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Fyziologie = φύσις + λογία

- structure ↔ function (goal of therapy) ↔ dysfunction
- **Physiology of today is the medicine of tomorrow**
(Ernest Henry Starling 1866-1927)



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Experimental & quantitative

- causality – mechanisms
- experimental approach - hypothesis, inhibition
- quantitative
 - numbers matter
 - often functions (quantitative relationship between variables), therefore graphs, formulas

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Many physiologies...

- plant
- bacterial
- viral
- yeast...

- human (mammalian)
- comparative
- evolutionary

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Physiology is an „old“ discipline

- **Claude Bernard** (1813-1878)
Milieu intérieur (1854; homeostasis 1926)

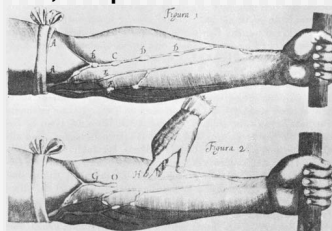
Cybernetics
(feedbacks;
Weiner after 1948)



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Physiology is an „old“ discipline

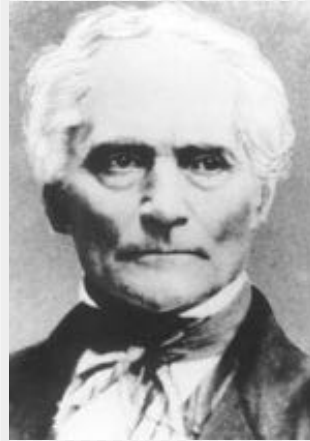
- **William Harvey** (1578-1657)
Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus (1628 Frankfurt)
- combination of observations, measurements, experiments & hypotheses



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Physiology is an „old“ discipline

- **Jan Evangelista Purkyně**
(1787-1869)



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Physiology is an „old“ discipline

- 1905 hormones (**Starling**)



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Physiology is an „old“ discipline

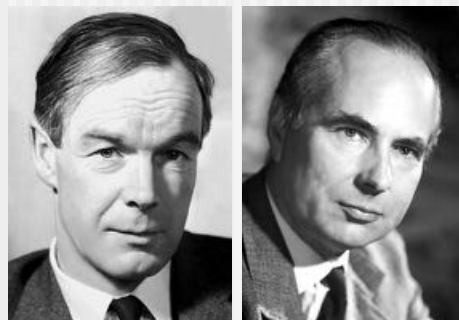
- Nobel prize for physiology & medicine
 - established 1895
 - first awarded 1901
 - 1947 Greta Cori



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Physiology is an „old“ discipline

- 1952 electrophysiology
 - Alan **Hodgkin** (1914 – 1998)
 - Andrew **Huxley** (1917 –2012)



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Physiology is an „old“ discipline

- Mother of spin-offs
 - immunology
 - cell biology
 - neurosciences
 - biochemistry (together with chemistry)
- Today emphasis on integration
- Tight relations with physics & (bio)chemistry (& anatomy & histology)

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Physiology is an „old“ discipline

- i.e. many of what you will learn (essentials) may appear “old”
- but physiology is a very active discipline of science

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How do we teach physiology?

- lectures - experts, highly recommended
- practicals & seminars – 2.LF wants 80% presence, we want “credits”
- seminars intended to discuss causalities & relationships, also presentation & discussion skills
- lectures & seminars do not cover everything – University, not a high school