

Please fill out survey at website:
www.andersenlab.org/bio393

Problem set #1 is out.
Fridays are two hours.
Genetics terms will be online.

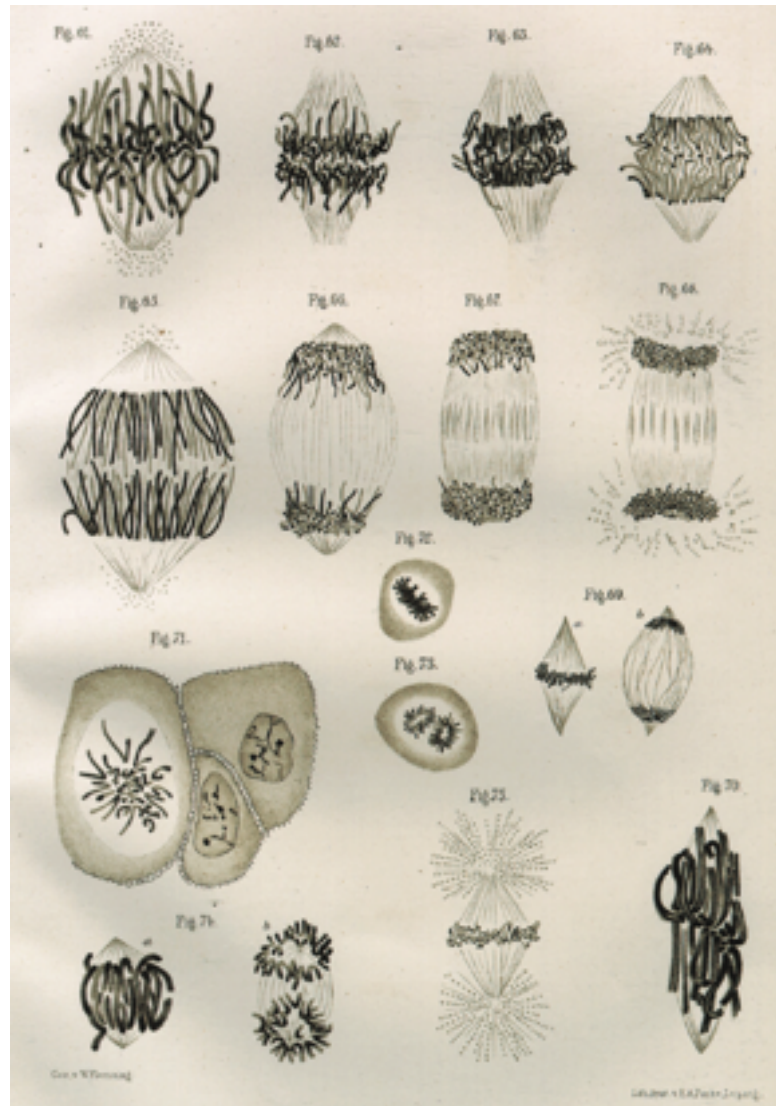
Law of dominance

Law of segregation

Law of independent assortment

