The Statistical Philosophy of W.F.R. Weldon

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UNIVERSITY OF
NOTRE DAME

DIE MECHANIK

IN IHRER ENTWICKELUNG

HISTORISCH-KRITISCH DARGESTELLT

VON
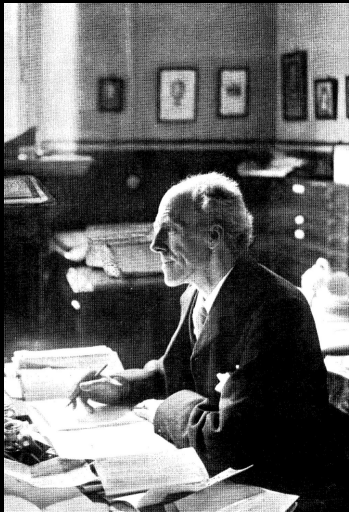
Dr. ERNST MACH,

PROFESSOR DER PHYSIK AN DER DEUTSCHEN UNIVERSITÄT ZU PRAG.

MIT 250 ABBILDUNGEN.

LEIPZIG:
F. A. BROCKHAUS.
1883.

The

Grammar of Science

BY

KARL PEARSON, M.A., F.R.S.

PROFESSOR OF APPLIED MATHEMATICS AND MECHANICS
UNIVERSITY COLLEGE, LONDON

SECOND EDITION, REVISED AND ENLARGED,
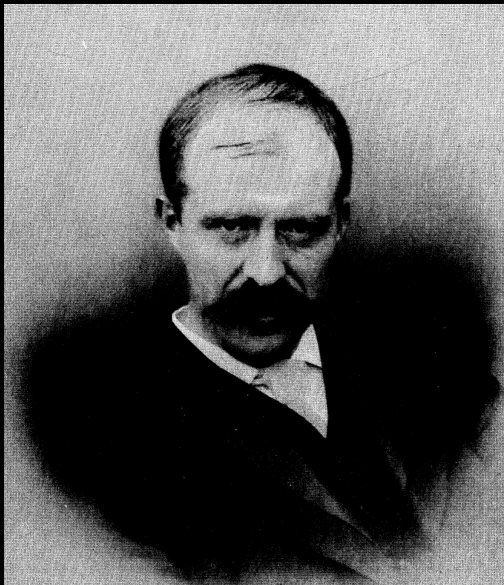WITH 33 FIGURES IN THE TEXT

"La critique est la vie de la science"
Cousin

HERRN KARL PEARSON MA. FRS.

Professor der angewandten Mathematik und Mechanik am University College
in London

als Zeichen der Sympathie und Hochachtung

gewidmet vom Verfasser.

Weldon on Statistical Method

Men measure a certain thing, and find that up to a certain point their measurements agree with each other, and their experience is uniform; but beyond that point, their experience is contradictory. Having made this contradictory record with as much care as they can, they substitute for it one constant value of the thing measured. But the question always arises, how far this proceeding is justified, – how far the variability of the actual experience depends upon imperfect observation, and how far it is a true record of differences in the thing measured.

— Weldon (1906), p. 88

Weldon on Statistical Method

If we want to make a statement about the stature of Englishmen, we must find a way of describing our whole experience; we must find some simple way of describing our whole experience, so that we can easily remember and explain to others how many men of any given height we find among a thousand Englishmen. We must give up the attempt to replace all our experiences by a simple average value and try to describe the whole series of results our observation has yielded.

— Weldon (1906), p. 94

Weldon on Statistical Method

All experience, which we are obliged to deal with statistically, is experience of results which depend upon a great number of complicated conditions, so many and so difficult to observe that we cannot tell in any given case what their effect will be.

— Weldon (1906), p. 97

Conclusions

- The standard historical story:
  - Mach's positivism → Pearson
  - Pearson's positivism (+ biology) → Weldon
  - Pearson + Weldon → **(positivist) biometry**

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- The standard historical story:
  - Mach's positivism → Pearson
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- But Weldon's philosophy of science is far from being a carbon copy of Pearson's – perhaps the better story is:
  - Mach's positivism → Pearson ⟦→ statistics ⟧
  - Hume / Scottish empiricism **(?)** → Weldon's statistical philosophy ⟦→ statistics ⟧
  - Pearson + Weldon → **(statistical) biometry**

Questions?

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