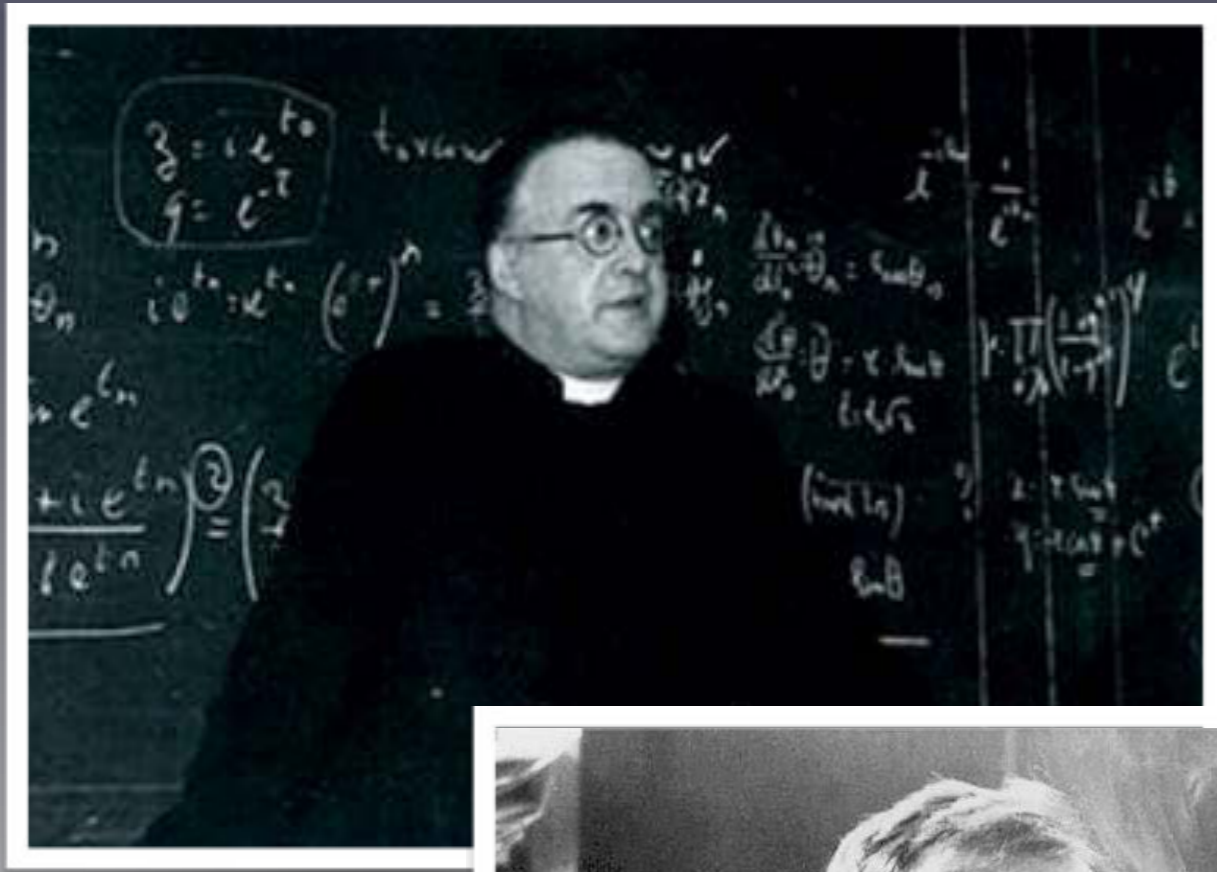
Verlag Ullstein & Co, Berlin SW 68



Eine neue Größe der Weltgeschichte: Albert Einstein,
dessen Forschungen eine völlige Umwälzung unserer Naturbetrachtung bedeuten
und den Erkenntnissen eines Kopernikus, Kepler und Newton gleichwertig sind.

Phot. Suse Byk.

Cosmic expansion



Did Einstein ever say "biggest blunder"?

70-960

THE INSTITUTE FOR ADVANCED STUDY
350 MICHIGAN AVENUE
PRINCETON, N. J.

