

processes be accepted, and if the remarkable increase of subjective discrimination indicated by M. Beaunis (*Op. cit.*, p. 156) can be established, the organic feelings will soon be as well understood as the more isolable sensations of the five senses.

3. *Metaphysical.* A desire for superficial and seeming completeness often leads the alienist to give 'some account' of mind; which commonly means an unstrained series of opinions on spiritualism, materialism, the relations of mind and matter and the like. From this our authors are both free. Positive insanity, like positive psychology, requires certain assumptions. These, which it is not the part of insanity as such to justify, are made and the exposition proceeds. One cannot help feeling the inadequacy of Mr. Mercier's "substance-and-shadow" metaphor for mind and body; it expresses the concomitance, but scarcely the disparity. Yet who has suggested a term that does express all the peculiarities of that unique relationship? The important thing is that the substance of the exposition do nowhere contradict the primary assumption, however expressed; and with both our authors the exposition nowhere does, unless casually in a verbal way. It is probably only an apparent lapse when Mr. Lewis, classifying the conditions of "revivability of impressions," puts down "vigour of the faculty of attention" (mental) as co-ordinate with "vigour of circulation and nervous energy" (physical). Is not attention the mental side of a *local* increase of "circulation" and "nervous-energy"? But if the greater things of the thought are sound, the lesser things of expression need not affect our appreciation.

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Elements of Logic as a Science of Propositions. By E. E. CONSTANCE JONES. Edinburgh: T. & T. Clark. 1890. Pp. xv., 208.

This book is really a series of discussions on several logical topics, and its contents would have been much better described by the title "Notes," which Miss Jones first proposed to give it, than by *Elements of Logic*. The latter title is not justified on the ground that the volume "presents what is necessary for indicating the outlines of the science of Logic;" for to give thirty-six pages to the discussion of Existence and a Limited Universe and only four to the whole subject of Induction is not to give a fair idea of an outline of Logic—it is rather to give a sketch in which some large regions are very slightly filled in and some small ones are very minutely shaded.

As a series of notes, the volume has a character of its own. The discussion is painstaking to the last degree, and classification—of terms, of propositions, and of arguments—is carried to the farthest verge of which classification is susceptible. We

cannot help thinking that the classification is overdone (the bare Tables exhibiting the kinds of categorical propositions occupy fourteen pages) : none of it is incapable of justification, but much of it seems to us of very slight logical interest. For instance, the final division of everything is into absolute and relative (or what Miss Jones calls independent and dependent)—a division which is entirely irrelevant to common Logic. If one is going into the Logic of Relatives—if one is going on to discuss the logical equivalence of two such sentences as these, 'All patriots are lovers of all but enemies of some countries' and 'Some countries are subjects of enmity to all who are unloved by any patriot'—then it is necessary to distinguish relative from non-relative terms, and to set forth clearly all the relations that hold between the eight distinct kinds of relative term. But any combination of words *which is not to be broken up in the course of a given argument* is, for logical purposes, exactly the same thing as a simple term, whether it is expressed in one word or more than one. The suppression of this division, together with the equally irrelevant one into vernacular and specific, would alone do much to shorten Miss Jones's Tables, and hence to rob them of what must seem, to most feeble human minds, a very considerable degree of formidableness.

It is of more importance than it would seem, at first sight, to take a right view of what Logic is. Miss Jones defines it to be the Science of Propositions, or of the Import and Relations of Propositions. This is not erroneous, if one lays strong emphasis upon the word *relations*, but it is infelicitous. In defining a science, the subject-matter of which is already pretty well marked out, the thing to do is to find out what is the inmost secret of our interest in the subject-matter, and to make the definition hang upon that. In the case of Logic, the striking feature about the thing is that, as a praxis, it enables us to sit down at our study-table, to take a lot of propositions brought in to us, it may be, from very different regions of knowledge, and, by piecing them together, to produce new propositions without fresh reference to the outside world ; and that, as a theory, it enables us to study the nature of this piecing together, and to lay down its proper safe-guards. For instance, take a syllogism which, in my own experience, there has been constant occasion to lean upon. It is easy to remember that the German words *Zapfen* and *Stübchen* mean together the rods and cones of the retina, but when it becomes necessary to know which is which, that is not so easy. I have found myself obliged, again and again, to go through with this syllogism :