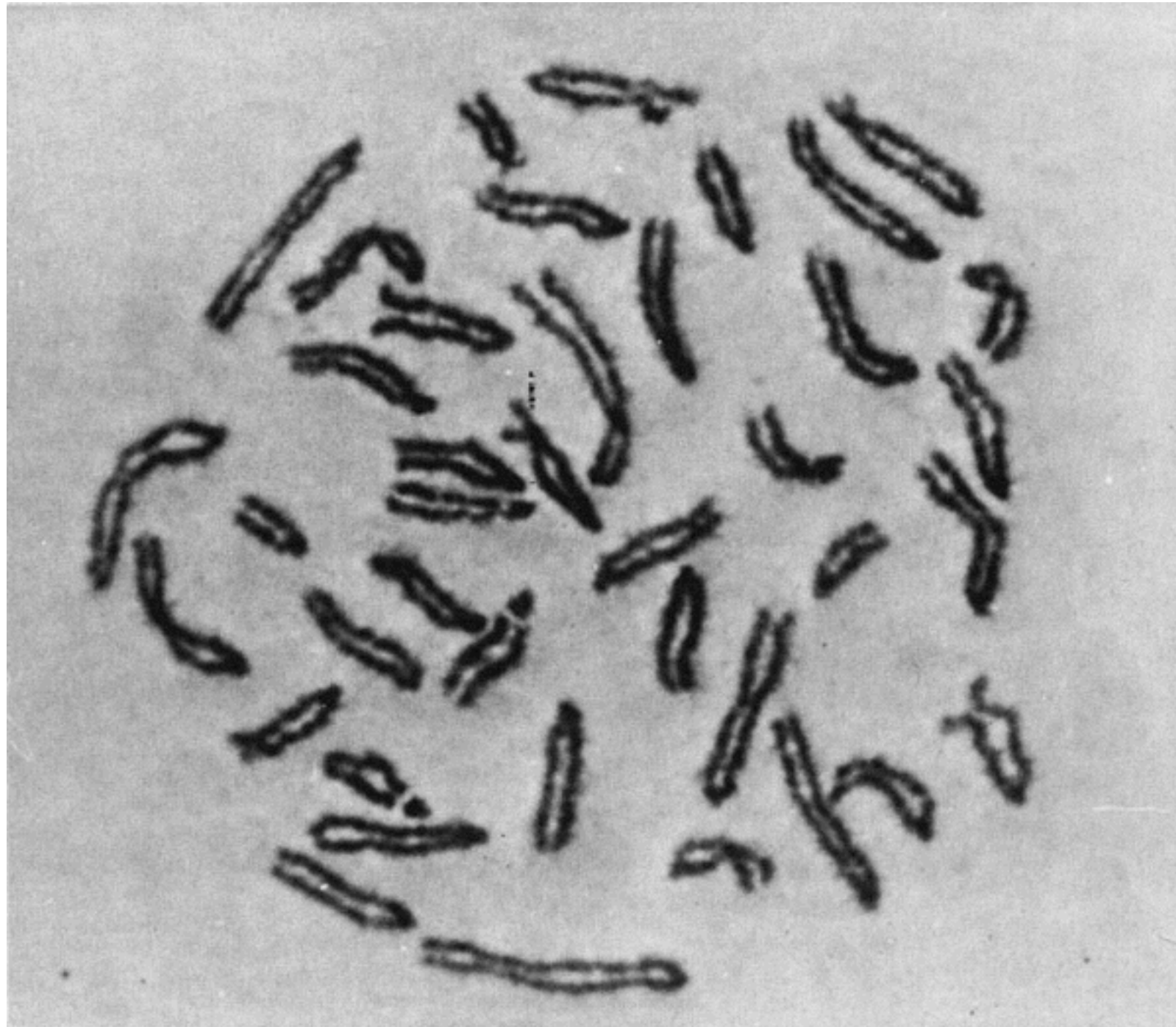
Bio393: Genetic Analysis

Chromosome theory, Mitosis, and Meiosis



Walther Flemming, 1882

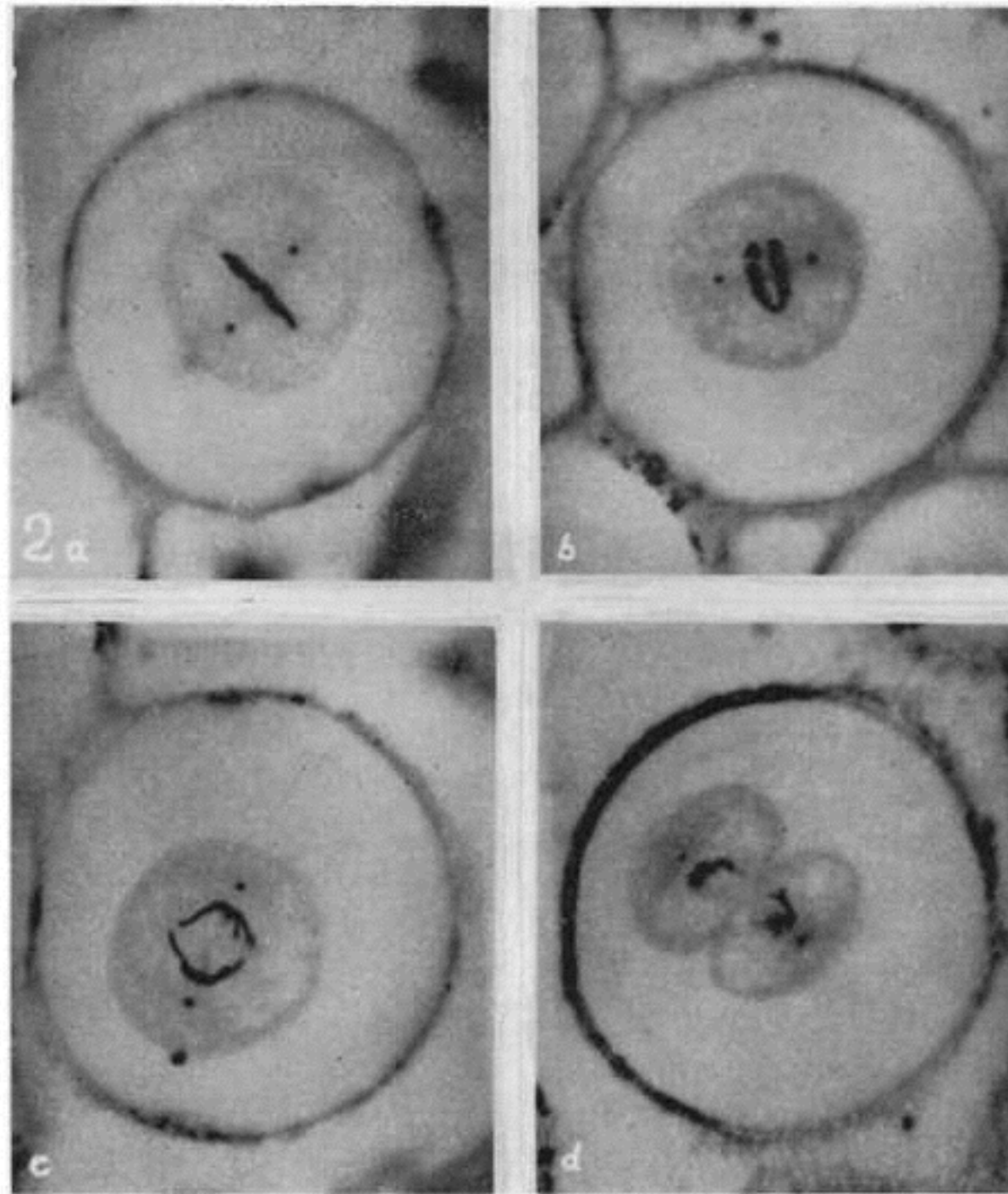
Chromosome theory of inheritance



Cells divide their chromosomes with high fidelity



Theodor Boveri



