

We are continuing this work, and hope to report later, giving photomicrographs, and showing as well the appearance of casts and mucin in the dark field, after they have been acted on by reagents, stains, etc.

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THE STANDARD POUND

IN the letter of Mr. Alexander McAdie, published in *SCIENCE* on February 23 ultimo, under the heading "The Depreciation of the Pound," Mr. McAdie states that the provisions of the Corn Sales Act of 1921, effective January 1, 1923, and prescribing that sales of grain, seeds and potatoes in Great Britain shall be by weight only and in terms of the *hundred-weight of 112 pounds*, have the effect of reducing or depreciating the pound from 7,000 to 6,250 grains weight. This is upon the gratuitous assumption that the absolute weight of a hundred pounds or of 700,000 grains is by the Act to be divided into 112 parts to produce a new or "depreciated pound" of 6,250 grains weight. If one were to indulge in assumptions as to the effect of the Act, it would be more legitimate to argue or conclude that the effect of the Act is to divide the absolute weight of 112 pounds or 784,000 grains which constitute the English hundred-weight, into 100 parts to produce an appreciated or enlarged pound of 7,840 grains. But there is neither need nor excuse to indulge in assumptions as to the English *hundred-weight*, because the *hundred-weight*, as specified in the Act of 1921, and as otherwise defined by law, and as long established by custom, consists of 112 standard pounds of 7,000 grains, and is divided into 8 stone of 14 standard pounds. The Act merely declares and confirms the custom of England and establishes uniformity of practice throughout the realm. It imparts nothing new as to the value of the standard pound or as to its division into 7,000 grains, as legally recognized and established in both the United Kingdom and the United States.

The English use and will, under the Act of 1921, continue to use precisely the same pound as the Americans. We, however, use a *hundred* of 100 standard pounds, whereas the English use a *hundred-weight* of 112 pounds. The Englishman wants to divide his *hundred-weight* into 8 equal parts. He can not divide the cental of 100 pounds into 8 equal parts, and he therefore persists in using the *hundred-weight* of 112 pounds, which he can divide into 8 equal parts, each of which he calls a stone. But he nevertheless uses the same standard pound which is used in the commerce of the United States, and certainly no American would deny him the privilege or right

to use the *hundred-weight* of 112 pounds, if for reasons which satisfy him, he finds it preferable or convenient to do so, just as the Englishman has no objection to the use of the cental of 100 pounds in Canada, in the British Dominions and in the foreign trade of the Empire.

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APPLIED SCIENCE AND SCIENCE APPLIED

"To be an industrial psychologist one must first of all be a psychologist." "Hardly more than one or two men are earning a livelihood in industry to-day as *psychologists*" (W. V. Bingham). These sentences appear in a modest advertisement of "psychology as a life work" in *SCIENCE* for April 13.¹ The writer of them believes that "industrial psychology" offers to men with psychological training and possessed of certain assets a career among "fascinating practical problems." The "three outstanding assets for a career" are named by him as "a sound training in scientific method," genuine interest in "all sorts of people and the personality to deal effectively with them," and, finally, "superior practical judgment, especially where money values are concerned." When these assets produce an "output of cash value to industry" they may be expected to bring proportionate "financial rewards." It is exceptional, however—as it appears—for an industrial psychologist to earn a living as a *psychologist*.

In the same article "educational psychology" is declared to show "an increasing demand for experts in psychological and educational measurements." Here "the most necessary qualifications are listed as "general scientific ability, knowledge of educational practice, industry, adaptability and good sense" (E. L. Thorndike). Again, "clinical psychology," which offers to suitable persons opportunities "not surpassed financially," etc., is said to demand acquaintance with the facts of disease and of treatment as well as the "physician's mental attitude" (S. I. Franz). And, in more general terms, "for those who possess the requisite qualities and training there is no limit [in "applied psychology"] to public service and financial rewards" (R. Dodge).

Does this announcement by "experts" persuade the reader that there are "applied psychologies"? Does it not rather call attention to the well-attested fact that scientific knowledge and training may be found to be useful (provided the individual meets certain other requirements) in many practical tasks far removed, in spirit, problem and point of view, from psychology or from any other single science? The article makes it abundantly evident that, where these

¹ *SCIENCE*, 1923, lvii, no. 1476, pp. 429-431.

tasks relate to such "human endeavors" as medicine, education and business, psychological preparation may be important.

