

ELEMENTS OF CONSCIOUS COMPLEXES.¹

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Two conceptions, variously modified, lie at the basis of psychology. It may be treated after the fashion of Höffding and Brentano, of Stout, Royce and Baldwin, as a study of the activities or the relations of conscious selves; or else, as by Münsterberg, by Titchener and for the most part by Külpe, psychology may be regarded as a study of contents-of-consciousness, of percepts, images, feelings and the like, considered without explicit reference to the selves for which they exist. One of the most serious errors of the psychological theorist is the conviction that one of these methods must be 'right' to the exclusion of the other. On the contrary, both are valid and useful though they are entirely distinct. The psychology of selves in their relations is a genuine science, lying at the basis of history, ethics and philosophy, whereas the psychology of the contents-of-consciousness facilitates a close and helpful parallel of psychic facts with physical and physiological phenomena.

Equally misleading and far more frequent are the confusion of these methods and the alternations from one to another within the limits of one system. Wundt, for instance, adds to his analysis of *Vorstellungen* an uncoördinated doctrine of 'inner activity'; Külpe treats psychology, through four hundred pages, as a study of elements and their synthesis, and then suddenly swings over to the other point of view and considers consciousness-as-a-whole and attention as its state or condition (*Zustand*); and James oscillates without explanation between the two methods of regarding consciousness, now as a 'stream' of thoughts or a succession of 'feelings,' and again as a set of 'cognitive functions' or 'operations.' The ordinary division of the spoils between these methods of psychology allots to the study of

¹ Read, in part, before the American Psychological Association, New Haven, 1899.

psychic contents the analytic treatment of percepts, of images and sometimes of emotions, but reserves for the other method the treatment of memory, of thought and of will. The truth is, however, that this confusion of two governing conceptions within one system is as unnecessary as it is misleading. Perception, as truly as will, may be treated as a form of self-consciousness; and, on the other hand, thoughts like images may be made to disclose their elements. In other words, every conscious experience may be studied from either point of view. The purpose of the present paper is, however, the consistent treatment of all psychological material from only one of these standpoints; the demonstration that every conscious experience may be treated as a content-of-consciousness and analyzed into its constituent elements. The immediate problem is the enumeration and the grouping of these elements.

The basis of the classification which follows is the rigorous conception of a psychic element as a distinct and absolutely irreducible part of a conscious content. This definition has been already outlined by the writer in a discussion of one of its corollaries; the impossibility that a sensation, if defined as element, should have attributes.¹ The present paper may therefore enter at once upon the consideration of certain objections to the theory which it upholds. The first of these sets forth that the term 'un-analyzable' has only relative value as applied to the content-of-consciousness. Experimental methods and careful introspection, it is stated, are constantly showing that experiences which seemed absolutely simple at the outset, are really further analyzable, as when, for instance, the supposed 'sensation' of humidity is found to be a mixture of tactual and temperature experience. The argument may be met, however, by showing that the admitted relativity and uncertainty, in the case of any given analysis, do not affect the logical accuracy of the conception of 'psychic element' nor alter its methodological value as a limiting concept. Indeed, every supposed psychic element might be shown to be decomposable, without disproving the conceivability of the element as such.

The second objection lays stress upon the artificiality and

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the abstractness of the psychic element. It urges that the simple and undiscriminated content-of-consciousness is always first in actual experience, that the analysis of it is always a later, reflective process and that the fact-as-analyzed is radically different from that earlier undiscriminated content. All this, again, is freely granted. The element of consciousness is indeed only a distinguishable, not a concretely separable experience; the psychic fact is primarily unanalyzed; and analysis is a reflective, and not an immediate, procedure, never to be taken after the associationist fashion, as an account of the way in which contents of consciousness have been actually built up out of separate elements. Yet psychological analysis, through attention to the remembered parts of a psychic complex, though it is neither a primitive nor a universal experience, is nevertheless a necessary, scientific method and is employed by all psychologists to one degree or another. Consistency demands therefore that the analysis be carried out as far as possible; and the irreducible element is really no more radically unlike the concrete experience than the mixture of quality, intensity and extent which ordinarily goes by the name 'sensation.' Moreover, this complete analysis has practical value as well as theoretical necessity, for it stimulates close introspection and furnishes, as will be shown, a basis for the correlation of psychic with physical phenomena.

