

creeps into our equations and makes revision necessary. New values can only be had by waiting. Again, *space*, as distance, abstracting from the content of space, conditions our intersubjective relations, as well as our relations to non-purposive beings. It makes possible externality of energetic centers and free mobility. Further, the relativity of our meanings and ideals makes necessary the assumption of an absolute *direction*, a normative limit, to measure the validity of our finite standards. Lastly, we find it convenient to abstract the fact of *consciousness* from the changing contents and the conative attitudes. While our awareness is intermittent, the conative attitudes and purposes may be comparatively constant. These non-stuff dimensions must be regarded as real as the will centers which they condition. They are more knowable than the world of stuff, because their characters are few and simple, whereas the varieties and contexts of stuff are almost infinite. Thus, by means of our conceptual tools, we are able to discover not only various kinds of stuff, but we are able to discover dimensions of reality of ultimate importance, where microscopes and telescopes cannot penetrate—realities which eye hath not seen nor ear heard, nor ever will see or hear, more subtle than ether or radium, if these be more than fictions.

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EDITORIAL COMMENT.

Prof. John E. Boodin will be remembered by the readers of *The Monist* for his article on "Philosophic Tolerance" (April, 1908) in which he supported the pragmatism of Professor James. At that time the editor asked him to make a reply to the comments on his views in the editorial article on "Pragmatism" which appeared in the following issue. Professor Boodin has not made use of the invitation, but prefers to offer to the readers of *The Monist* an exposition of his views without reference to the controversy in question.

In the present article Professor Boodin makes the following statement: "Instead of the dogmatic method pursued by the old idealism and materialism alike, we must substitute scientific method. This method has been rechristened within recent years by C. S. Peirce and William James and called pragmatism."

If pragmatism avowedly accepts the scientific method, would it not be better to call it the "Philosophy of Science"? Nevertheless,

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so far as we understand the movement, pragmatism does not credit science with the ability to build up a philosophy. To pragmatists the will to believe and the personal equation are more important than the assured results of scientific inquiry while science is criticised for the instability of its doctrines.

We do not believe that C. S. Peirce and Prof. William James can be lumped together as if their pragmatism were one and the same. Each of them has his own preferences but both are very different. Mr. Peirce is strong in logic and truly scientific in his work, while William James is very original and ingenious. But if pragmatism, as commonly understood, were truly nothing but another name for "scientific method," it would not have anything new to offer, and there would be no need of starting life over again; it would have been sufficient to continue the work of science and apply its methods more and more thoroughly in all fields, especially in the department of philosophy.

ON POINCARÉ'S "MATHEMATICAL CREATION."¹

M. Poincaré's essay on mathematical invention which appeared in the July *Monist*, is of supreme interest for the psychologist. It offers a valuable contribution to the psychology of genius, at the same time relegating "unconscious cerebration," the importance of which has been somewhat exaggerated, to the place it ought to occupy.

Why are so few men capable of mathematical creation or even of comprehending mathematics? M. Poincaré, I believe, gives the best reason when he attributes this impotence not only to an insufficient strength of memory and attention, but even and especially to the absence of a special intuition, of a proper feeling for mathematical questions.

A mathematical demonstration in fact, as he rightly says, is not a simple juxtaposition of syllogisms, but a succession of syllogisms placed "in a certain order"—an order which the true mathematician feels directly so that he perceives as "a whole" the course of reasoning which supports it.

In my opinion a secondary difficulty upon which Poincaré has nothing to say and of which he has perhaps failed to take note, lies in the use of symbols. This difficulty (and we may note in passing that scientific symbols are usually repugnant to artists, especially

¹ Translated from the French by Lydia G. Robinson.