

youth, eager for work and invention, gradually becoming skilled in the use of the best tools in doing fine metal work, able to turn his hand to glass-blowing and draughtsmanship and half-a-dozen other arts, with a good working knowledge of chemistry, electricity, and other parts of physics; he was always proud of his strength and health.

He made many inventions: mousetraps, gas machines, sprinklers to put out fires, a steam trap, locomotive head-lights, incandescent platinum and carbon electric lamps, the electric regulator for which he received the Légion d'Honneur; he demagnetised watches, and did many other interesting things. He relates many amusing anecdotes which illustrate the condition of things fifty years ago in Canada and the northern and also in the southern States.

He was probably thirty-eight when he discovered that heating carbon in a hydrocarbon atmosphere caused carbon to be deposited in a very hard form; we are not sure that he really claims the method of "flashing" a carbon filament by keeping it hot in a hydrocarbon atmosphere, but the suggestion of a claim is evident. About the age of forty he was greatly engaged in the manufacture and use of dynamo machines, and he exhibited excellent lamps at the Paris Exhibition of 1881. Soon after this, in London, he invented and exhibited his automatic gun; a single barrel which discharged more than six hundred ordinary rifle shots per minute, and for the next twenty years his time was mainly taken up in developing automatic guns of greater sizes. He records some of the praise which has been bestowed upon his gun; no praise can be too great for it. We remember a toast which was drunk enthusiastically in London when the news of a certain conquest had just been published "To the Conqueror of Matabeleland, Hiram Maxim."

He made discoveries about gunpowder and other explosives. He seems to be the first inventor of a smokeless powder. He describes all these things, but does not seem to think them of much more importance than his experiments on the roasting of coffee.

He seems to have been the first to see clearly how a flying machine might be made to work, and spent a very great deal of money in driving inclined planes horizontally through the air by means of an engine and air propellers, so that there should be sufficient vertical lifting force upon the planes. His machine did lift, and he seemed to be succeeding slowly, but his real difficulty was in the great weight of engine required. The invention of the petrol engine easily made the aeroplane a real flight machine. His

NO. 2373, VOL. 95]

fellow directors seem occasionally to have thought that there was a loss of dignity in his allowing advertisements to appear of such things as his inhaler for asthma, and scientific friends deplored his "prostituting his talents on quack nostrums." His own comment upon this is that from their point of view the invention of a killing machine was very creditable, but it was a disgrace to invent an apparatus to prevent human suffering. Just so, there are the two points of view. All through his life Sir Hiram was keen upon inventing anything that might be useful. He does not feel a loss of dignity in describing how he invented a simple, thoroughly good method of giving a proper surface to a black-board in a school, and he is no more ashamed of advertising his inhaler than of advertising his gun.

His experience of lawyers and business men in America seems to make him rather bitter towards Americans. It is gratifying to find him saying: "The reception that I received in England and the straightforward honesty of the gentlemen with whom I had to deal, gave me a very favourable opinion of the English character." J. P.

APPEARANCE AND REALITY.

- (1) *William James and Henri Bergson: A Study in Contrasting Theories of Life.* By Dr. H. M. Kallen. Pp. xi + 248. (Chicago: University of Chicago Press; London: Cambridge University Press, 1914.) Price 6s. net.
- (2) *The Mirror of Perception.* By L. Hall. Pp. 129. (London: Love and Malcomson, Ltd., 1914.) Price 2s. 6d.
- (3) *What is Adaptation?* By Prof. R. E. Lloyd. Pp. vii + 110. (London: Longmans, Green and Co., 1914.) Price 2s. 6d. net.
- (4) *The Story of Yone Noguchi: Told by Himself.* Pp. xi + 255. (London: Chatto and Windus, 1914.) Price 6s. net.

(1) NOT the least useful contribution to philosophy made by William James was a negative one, viz., the ignoring of the traditional antithesis between reality and appearance. This antithesis may safely be said to have been the original sin of metaphysics since meditation began, and James's philosophy may most fruitfully be studied from this starting-point. The older philosophers, logical and static, discriminated between appearance and reality "in one or all of the compensatory terms of God, freedom, immortality, and cosmic unity"; and later, "in response to the pressure of rapidly growing sciences, men faced fact, only to change it in such wise as thereby to satisfy the inner need for logical consistency." But James "insisted

that each event of experience must be acknowledged for what it appears to be, and heard for its own claims. To neither doubt nor belief, datum nor preference, term nor relation, value nor fact, did he concede superiority over the others. . . . Pure experience knows no favourites. He admits into reality . . . evil as well as good, discontinuities as well as continuities, un-human as well as human, plurality as well as unity, chance and novelty as well as order and law."