Mitosis

Gametes have half the chromosomes of the soma



Theodor Boveri



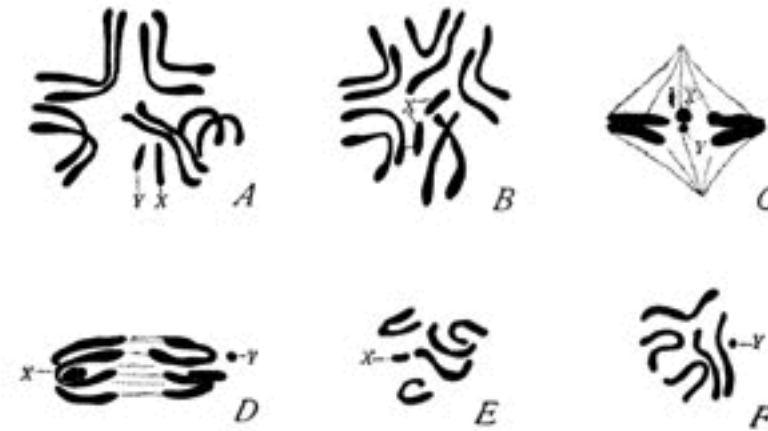
Parascaris equorum embryo

Discovery of sex chromosomes



Courtesy of the Marine Biological Laboratory.
Noncommercial, educational use only.