Quite opposed to this objection to the undue simplicity of our psychic element is the teaching of Professor Münsterberg's recent paper¹ that the 'really indivisible elements of mental facts' are not sensations nor in fact any observable phenomena of consciousness, but rather absolutely dissimilar psychic atoms, which "no psychologist will ever observe in his own consciousness," since they are 'merely constructions for the purpose of explanation.' An adequate discussion of Münsterberg's argument would fall without the limits of this paper. Yet even if the psychic element—a seeming paradox—is an unobservable atom and therefore not an object of consciousness, it is nevertheless of advantage to consider what are the simplest phenomena of consciousness.

¹ PSYCHOLOGICAL REVIEW, VII., 10, January, 1900.

Assuming then that attentive introspection may discover elements of consciousness, we may next seek to formulate anew their distinguishing characteristics. The fundamental criterion of the element of consciousness is certainly this: its persistent distinctness from other elements and its unassailable simplicity. The element of consciousness is therefore the experience which regulated, repeated and verified introspection fails to analyze further or to identify with some other. This indeed is the only standard by which to estimate the element. The other criteria which we shall consider are clearly supplementary; they merely substantiate our introspective distinctions and assist us in classifying the elements which introspection has already disclosed. Our question, therefore, in its simplest form, is this: What sorts of elements do we actually distinguish?

I.

The group of psychic elements which we may first consider is the one admitted by all psychologists, the class of the sensational elements. 'Blue' and 'sour' and 'warm' and the rest, are unanalyzable yet distinguishable features of my experience and seem also entirely different from other elements, as for instance pleasantness. But besides this indispensable criterion of the elements—the observed distinctness and unanalyzableness—there are certain observable characteristics marking off the sensational elements from others. The first of these is the existence of a probable physical correlate for each sensational element. Thus, the rate of ether vibrations is the physical condition of each color; the amplitude of the vibrations is the condition of each brightness or color-intensity, the rate of atmosphere vibrations is the condition of each pitch, and so on with more or less exactness of nomenclature according to the degree of advance in the physical sciences. Sensational elements may further be distinguished from all others by the fact of their readily assignable physiological conditions and by the peripheral as well as central nature of these excitations. These marks of the sensational element are indeed so universally admitted that they do not demand detailed comment.

Reflective observation however discloses a final important

criterion. Sensational elements are present in every concrete experience, even when they are not predominant within it; and a given content-of-consciousness may conceivably consist entirely of sensations without the admixture of any other elements. A percept for instance need include no affective elements; it may be perfectly indifferent. It is this ability to stand alone, as it were, in consciousness which justifies the epithet 'substantive' as applied by James to sensations.

Within the class of sensational elements, thus marked off from others, psychological method distinguishes—under one name or another—qualities and intensities. (Extensities should be ranged under the head of qualities—if indeed they are not held to be complexes, including always motor or tactual experiences.) The question of the method of differentiating from each other these different sorts of sensational elements—the qualities and the intensities—is not altogether easy. There are of course the very clear physical and physiological distinctions. Extent of physical vibration and place of excitation condition the sensational quality, whereas amplitude of vibration and degree (with locality) of physiological excitation are the accompaniment of the sensational intensity. But another feature, a reflectively observed characteristic, distinguishes intensity from quality, by contrasting them in virtue of their possible serial arrangement.¹ Aside from what may be called the complex series in which sensational qualities may figure (color series like 'red, orange, yellow, yellow-green' or tone-series like C-CE-EG, in which the likeness of the successive terms is due to the presence of identical elements), sensational qualities are also capable of simple serial arrangement. Such series as 'red, yellow, green, blue,' or C-D-E-F are illustrations. Now the serial character of this succession is due to an increase not of the quality but of the difference. In other words the consciousness of 'more' which characterizes every step of a series attaches itself not directly to each quality but to the recognized likeness or difference of each quality as compared with its neighbors. Fully expressed, such a tone-series is not therefore C-D-E-F-G, nor yet:

¹ The theory of the series underlying the distinctions which follow will be recognized as that of William James. Cf. *Principles*, I., 489 *seq.*; 530 *seq.*

C
 D = more C
 E = more D
 still more C

but rather,

C —
 D — different from C
 E — different from D
 more different from C
 F — different from E
 more different from D
 still more different from C

Intensities, on the other hand, are capable of direct serial arrangement. The increase is of the intensity, as it were, that is, the 'feeling of more' as James calls it, is directly connected with the consciousness of 'bright' or of 'loud' and our series becomes 'bright—more bright—still more bright,' or 'loud—more loud—still more loud,' and so on.

