Information day

Global Systems Science

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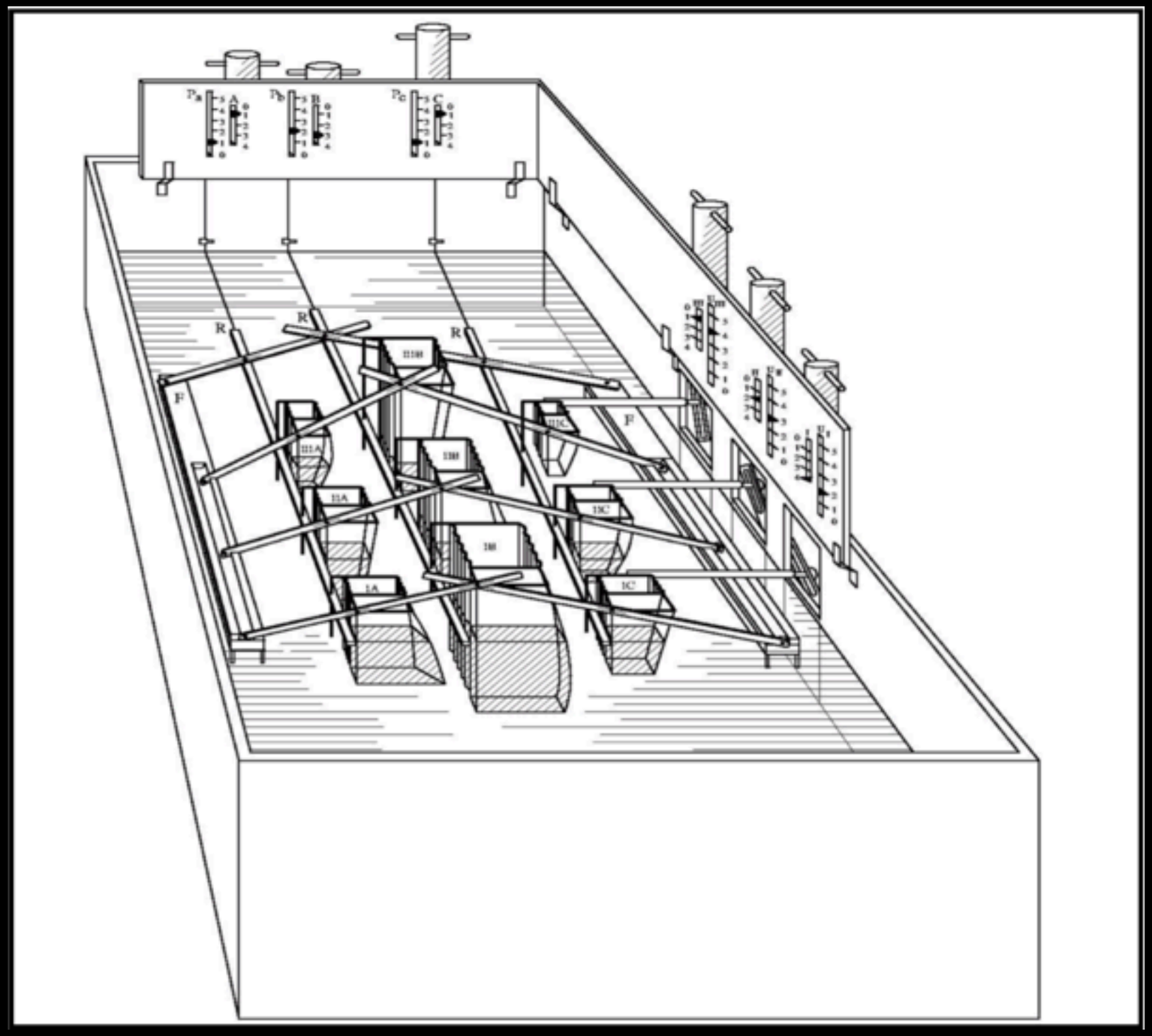
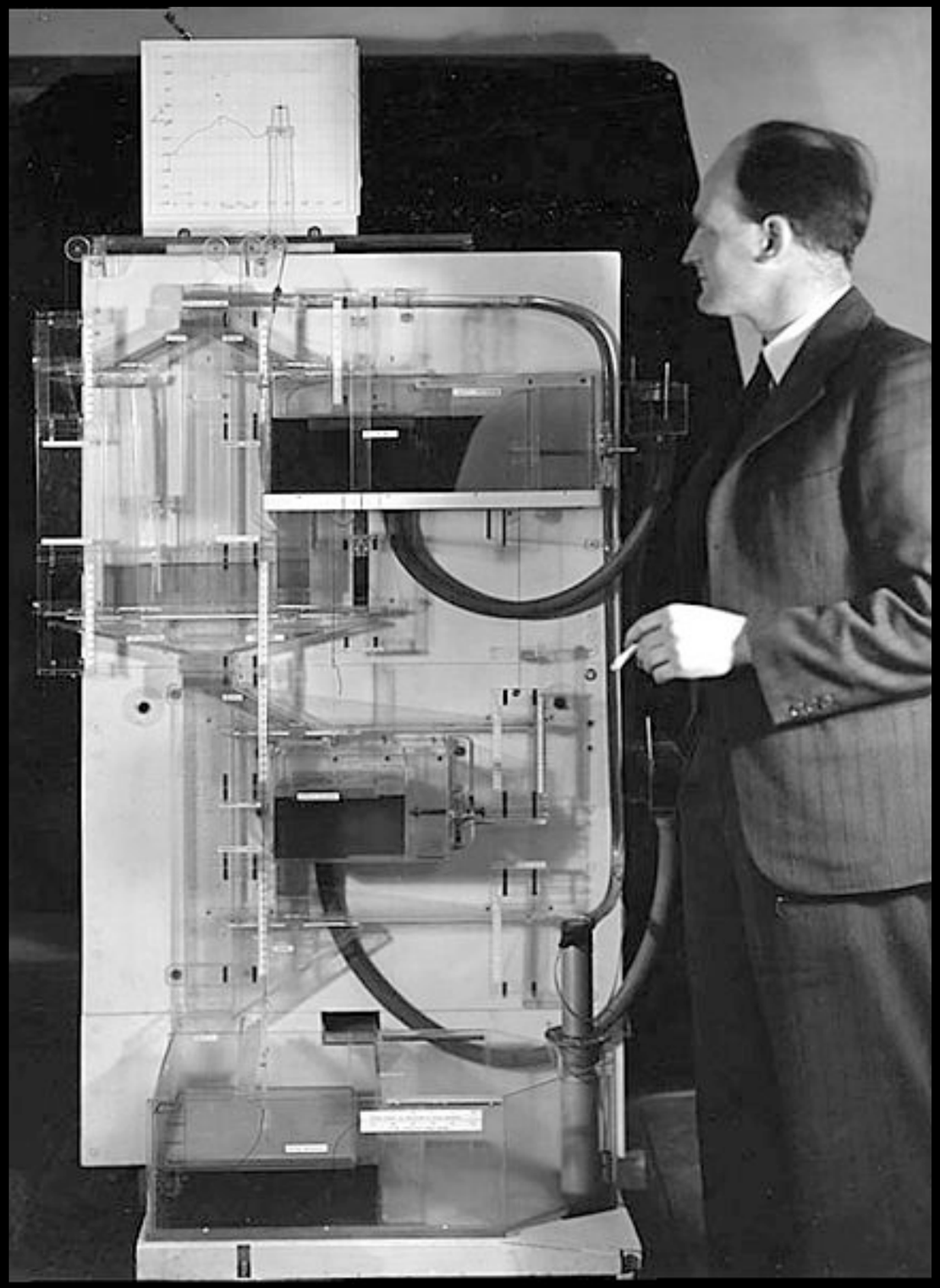
What is global systems science?