August 4, 1946

Professor G. Gamov
Ohio State University
Columbus, Ohio

Dear Mr. Gamov:

After receiving your manuscript I read it immediately and then forwarded it to Dr. Spitzer. I am convinced that the abundance of elements as function of the atomic weight is a highly important starting point for cosmogonic speculations. The idea that the whole expansion process started with a neutron gas seems to be quite natural too. The explanation of the abundance curve by formation of the heavier elements in making use of the known facts of probability coefficients seems to me pretty convincing. Your remarks concerning the formation of the big units (nebulae) I am not able to judge for lack of special knowledge.

Thanking you for your kindness, I am

yours sincerely,

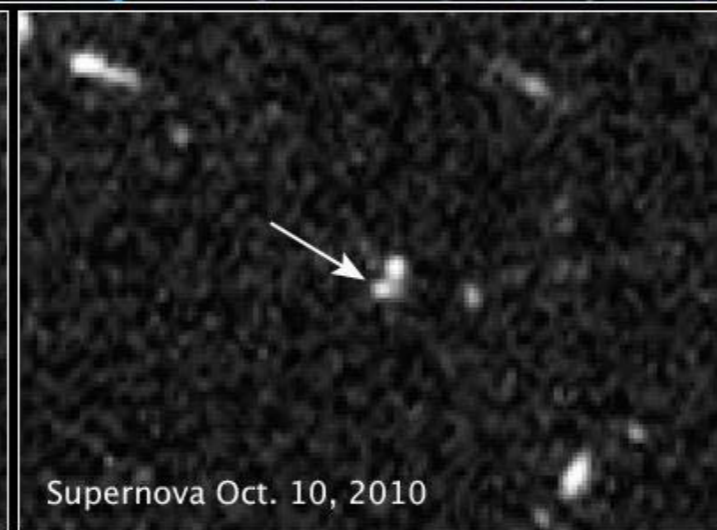
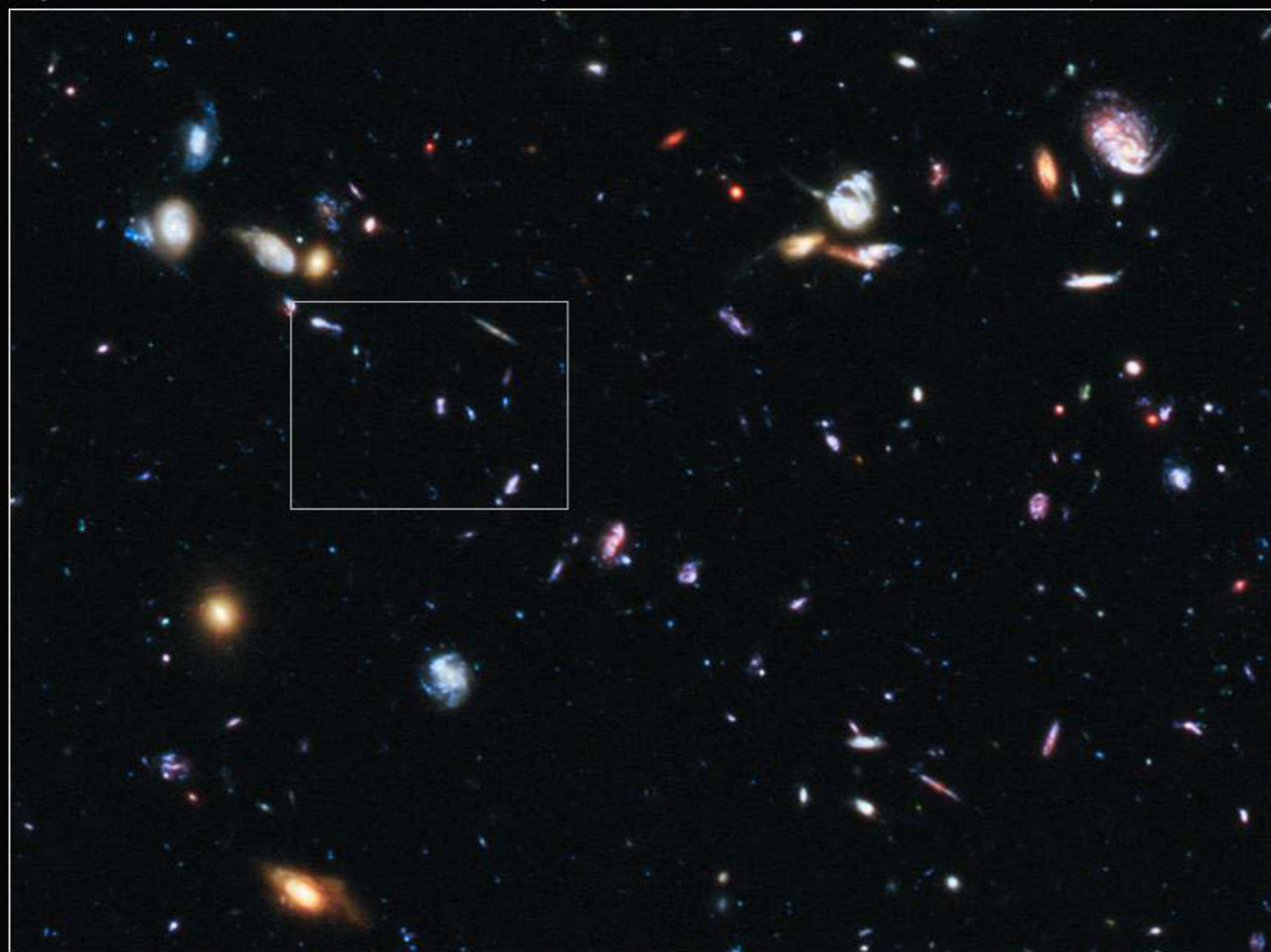
A. Einstein