From my knowledge of Grimm's	From my memory of youthful games
law, I know that <i>Zapf</i> is <i>top</i> .	I know that <i>top</i> is <i>cone</i> .

By putting this and that together, I know that *Zapfen* is *cones*.

Now the essential feature of what has taken place is the *fusing*

together of two propositions, and the *emergence* of a third. It is true that this could not have taken place if the two propositions had not stood in some relation to each other, but it is not the standing in the relation which is the critical point of the mental event. In other words, Logic is properly defined as the Science of Reasoning, and not as the Science of Propositions. We do not define Architecture as the science of bricks and mortar, nor Biology as the science of the cell, though these would not be impossible definitions. The value of this observation lies in its application. Every thing that has not some bearing, more or less direct, upon the theory or the art of drawing conclusions, ought to be excluded from Logic, or at least to be treated in very fine print. Many distinctions which would be of interest in a higher kind of grammar—a psychological grammar—are not of interest in Logic. If Miss Jones's classifications could have been sifted with this principle in view, they would have stood a better chance of being accepted by logicians.

The subjects discussed at the greatest length by Miss Jones are the Import of Propositions and the Existence of Terms. The reason that so many different views are possible in regard to the Import of Propositions is a very simple one. Every term is a double-edged machine—it effects the separating out of a certain group of objects and it epitomises a certain complex of marks. From this double nature of the term, it follows with mathematical rigour that a proposition, which contains two terms must have a four-fold implication (though one of the four senses may be at any time uppermost in the mind). Whoever says, for instance, that 'All politicians are statesmen' must be prepared to maintain that the objects, politicians, are the same as some of the objects, statesmen, and are in possession of all of the qualities of statesmen; and also that the quality-complex, politician, entails the quality-complex, statesman, and is indicative of the presence of some of the objects statesmen. (In any given case, the term may be applicable to only a single object, or indicative of only a single indivisible quality, as *sun*, *blue*.) In other words, to say that *a* is *b* is to affirm that both from the objects *a* and from the qualities *a* are inferrible both objects *b* and qualities *b*. Now it is open to the logician to say that any one of these four implications is the most important or the most prominent implication of the proposition, but it is not open to him to say that less than all four of them is the complete implication. Any one of the four is a sufficient ground-work on which to work out the entire system of reasoning, and when that system has once been built up, it can be translated into any one of the others by a purely mechanical change of the words in which it has been expressed. The proposition '*ab* is non-existent' does not state that the classes *a* and *b* have nothing in common, any *more* than it states that the qualities *a* and *b* are never found in conjunction. Mill's view of the import of the proposition is the third of

these—that wherever we find certain attributes, there will be found certain other attributes, that the latter set of attributes constantly accompany the former set (*Logic*, pp. 77, 80). The common class-view is the first of these. The view that the extent of the subject and the intent of the predicate are most frequently uppermost in the mind is the view that will probably commend itself to the careful psychologist.