- My definition: Complex systems approach to problems relevant for policy making. Should give insight about better policies.
- Rephrased in social science jargon: Complex systems modeling with normative as well as positive implications.

Irving Fisher's hydraulic economic computer (1891)





- Bill Phillips, 1949
- MONIAC:
  MOnetary
  National Income
  Analogue
  Computer

My project
(with Delligatti, Gulyas, Hommes, ...)

- Build a simulator for the economy that can be useful for policy (e.g. central banks)
- Heterogeneous agents: Economy emerges from the bottom up.
- Take advantage of microdata, nonstandard data inputs, high performance computing, ...
- Validation and statistical testing are key.
- Builds on a previous project (CRISIS)

Organizational challenge

- Challenge of coordination, e.g.
  - getting 11 groups to learn a common computer language, OOP, platform
  - coordination of problems, method of solution
  - Too few resources, too many groups
  - Need to meet frequently!

Scientific challenges

- People are complicated: How to gather data and coordinate model construction to understand human decision making within a specific context? (avoid getting lost in wilderness of bounded rationality)
- Estimation: How to calibrate and validate a model with very limited aggregate data?
- Software engineering to support all this.

Interdisciplinary challenge

- Cultural diversity: benefit but also a challenge
- Economics: fragmented and polarized culture; hard to publish in "top" journals.
- Epistemology: Different views on what is a good question, method of solution, and what it means to get a good answer.

What we need for our project ...

- Big data partner
- Graphics?