In all these ways, and fundamentally always by their immediately observed distinctness, the sensational elements are distinguished from the others, and within this group the qualities are contrasted with the intensities.

II.

The second group of elements of consciousness includes as its most undisputed subdivision the affections of pleasantness and unpleasantness, admitted by almost every one as elemental and distinct from sensations. Besides possessing the ultimate criterion of observed simplicity and distinctness, these are differentiated from sensations in that, in their case, there is no assignable physical stimulus—no definite form of physical energy which is the invariable accompaniment of pleasure or of unpleasantness; and because there is in all likelihood no distinct bodily organ by whose functioning each is conditioned. Theories of the physiological basis of the affections do indeed differ widely, but whether one hold with Titchener¹ that they are explained by bodily anabolism and catabolism, or with Marshall² that they are due to the pressure or absence of 'stored-up energy' in any one

¹ *Op. cit.*, § 31; *Primer of Psychology*, § 24.

² *Pain, Pleasure and Æsthetics*, p. 191 *seq.*; 222 *seq.*

organ, or with Münsterberg¹ that pleasantness and unpleasantness are 'values of a sensation parallel to the local situation of the discharge' of centrifugal or outgoing cortical energy—on any one of these theories it is evident that there is no definite 'organ' of pleasantness or of unpleasantness, in the sense in which the retina is the organ of color and the taste bulbs organs of taste; so that the physiological correlate of affections is a general condition independent of any particular organ.

In two important particulars of another sort, affections are distinguished from sensational elements. They are not always present and they are never conceivably alone in consciousness. One's perceptual or reflective experience may be utterly indifferent and devoid of affective coloring; and one can not imagine bare pleasantness or unpleasantness; there is always an agreeable or a disagreeable somewhat—a pleasant familiarity, or an unpleasant sound. Sensations, on the other hand, as we have seen, may conceivably occur without other elements in an indifferent and unrelated complexity. To mark these distinctions, affections may be called 'attributive' after the fashion in which sensations have been characterized as 'substantive.'

To the class of attributive elements, thus distinguished by the absence of physical stimulation, by the 'general' character of their physiological excitation and by their intermittent and coincident occurrence, other elements than the affections may be referred. The so-called 'feeling' of realness and the conation or 'feeling of effort,' if admitted at all as psychic elements, will be classed in this group. But the simplicity of each of these experiences is challenged by many observers. The alleged conation is treated as an anticipatory image, and the feeling of realness is held to be identical with the consciousness of congruity. Our purpose, however, is attained when we have assigned to these alleged contents of consciousness a purely hypothetical place among attributive elements, and we need not undertake to consider the mooted questions of their elementary character.

We shall omit discussion of still another problem, the possible distinction, within this class, between qualities and intensi-

¹ *Psychology and Life*, p. 94.

ties. Two theories are at least formally possible. The opposition between quality and intensity can, perhaps, be made only in the case of sensations; yet it is, perhaps, observable in every group of conscious elements. If this last be true, as certain experiences suggest, then pleasure-intensities must, of course, be distinguished from pleasure-qualities. Introspection, however, is at this point so difficult that the limits of our discussion preclude consideration of the question.

III.

With its next step, this classification departs definitely from the beaten track of psychological system. Yet the doctrine that the analysis of contents-of-consciousness is still incomplete, when substantive and attributive elements have been distinguished, lays claim to the unequivocal support of careful introspection. In the experience, for instance, of matching some one color with another, the blueness, the grayness and the brightness are not the only elements involved. On the contrary, the consciousness of the likeness or difference of the given blue to certain others is the very essence of the 'matching' consciousness.¹ Similarly, it is evident that a recognition is not exhaustively analyzed when one has enumerated all the sensations included in the immediate percept and the associated images, the organic sensations accompanying the bodily attitude and the pleasantness of the experience.² Neither any one of these, nor the combination of them, is what we mean by the 'feeling of familiarity' which marks the memory-image and the recognized percept. The experience of 'wholeness,' which characterizes our judgments, and the 'feeling' of 'anyness' or 'generality,' which on any conceptualist theory, is the essential feature of the general notion, are further illustrations of experiences so radically different from sensations and affections that they may neither be identified with them nor reduced to them. As James declares,³ "we ought to say a feeling of

¹ Cf. H. Cornelius, *Zeitschrift f. Psych. u. Phys.*, Bd. 22, 110.

