I.—ON PROPOSITIONS: WHAT THEY ARE AND HOW THEY MEAN.*

By Bertrand Russell.

A PROPOSITION may be defined as: *What we believe when we believe truly or falsely.* This definition is so framed as to avoid the assumption that, whenever we believe, our belief is true or false. In order to arrive, from the definition, at an account of what a proposition is, we must decide what belief is, what is the sort of thing that can be believed, and what constitutes truth or falsehood in a belief. I take it as evident that the truth or falsehood of a belief depends upon a *fact* to which the belief " refers." Therefore it is well to begin our inquiry by examining the nature of facts.

I. *Structure of Facts.*

I mean by a " fact " anything complex. If the world contains no simples, then whatever it contains is a fact; if it contains any simples, then facts are whatever it contains except simples. When it is raining, that is a fact; when the sun is shining, that is a fact. The distance from London to Edinburgh is a fact. That all men die is probably a fact. That the planets move round the sun approximately in ellipses is a fact. In speaking of these as facts, I am not alluding to the phrases in which we assert them, or to our

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*. In what follows, the first section, on the structure of facts, contains nothing essentially novel, and is only included for the convenience of the reader. I have defended its doctrines elsewhere, and have therefore here set them down dogmatically. On the other hand, later sections contain views which I have not hitherto advocated, resulting chiefly from an attempt to define what constitutes "meaning" and to dispense with the "subject" except as a logical construction.

frame of mind while we make the assertions, but to those features in the constitution of the world which make our assertions true (if they are true) or false (if they are false).

To say that facts are complex is the same thing as to say that they have *constituents*. That Socrates was Greek, that he married Xantippe, that he died of drinking the hemlock, are facts that all have something in common, namely, that they are "about" Socrates, who is accordingly said to be a constituent of each of them.

Every constituent of a fact has a *position* (or several positions) in the fact. For example, "Socrates loves Plato" and "Plato loves Socrates" have the same constituents, but are different facts, because the constituents do not have the same positions in the two facts. "Socrates loves Socrates" (if it is a fact) contains Socrates in two positions. "Two and two are four" contains *two* in two positions. "$2+2 = 2^2$" contains 2 in four positions.

Two facts are said to have the same "form" when they differ only as regards their constituents. In this case, we may suppose the one to result from the other by *substitution* of different constituents. For example, "Napoleon hates Wellington" results from "Socrates loves Plato" by substituting Napoleon for Socrates, Wellington for Plato, and *hates* for *loves*. It is obvious that some, but not all, facts can be thus derived from "Socrates loves Plato." Thus some facts have the same form as this, and some have not. We can represent the form of a fact by the use of variables: thus "xRy" may be used to represent the form of the fact that Socrates loves Plato. But the use of such expressions, as well as of ordinary language, is liable to lead to mistakes unless care is taken to avoid them.

There are an infinite number of forms of facts. It will conduce to simplicity to confine ourselves, for the moment, to facts having only three constituents, namely, two terms and a dual (or dyadic) relation. In a fact which has three con-

stituents, two can be distinguished from the third by the circumstance that, if these two are interchanged, we still have a fact, or, at worst, we obtain a fact by taking the contradictory of what results from the interchange, whereas the third constituent (the relation) cannot ever be interchanged with either of the others. Thus if there is such a fact as " Socrates loves Plato," there is either " Plato loves Socrates " or " Plato does not love Socrates," but neither Socrates nor Plato can replace *loves*. (For purposes of illustration, I am for the moment neglecting the fact that Socrates and Plato are themselves complex.) The essentially non-interchangeable constituent of a fact containing three constituents is called a *dual* (or dyadic) *relation ;* the other two constituents are called the *terms* of that relation in that fact. The terms of dual relations are called *particulars.**

Facts containing three constituents are not all of the same form. There are two forms that they may have, which are each other's opposites. " Socrates loves Plato " and " Napoleon does not love Wellington " are facts which have opposite forms. We will call the form of " Socrates loves Plato " *positive*, and the form of " Napoleon does not love Wellington " *negative*. So long as we confine ourselves to atomic facts, *i.e.*, to such as contain only one verb and neither generality nor its denial, the distinction between positive and negative facts is easily made. In more complicated cases there are still two kinds of facts, though it is less clear which is positive and which negative.

Thus the forms of facts divide into pairs, such that, given appropriate constituents, there is always a fact of one of the two correlated forms but not of the other. Given any two

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* The above discussion might be replaced by that of subject-predicate facts or of facts containing triadic, tetradic . . . . relations. But it is possible to doubt whether there are subject-predicate facts, and the others are more complicated than those containing three constituents. Hence these are best for purposes of illustration.

particulars of a dual relation, say x and y and R, there will be either a fact "xRy," or a fact "not -xRy." Let us suppose, for the sake of illustration, that x has the relation R to y, and z does not have the relation S to w. Each of these facts contains only three constituents, a relation and two terms; but the two facts do not have the same form. In the one, R relates x and y; in the other, S does not relate z and w. It must not be supposed that the negative fact contains a constituent corresponding to the word "not." It contains no more constituents than a positive fact of the correlative positive form. The difference between the two forms is ultimate and irreducible. We will call this characteristic of a form its *quality*. Thus facts, and forms of facts, have two opposite qualities, positive and negative.

