

## PHILOSOPHY

difference between Dr. Campbell's opinion and mine, and therefore I may add some words now.

I do not deny that there is a difference between facts and theories, but what I deny is that laws are of the form of facts: they are nothing but theories of a more narrow form. And I must add that what a physicist calls a fact is a theory too: the real facts are sensuous impressions like blue and green and rigid, and to say that there are things of certain physical character is going further from facts to theories. Thus proceeding from absolute facts to propositions about "external" things is a way marked by the steps "physical facts," "laws," and "theories," but there is no sharp *frontière* between these steps. What can only be said is that the probability of the proposition gradually decreases as we proceed. The physicist is not always conscious of this: he takes an "observed" spectral line as a "fact," and a relation between observed lines as a "factual law," as for instance the law of Balmer. But what he could only maintain here as a fact is that he saw some dark and light spots on a photograph—he never sees spectral lines, but must deduce them from the observed spots by theoretical construction.

The instance given by Dr. Campbell is not of the form of transition occurring in physics. "Brutus killed Cæsar" is of the character of a "physical fact," that is, it is deduced from facts (like the sensuous data in reading ancient chronicles) by theoretical construction. "Brutus was right to kill Cæsar" is no statement at all, because it states nothing about the world, but only informs us about a certain feeling of the speaker, his feeling of justice. In the whole of physics there is no proposition of this kind at all.

This view of facts being a principal train of my theory of knowledge (*e.g.* in my *Ziele und Wege der physikalischen Erkenntnis, Handbuch der Physik*, Bd. 4, 1829. Verlag J. Springer, Berlin), why should I be charged with having ignored the problem of facts? I think every theory of knowledge must deal with the given view of facts, if it wants to give account of what an experimental physicist *does*, and not of what he *thinks he does*.

Yours faithfully,

HANS REICHENBACH.

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## NOTICE

THE first volume of the *Collected Papers of Charles Sanders Peirce*, scientist, logician and founder of pragmatism, has just been published by the Harvard University Press. This volume is entitled *The Principles of Philosophy*, and is composed mainly of papers previously unpublished. It contains his system in outline, and his more important papers on the methods and classification of the sciences, phenomenology, or the doctrine of the categories, ethics, and æsthetics. It will be sold at \$4.50. The entire works will consist of about ten volumes; those subscribing to all the volumes will be entitled to a discount of 20 per cent. The second volume dealing with traditional logic, signs, methods of discovery, induction, and probability will follow very shortly. Nearly all the members of the Department of Philosophy at Harvard, as well as other friends of Peirce, have devoted much time to these manuscripts of these papers. The final work of arranging the papers and preparing them for the press has been done by Dr. Charles Hartshorne and Dr. Paul Weiss.