The great public loathes definitions; but it is apt in affixing labels. It has—without any prompting from "science"—stuck the label "psychology" on hypnotism, mind-reading, ghosts, communion with the dead and a dozen magical and medical formulas. From clinical theorists it has eagerly learned to apply the same tag (with "new" prefixed) to the shocking practices of the psychoanalyst. And it has been frequently instructed of late to use the label for various jobs undertaken in business and in the schools by persons whose academic or professional training has included studies of psychology, in tests and in the Pearsonian statistics.

The more seasoned sciences and arts still have their "boundary disputes," but they do not insist that every performance of the scholar or the artisan be set down to the credit of a science or profession. The surgeon skilfully carving the family roast is not doing surgery; nor the zoologist eliminating bad stock from his private herd, zoology; nor the botanist in his lettuce-bed, botany; nor the embryologist, turning an extra penny in the poultry-yard, embryology. Why should psychologists encourage the impression that anything which concerns "human nature" is psychology; that psychology covers the field of "human experience, behavior and personality," or that it is whatever the student of psychology seriously undertakes? What would become of zoology if it professed to compass all of man's varied interests in life, or of physics if it similarly extended its present domain?

The war has shown us how many things beside the concern for his own science or art a trained or skilled man may, when occasion offers, usefully turn his hand to; but we are still tempted to confuse—at least in the case of psychology—the subject and its outside uses, applied science and science applied, the tasks of the science and the man trained by the science applying himself to extra-psychological tasks. The confusion is natural in the great public, which labels but does not define: it is inexcusable in the spokesman or the zealous apologist for the science.

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SCIENTIFIC BOOKS

Outline of Psychology. By WILLIAM McDUGALL. New York, Charles Scribner's Sons. 456 pages.

MCDUGALL'S "Outline of Psychology" offers a marked contrast to the numerous psychological texts that have appeared recently in America. Other system-writers, almost without exception, recognize

the validity of the physical "cause-and-effect" relation in the realm of mental phenomena. Professor McDougall expressly denies the possibility of interpreting the sequence of mental events as "a mechanical chain of cause and effect," and asserts that the fundamental category of psychology is "purposive striving" (p. vii).

As explained in the preface, the present volume does not attempt to set forth in sequence the principal facts and laws of the science; it is a carefully constructed train of reasoning, designed to demonstrate the truth of the author's teleological concept, which he terms the hormic theory (p. 71). Viewed in this light, rather than as a systematic treatise, there can be no question but that the book fulfills its purpose remarkably well. The fundamental thesis is definitely stated at the outset and the supporting arguments are marshaled point by point throughout the book.

After outlining the alternative theories and indicating the difficulties of the mechanistic position, the author proceeds to examine the characteristics of animal behavior. He cites Jennings's example of the amoeba in pursuit of a smaller amoeba and the latter's ultimate escape to prove that even in the simplest known creatures behavior is essentially purposive. In successive chapters the behavior of insects, lower vertebrates and mammals is examined with the same result. Especial stress is laid on the fact that an instinct is not a mere grouping of reflexes but a unified act which serves to accomplish some definite purpose in the animal's life history.

The transition to human psychology is somewhat marred by a chapter (VII) entitled "Behavior of the natural man," which speculates upon the behavior of an assumed non-social being, "Mowgli," somewhat after the fashion of the eighteenth century social contract literature. This is the only departure from the empirical method. The remainder of the book is taken up with a detailed examination of man's mental activities, such as attention, imagining, emotions, disposition and temperament, and belief, concluding with the growth of intellect in general and the organization of character. Throughout these successive stages the purposive nature of mental activity is emphasized; the organism's behavior is portrayed as a constitutional *striving* to attain an end, dimly foreseen in the lower species, distinctly pictured in the higher human realm. This *conative* tendency is coupled with the *cognitive*; the two together complete "the description of mental activity in its double aspect of knowing and striving" (p. 266).

As already stated, McDougall's work is radically opposed to the general trend of American psychology. Contemporary writers for the most part accept the causal principle in what McDougall would call its mechanistic form. They assume that the activity of