Albert Einstein.

*Of course, the old man agrees
with almost ^{any} thing nowadays.
Geo.*

*Thanks for
spides.
g.*

The accelerating universe

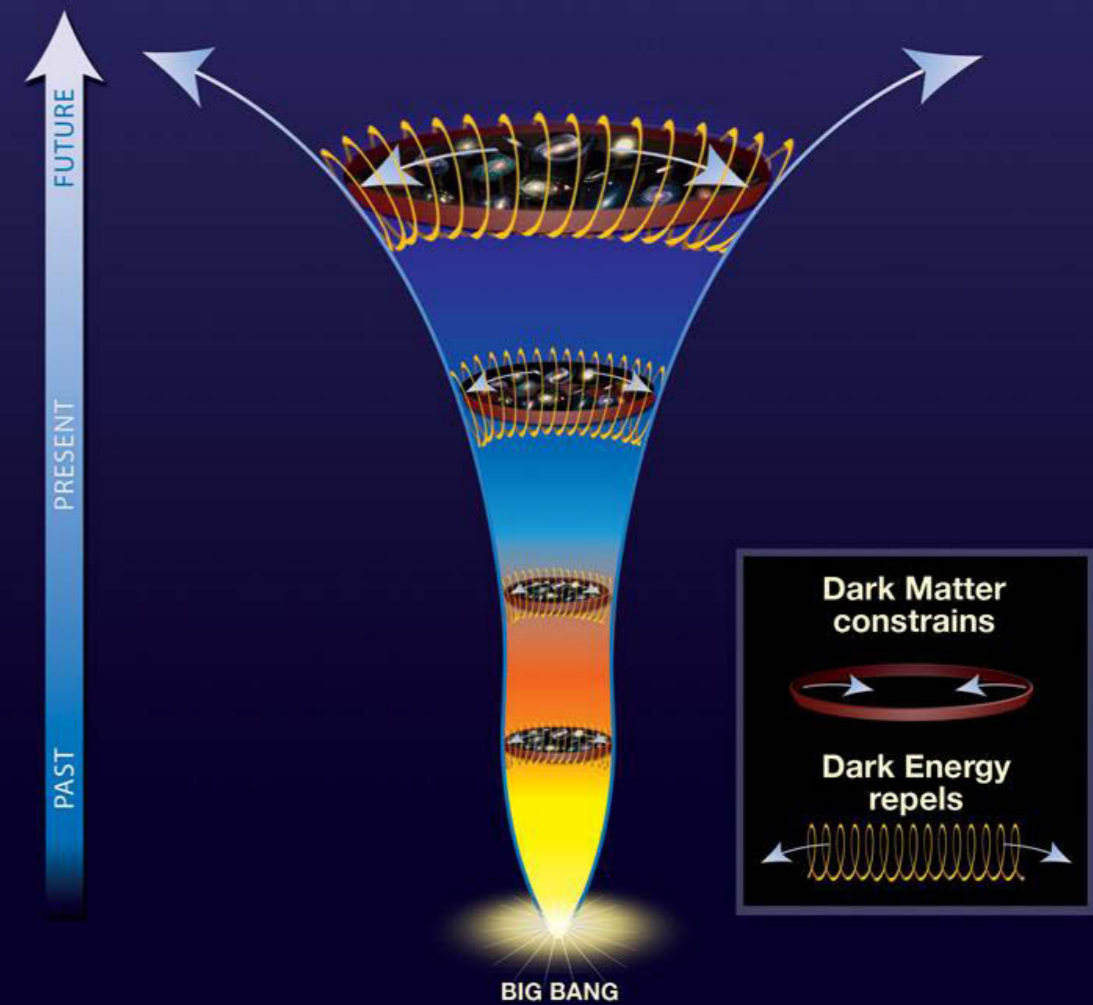


No Supernova

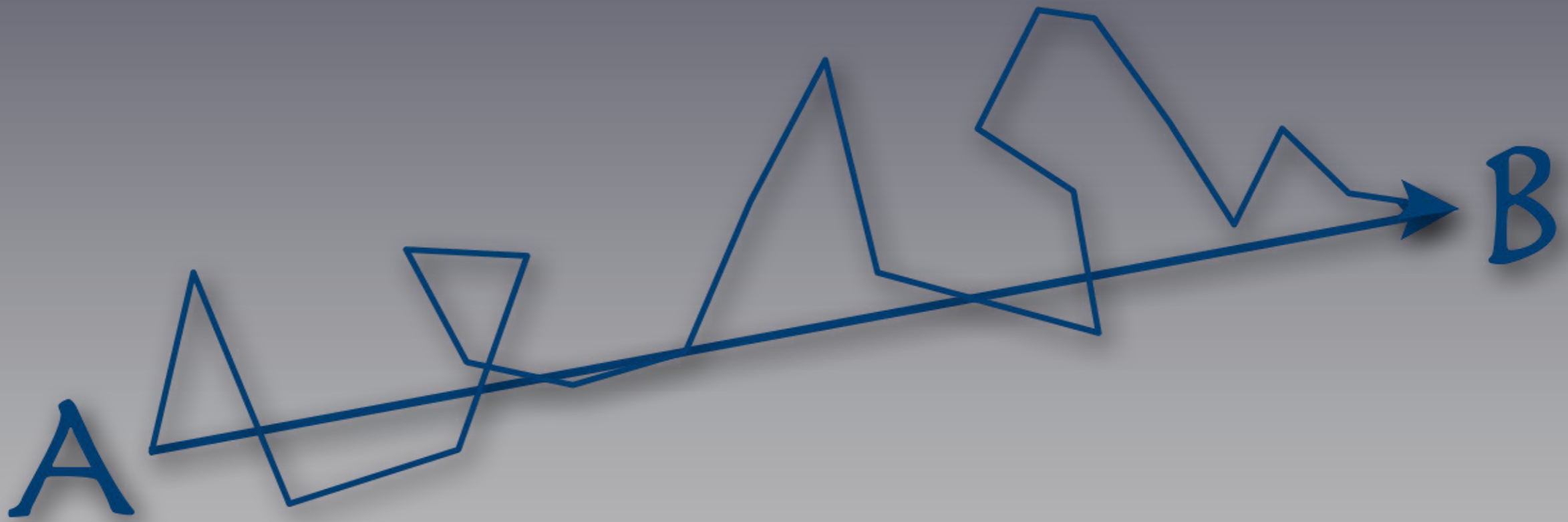
Supernova Oct. 10, 2010

Cosmic tug of war

The force of dark energy surpasses that of dark matter as time progresses.



Progress in science



The background of the slide is a composite image. The upper portion shows a vast field of galaxies, including spiral, elliptical, and irregular shapes, scattered across a dark cosmic space. The lower portion shows the curved horizon of the Earth, with a thin blue atmosphere and a view of the brownish and white landmasses and oceans. The text is overlaid on these two sections.

Scientific blunders
can be

Portals to discovery!