Miss Jones's view is that the categorical proposition affirms Identity of Denomination in Diversity of Determination, or Quantitative Identity in Qualitative Diversity. (In order to say *identity* of denomination, the predicate *b* must, of course, be first changed into 'some *b*'.) This has the merit of having reference to two of the four affirmations of a proposition, but it has the demerit that the second clause of it is not an adequate description of the qualitative relation that holds between the subject and the predicate—it is merely the condition of the proposition being significant. When we say 'All men are mortal,' the statement, in terms of quality, is not 'Being a man is-a different-thing-from being mortal'; but it is 'Being a man is-indicative of being mortal' or 'The quality man-ness is-always-attended-with the quality mortal-ness'. That this is so needs no arguing, and, in fact, Miss Jones herself sets it forth distinctly in another place. She says (p. 61)—"From every X being Y there may be inferred a connexion between Xness and Yness"; and it is plain that the connexion here referred to is not the connexion of diversity. But if it be said that the reference to quality is merely added to secure the proposition's being significant, then what remains is simply the common class-view of the import of the proposition—a view which Miss Jones apparently considers very objectionable. But she can hardly seriously maintain that the difference between the two statements

'The objects *a* are-included-among the objects *b*'

and

'The objects *a* are-identical-with-some-of the objects *b*

is anything more than a purely verbal difference. If some higher court has handed down the decree that the predicate in 'All *a* is *b*' must be a name not for *b* but for 'some *b*,' then it is true that 'are-identical-with' is a better form of expression for what is left of the copula; but even the assertion 'The *a*'s are identical with the *b*'s,' is not *incompatible* with 'The *a*'s are included among the *b*'s,' as Miss Jones affirms it to be (p. 53). If a lot of objects are contained in a given circle, do they cease to be contained in it when they become so numerous as to fill it completely up?

On the allied questions of Existence and a Limited Universe, Miss Jones shows a good deal of misapprehension of the position of her opponents; the force of her argument carries her so far, in fact, that she ends by accusing them of denying the Law of Contradiction, and she utters a warm defence of that law, which, she says, is a pillar of Logic, and to question which is to question the

very possibility of truth. If there are any individuals who question the Law of Contradiction, they would certainly be very interesting specimens for preservation in a psychological cabinet of curiosities.

Miss Jones, indeed, gives up the whole case, as far as the non-implication of existence in *universal* propositions is concerned, in spite of her very long argument against it, when she says plainly on p. 95 that universal propositions ought not to be taken as making any implication whatever in regard to the actual existence of their terms. This is the very thing that her opponents are contending for; it is very illogical (and it is doing great injustice to their sanity) to suppose (p. 93) that it follows from this that they force themselves to doubt the existence of every thing that they ever talk about in general terms. They simply say that it is (for certain reasons which we cannot set forth here) a *useful convention* to take 'All the *a*'s are *b*'s' as meaning, 'All the *a*'s that there are are *b*'s'; and, if it is also known that there are *a*'s, to state that as a separate proposition, 'There are *a*'s'. In regard to particular propositions, their attitude is this: it is hard to see any logical distinction between 'Some *a*'s are *b*'s' and 'There are some *a*'s that are *b*'s'; the latter plainly affirms the existence of *a*'s that are *b*'s, hence it is better to take the former also as affirming the existence of *a*'s that are *b*'s. The kind of existence that is not asserted in the one case is, in any one discussion, exactly the same kind, whatever that may be, that is asserted in the other. Or, their attitude may be expressed in this way: they humbly beg that such an argument as this—'All salamanders breathe fire; there are such things as salamanders; therefore there are things which breathe fire'—shall not be taken as an argument having no content.

Miss Jones's chief objection to De Morgan's useful idea of a limited universe is also based upon a misconception. The objection is that the universe is no sooner named than it is transcended; but the very meaning of universe is the understood container of all our terms (including their negatives), and if any thing is named it is a term and not the universe of the given discussion.

Much of Miss Jones's new nomenclature is well-chosen and worthy of adoption—notably the name *alternative proposition* for 'Either *a* is *b* or *c* is *d*,' instead of disjunctive proposition.

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The Gain of Life, and other Essays. By WILLIAM CHATTERTON COUPLAND, D.Sc., M.A. London: T. Fisher Unwin, 1890. Pp. xii., 285.

Of the essays which compose this volume two have a philosophical interest; but we propose to confine ourselves to the