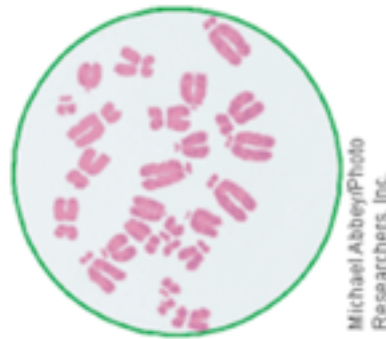
Nettie Stevens



Discovery of a connection to Mendel's principles



Walter Sutton



Michael Abbey/Photo Researchers, Inc.



E.R. Degginger/Color-Pix, Inc.

Meiosis



Thomas Hunt Morgan

***Drosophila melanogaster*: genetics superstar**



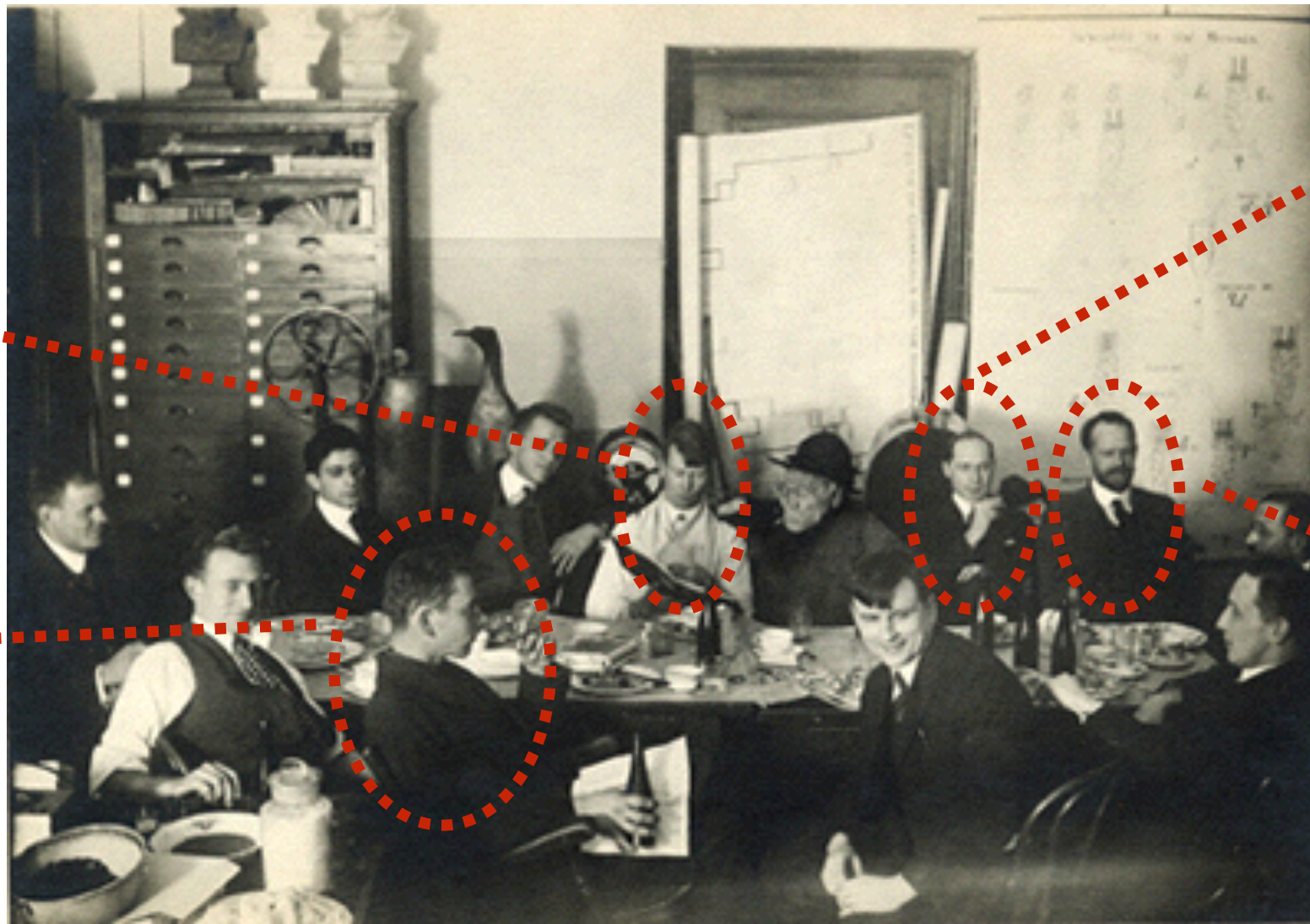
Courtesy of the Marine Biological Laboratory.
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Nettie Stevens