Though between James and Bergson there is no little spiritual sympathy, a profound difference exists in the methodology of the *Weltanschauung* of each thinker. "Where," says Dr. Kallen, "Bergson beholds a universe, James sees a multiverse. . . . James is a democrat in metaphysics. Bergson, on the contrary, is a monarchist. For him the distinction between appearance and reality is aboriginal and final. For James it is secondary and functional." For James, "being is neutral," and he ignores, practically, the difference between "being" and "not being." Hegel laboriously proved them to be the same. James deals with reality just as it comes to cognition. Reality to him is "alogical," as Dr. Kallen puts it. Kant began the attack on logical metaphysics, inventing "epistemology" to assist him towards a *locus standi*. He, no less than any of the ancients, would have nothing to do with "common-sense reality." And no one expects any philosopher to consider it. But, to return to Bergson and his notion of philosophical reality, it is remarkable with what *élan* the French thinker embraces his self-found "truth." It is *durée réelle* (pure duration), a *poussée formidable* (a formidable thrust), the *élan vital* (the onrush of life); but its eternal enemy is matter and space, which distort it and by which it is distorted. Bergson's "flux" is a richer concept than that of Heraclitus, but it is of the same order. You would expect him to prefer instinct to intellect. But no one nowadays would place intellect, reason, first in the cosmic hierarchy. Both Bergson and James have contributed to this result. From the pragmatist point of view truth is "what we live by"; "common-sense, religion, art, and science are tools and modes of life, and therefore pragmatic." But, for Bergson, "truth is absolute," and his "truth" is vitalism writ large, after a course of Plotinus, Driesch (?), and Darwin.

(2) It is somewhat stimulating to find a disciple of Berkeley crying in the wilderness of to-day. Mr. Leonard Hall puts forward a "metaphysical theory" which is "a particular form of psychophysical parallelism, in which it is maintained that the physical world is the appearance, or image,

of the psychical world, in the *distorting mirror of perception*" (my italics). It is a clever *tour de force*, though it is apparently quite serious. Granted the major premiss, everything comes out satisfactorily. Mr. Hall commences with the old antithesis of appearance and reality, and argues that "the initiating cause of all perceptions of the same material body is, not the body itself, but a reality of which the body is the image in the distorting mirror of perception." For Berkeley the initiating cause was God; for modern science "the initiating cause of all perceptions of the same body is the body itself," which, by the way, is not the case; science does not dogmatise here. Material bodies are "unreal . . . they are the transfigured appearances, or images, of underlying realities. Further, according to this theory, space is unreal, a material body, like the image of an object in a mirror, being in unreal space." Mr. Hall concludes that every organism, from the protozoa upwards, is a "mind"; that man is the super-conglomerate of "minds," and that this hypothesis of summated minds explains evolution and the organic world.

(3) Prof. Lloyd has written a suggestive little book on adaptation. The proposition of the selection theory that "competition causes evolution" was made in order to explain adaptation and life in general. It regards organisms as fitting into something, which is called their environment, . . . and that this correspondence was brought about by the elimination, from the one side, of all that would not fit." But adaptation, according to Prof. Lloyd, does not, any more than life, require explanation. It is the teleological bias of man, the machine-maker, that institutes the wonder which leads to design, purpose, and adaptation theories. But adaptation is "its own explanation, since an unadapted thing could not live."

(4) The *Weltanschauung* of many philosophers has been based on æsthetic axioms. And in his way the artist is a philosopher; "the marbles of Phidias and the philosophy of Plato . . . obey the same impulse and express the same will—an impulse to make over unsuitable realities into satisfactory ideas, a will to remodel discordant nature into happy civilisation." The reminiscences of the Japanese poet, Mr. Yone Noguchi, are a case of æsthetic pragmatism. "Do you know," he says, "I am a shy, without-knowledge-of-the-world poet"? All his experiences have been acquired from the point of view of beauty. His description of Chicago is a good example. "Smoke means Chicago as flower means Japan; money means Chicago as art means Japan."

A. E. CRAWLEY.