² Cf. Titchener, *Outline of Psychology*, § 70 *seq.*

³ *Principles of Psychology*, I., 245, end. It is almost unnecessary to remark that the word 'feeling' as used in this connection by Mr. James and by the writer, is a mere synonym for 'fact of consciousness' or 'psychosis,' and does not imply any admixture of affection.

and, a feeling of *if*, a feeling of *but* and a feeling of *by*, quite as readily as we say a feeling of *blue* or a feeling of *cold*."

These elements of consciousness may be described, for a reason which will later appear, as 'transitional.'¹ The proof of their existence is, as has been indicated, the introspective discovery of actual experiences which simply are not analyzable into substantive and attributive elements. We do have, for instance, conscious contents corresponding with such words as 'different,' 'whole,' 'many,' 'more.' These certainly are 'affectively toned,' but the sense of pleasantness or unpleasantness which they subtly convey does not exhaust their meaning. The only sensational elements involved are those of the mere word-as-perceived; but the associationist contradicts the plainest results of introspection when he claims² that the verbal image is the distinguishing mark of such an experience. On the contrary, we realize that if the affection and the sensational verbal elements could be stripped away from such a conscious content—if, for instance, the verbal image 'like' and the characteristic pleasure of discovering similarities could be dropped out of the 'feeling of likeness'—its center and kernel would remain untouched, as a somewhat which, in the words of James, 'feels different' from any sensation or any affection.

A comparison of this class with the others shows that, as in the case of 'attributive' elements, there are here no physical stimuli, no forms of physical energy corresponding with experiences of 'oneness,' 'connection,' 'difference' and the like. But the probable physiological conditions are different from those of the affection, as of the sensation, for they are purely intracortical. Not a definite brain-center connected with a peripheral organ, not any general physiological condition of body-as-a-whole or of any organ, and not even an outgoing cortical impulse is the physiological explanation of the 'transitional' ele-

¹ James's epithet 'transitive' has not been employed, because its basis, the duration of the physiological process, has seemed unessential and not entirely certain. It has already been made evident that this classification departs at several points from that of James. He assigns no definite place to what we have called the 'attributive' elements, unless his 'substantive feelings' are meant to include them.

² Cf. Titchener, Outline, 85.

ment, which is conditioned, rather, by some spread of cortical energy, some excitation of transverse fibers within the brain.

There is still one other standpoint from which the 'transitional' element may be compared with the others. Unlike the sensation, but like the attributive element, it perhaps is not always present in a concrete content-of-consciousness. Far less frequent than the 'indifferent' experience, yet still conceivable, is the utterly undiscriminated experience, the conscious content without observed unity, multiplicity, likeness, difference—in a word, devoid of transitional elements. From attributive, as well as from substantive, elements most transitional elements are obviously distinguished by another characteristic: they require the presence of at least two other elements. One cannot be conscious of likeness without observing the two objects which are like, or of familiarity without being conscious of something present and of something past. The only apparent exception is the feeling of 'oneness,' and of this it may be said that it certainly must have originated in connection with a consciousness of 'plurality,' which evidently requires the presence of several elements.

The attempt to enumerate these 'transitional' elements discloses serious difficulties of introspection. The experiences in question have no physical conditions and are physiologically excited by central, without peripheral, change. It is therefore alike impossible to isolate a stimulus, or to bring an element into prominence by constant variation of its accompaniments. Contents-of-consciousness which are ideally analyzable may readily defy actual analysis and may be incorrectly treated as elemental. Examples of these delusively simple experiences are the feelings of 'wholeness' and of 'familiarity,' already named. Simple as they seem, they certainly are not strictly elemental. The first named may be reduced to a consciousness of one-as-connection-of-many and thus involves at least three perfectly distinct elements, and the 'feeling of familiarity' is even more complex, presupposing the consciousness of 'sameness' and of 'pastness,' each of which in turn is still further reducible.

Bearing in mind the admitted difficulty of introspective

analysis, the following enumeration of transitional elements is expressly offered as tentative and open to correction. The 'feelings' of 'one-ness' and of 'many-ness' or plurality are fundamental elements of this class, that is, they lie at the basis of most complexes. The 'feelings' of connection, of opposition, of likeness, of difference, of 'more-ness' and of 'less-ness' are probably also transitional elements, but this list may not be exhaustive and, on the other hand, it perhaps includes analyzable contents of consciousness. The 'feelings' of 'wholeness,' of 'necessary connection' and of 'sameness' are very simple combinations of these elements, readily mistaken, as we have seen, for unanalyzable experiences; and the 'feelings' of 'familiarity' and 'generality' or 'any-ness' are still more complex contents-of-consciousness, but reducible to transitional elements.