Thomas Hunt Morgan

The fly room at Columbia



Calvin Bridges

Hermann Muller



Alfred Sturtevant

Thomas H. Morgan



W^+

W





x



♂

♀



♂



♀



x



♂

♀



♂



♂



♀



♀

***white* mutant cross**

***white* mutant reciprocal cross**

meiosis non-disjunction

The connections between chromosome NDJ and a trait was made by Stevens and Bridges



Courtesy of the Marine Biological Laboratory.
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Nettie Stevens

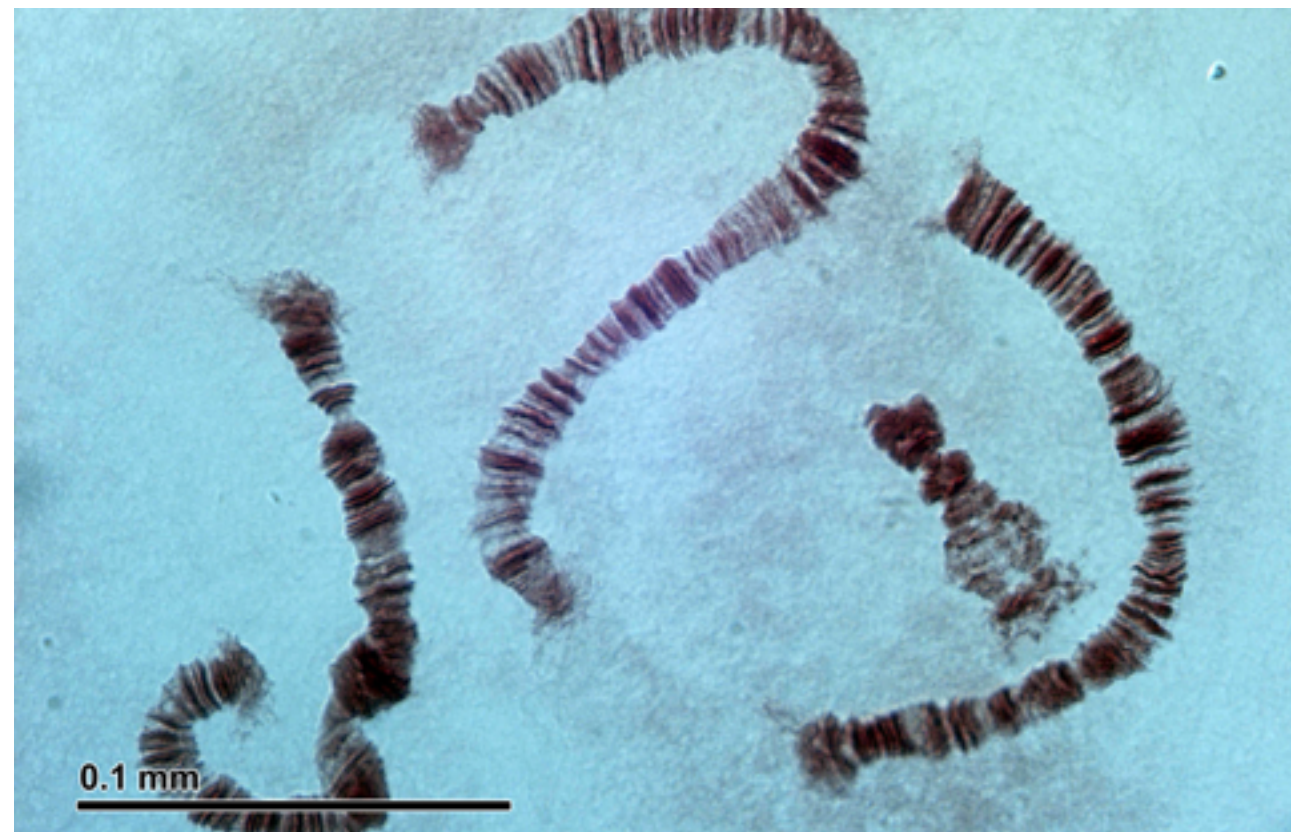


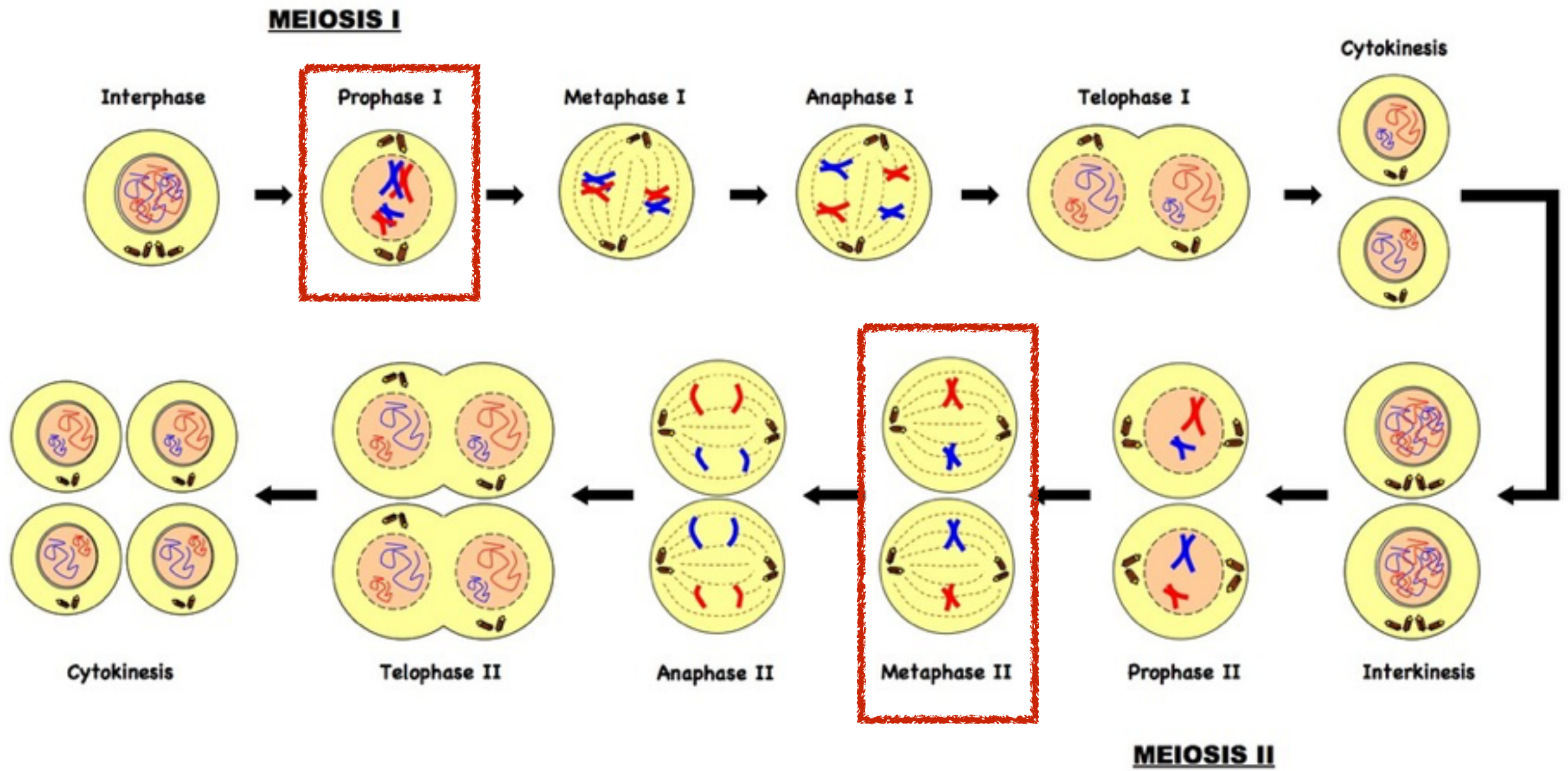
Calvin Blackman Bridges, 1927.

