Experiment and theory: good or bad

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Motivation

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- Theory is fast and relatively cheap. How correctly do you think? No proof!
- Experiment is long-termed and very expensive. How precise are measurements?
- What to do before we understand the nature?
- Which way to use: fast or precise?

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All are good and equal!.
But people are different, and so is the way they think.

Comparisons: experimentalist

Example how an experimentalist behave.
Problem 1: Boil some water for tea.
Tools: Pot, Water, Matches, Gas stove.
Solution:

- Light the stove using matches;
- Fill the kettle with water and put it onto the stove;
- Wait.

Problem 2: boil some water.
Tools: Kettle filled with water, Turned on gas stove.
Solution:

- Put the kettle onto the stove;
- Wait.

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Problem 2: boil some water.
Tools: Kettle filled with water, Turned on gas stove.
Solution:

- Empty the kettle, turn off the stove;
- We have brought the current problem to the previous one.

Conclusions

- Theory and experiment are both inseparable from each other;
- Combining ways of thinking is very useful;
- Experimentalists have to appreciate estimations from theory;
- Theoretists have to thank experimentalists for “visible proofs” of their theories.