This doctrine of transitional elements must of course contend against objections of two sorts. On the one hand, those who regard psychology as a study of functions of the self will cry out loudly against the peculiar sacrilege of reducing to mere conscious elements, to mind-stuff, as it were, the relating activities of Self or Mind. From the opposite camp, the upholders of the theory of psychology as mere study of psychic contents will come forth to do battle against a theory which, they say, admits Kantian categories, under the guise of 'transitional elements,' into the ranks of psychological facts.

To critics of the Intellectualist school the following reply must be made: The objection, if urged only at this point of our analysis, comes too late. If the right to analyze conscious contents into sensations, or into sensations and affections, has been admitted, as it practically always is, then consistency requires a continuation of the analysis until it is recognized as complete. It is unreasonable to say in effect: "While you are treating of perceptual and even of emotional experience, you may regard consciousness as a succession of ideas and of feelings and may analyze these into their elements, but when you come upon a judgment or a memory and are conscious of other than sensational and affective experience, you must change your point of view and drop your conception of elements and

talk only of the activities of Self or Mind." The method is valid throughout or it is absolutely invalid. Either it is incorrect, and not merely useless, to treat of percepts and emotions as combinations of sensational and affective elements, or it is also necessary, if introspection discloses unanalyzable contents like one-ness, connection and difference, to admit their elemental character.

The other difficulty is met by denying its assumption. Our transitional elements are not reflectively observed and classified 'categories,' they are experiences as immediate as the sensations or the affections themselves. The proof of their actual existence is the failure of all attempts to reduce memories and 'thoughts' to merely sensational and affective elements.

A very simple classification of conscious complexes may be based upon this distinction of psychic elements. Percepts and images, complexes in which sensational elements predominate, may be contrasted with feelings and emotions, complexes in which affections are the essential feature; and both may be distinguished from those conscious complexes which are characterized by the presence of transitional elements, or by simple combinations of them. These are: the judgment, whose essential feature is the 'feeling' of wholeness; the general notion characterized by the 'feeling' of generality or 'any-ness'; and the memory image, in which the 'feeling' of familiarity is of paramount importance. All this is suggested by the following tabulation which summarizes the most important conclusions of the discussion:

A. ELEMENTS OF CONSCIOUSNESS.

Criterion: Distinctness and Unanalyzableness.

I. 'Substantive' or Sensational Elements.

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| Criteria | { | 1 (Psychological) Conceivable presence of elements of another order. |
| | | 2. (Physiological) Definite peripheral and central excitation. |
| | | 3. (Physical) Definite form of physical stimulation. |

a. Sensational 'qualities.'

- | | | |
|----------|---|---|
| Criteria | { | 1. Not directly accompanied by 'feeling' of 'more' or 'less.' |
| | | 2. Varying with locality of physiological excitation. |
| | | 3. Varying with rate of physical vibration. |

b. Sensational 'intensities.'

- Criteria { 1. Directly accompanied by 'feeling' of 'more,' etc.
 2. Varying with *degree* (and with locality) of physiological excitation.
 3. Varying with amplitude of physical vibration.

II. 'Attributive' elements.

- Criteria { 1. Not always present and not conceivably occurring alone.
 2. Physiological excitation: 'General' bodily condition.
 3. No characteristic physical stimulant.

a. Affections.

? b. 'Feeling of realness.'

?? c. Conation.

III. 'Transitional' elements.

- Criteria { 1. (a) Not always present and not conceivably occurring alone.
 (b) Requiring, each, the presence of at least two other elements.
 2. Physiological excitation: intra-cortical.
 3. No characteristic physical stimulation.

B. COMPLEX CONTENTS OF CONSCIOUSNESS.

I. 'Substantive' (Sensational) experience predominates: { Percept
 Image

II. 'Attributive' experience predominates.

a. Affections:

Emotions, etc.

b. 'Feeling of realness':

{ The Belief
 The Volition

etc.

III. 'Transitional' experience predominates.

a. 'Feeling of wholeness':

The Judgment

b. 'Feeling of familiarity':

{ The Recognized
 The Remembered

c. 'Feeling of generality':

The General Notion.