Photo courtesy of Cold Spring Harbor
Laboratory Archives.

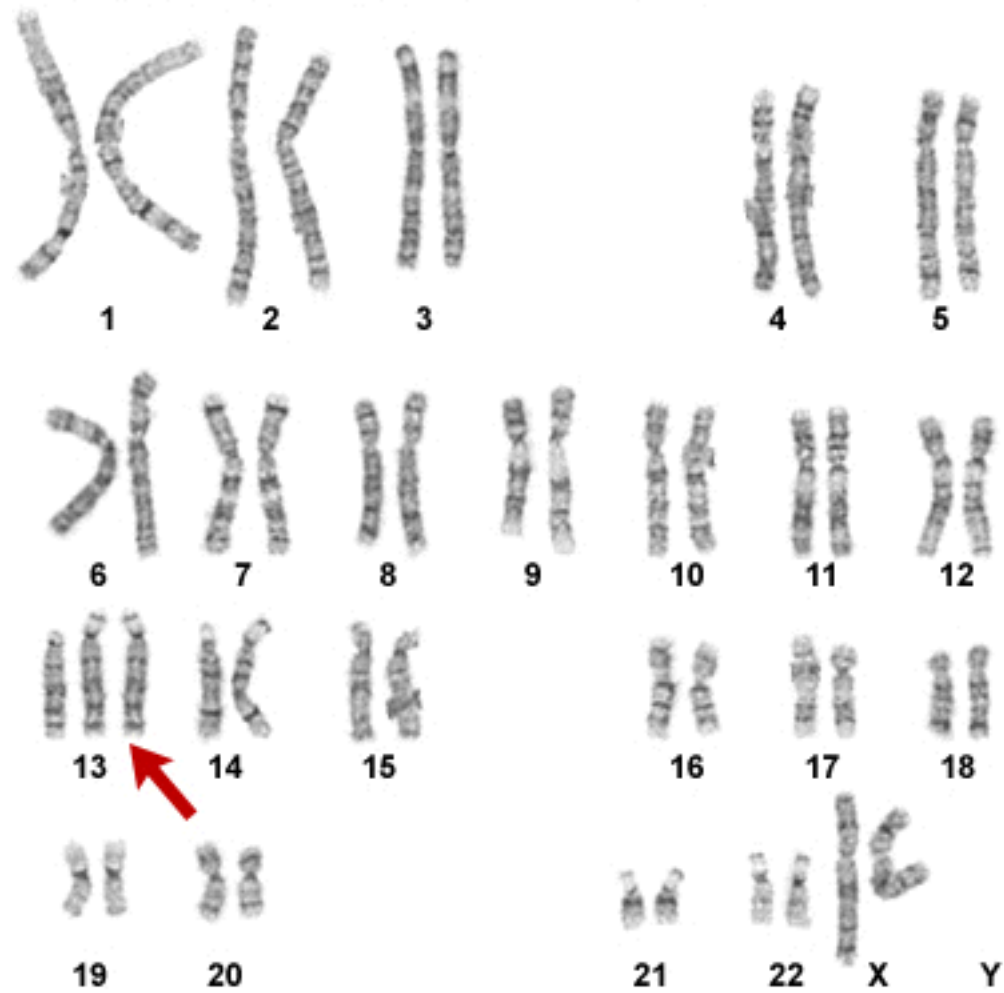
Calvin Bridges

**Polytene
chromosomes**



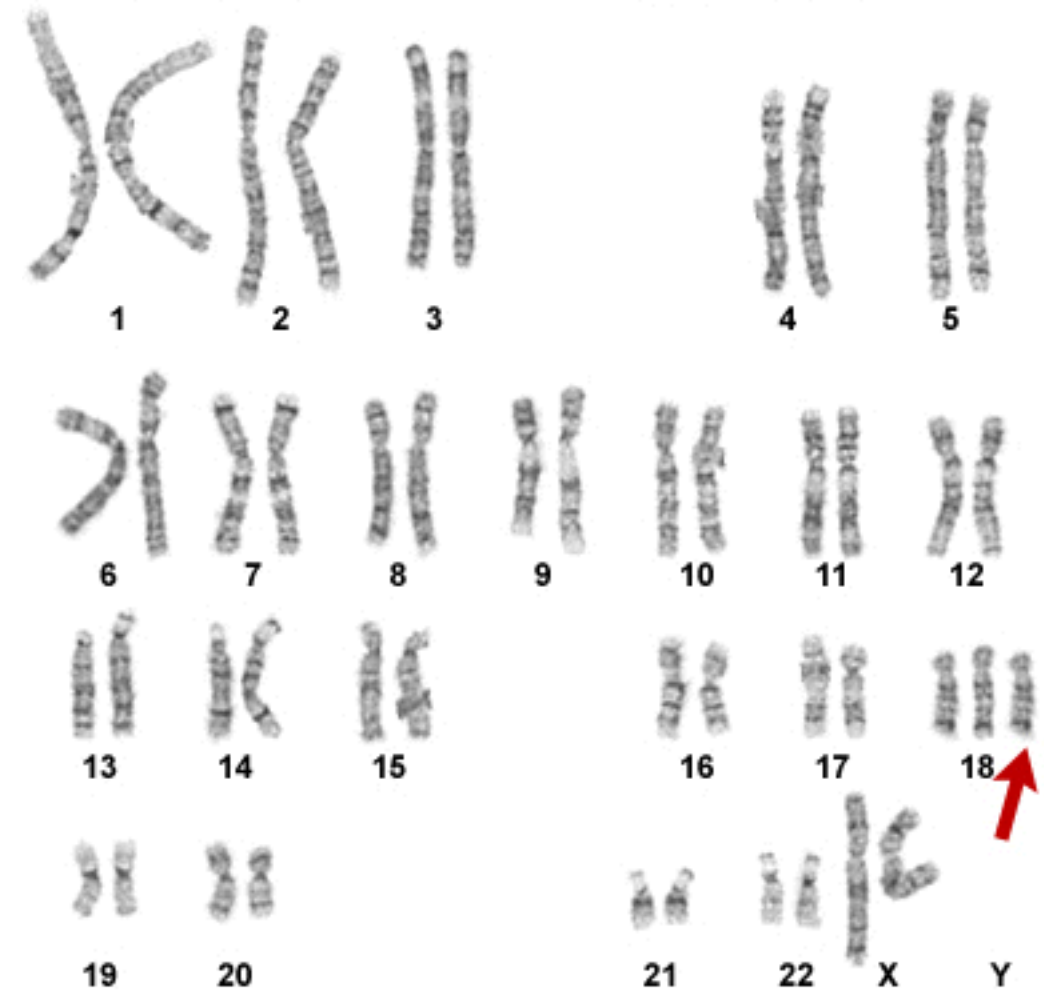


Karyotype From a Female With Patau syndrome (47,XX,+13)



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Karyotype From a Female With Edwards Syndrome (47,XX,+18)



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The Philadelphia chromosome: translocation