There is implanted in the human breast an almost unquenchable desire to find some way of avoiding the admission that negative facts are as ultimate as those that are positive. The "infinite negative" has been endlessly abused and interpreted. Usually it is said that, when we deny something, we are really asserting something else which is incompatible with what we deny. If we say "roses are not blue," we mean "roses are white or red or yellow." But such a view will not bear a moment's scrutiny. It is only plausible when the positive quality by which our denial is supposed to be replaced is incapable of existing together with the quality denied. "The table is square" may be denied by "the table is round," but not by "the table is wooden." The only reason we can deny "the table is square" by "the table is round" is that what is round is *not* square. And this has to be a *fact*, though just as negative as the fact that this table is not square. Thus it is plain that incompatibility cannot exist without negative facts.

There might be an attempt to substitute for a negative fact the mere absence of a fact. If A loves B, it may be said, that is a good substantial fact; while if A does not love B, that merely expresses the absence of a fact composed of A and

loving and B, and by no means involves the actual existence of a negative fact. But the absence of a fact is itself a negative fact; it is the fact that there is *not* such a fact as A loving B. Thus, we cannot escape from negative facts in this way.

Of the many attempts that have been made to dispense with negative facts, the best known to me is that of Mr. Demos.[*] His view is as follows: There is among propositions an ultimate relation of *opposition;* this relation is indefinable, but has the characteristic that when two propositions are opposites they cannot both be true, though they may both be false. Thus "John is in" and "John is gone to Semipalatinsk" are opposites. When we deny a proposition, what we are really doing is to assert: "Some opposite of this proposition is true." The difficulty of this theory is to state the very important fact that two opposites cannot both be true. "The relation of opposition," says Mr. Demos, "is such that, if p opposes q, p and q are not both true (at least one of them is false). This must not be taken as a definition, for it makes use of the notion 'not' which, I said, is equivalent to the notion 'opposite.' In fact, opposition seems epistemologically to be a primitive notion" (p. 191). Now if we take Mr. Demos's statement that "p and q are not both true" and apply his definition to it, it becomes "an opposite of 'p and q are both true' is true." But this does not yield what we want. Suppose some obstinate person were to say: "I believe p, and I believe q, and I also believe that an opposite of 'p and q are both true' is true." What could Mr. Demos reply to such a person? He would presumably reply; "Don't you see that that is impossible? It cannot be the case that p and q are both true, and also that an opposite of 'p and q are both true' is true." But an opponent would retort by asking him to state his negation in his own language, in which case all that Mr. Demos could say would be: "Let us

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[*] "A Discussion of a Certain Type of Negative Proposition," *Mind*, N.S., No. 102, pp. 188–196 (April, 1917).

give the name P to the proposition 'p and q are both true.' Then the proposition that you assert and that I deny is 'P is true, and also some opposite of P is true.' Calling this proposition Q, and applying my definition of negation, what I am asserting is that some opposite of Q is true." This also the obstinate person would admit. He would go on for ever admitting opposites, but refusing to make any denials. To such an attitude, so far as I can see, there would be no reply except to change the subject. It is, in fact, necessary to admit that two opposites cannot both be true, and not to regard this as a statement to which the suggested definition of negation is to be applied. And the reason is that we must be able to say that a proposition is not true without having to refer to any other proposition.

The above discussion has prematurely introduced propositions, in order to follow Mr. Demos's argument. We shall see later, when we have defined propositions, that all propositions *are* positive facts, even when they assert negative facts. This is, I believe, the source of our unwillingness to admit negative facts as ultimate. The subject of negative facts might be argued at great length, but as I wish to reach the proper topic of my paper, I will say no more about it, and will merely observe that a not dissimilar set of considerations shows the necessity of admitting *general* facts, *i.e.*, facts about all or some of a collection.

II. *Meaning of Images and Words.*

The questions which arise concerning propositions are so many and various that it is not easy to know where to begin. One very important question is as to whether propositions are what I call "incomplete symbols" or not. Another question is as to whether the word "proposition" can stand for anything except a form of words. A third question is as to the manner in which a proposition refers to the fact that makes it true or false. I am not suggesting that these are the only important

questions, but they are, at any rate, questions which any theory of propositions should be able to answer.

Let us begin with the most tangible thing: the proposition as a form of words. Take again "Socrates loves Plato." This is a complex symbol, composed of three symbols, namely "Socrates" and "loves" and "Plato." Whatever may be the meaning of the complex symbol, it is clear that it depends upon the meanings of the separate words. Thus before we can hope to understand the meaning of a proposition as a form of words, we must understand what constitutes the meaning of single words.

Logicians, so far as I know, have done very little towards explaining the nature of the relation called "meaning," nor are they to blame in this, since the problem is essentially one for psychology. But before we tackle the question of the meaning of a word, there is one important observation to be made as to what a word *is*.

If we confine ourselves to spoken words in one language, a word is a class of closely similar noises produced by breath combined with movements of the throat and tongue and lips. This is not a *definition* of "words," since some noises are meaningless, and meaning is part of the definition of "words." It is important, however, to realize at the outset that what we call one word is not a single entity, but a class of entities: there are instances of the word "dog" just as there are instances of dogs. And when we hear a noise, we may be doubtful whether it is the word "dog" badly pronounced or not: the noises that are instances of a word shade off into other noises by continuous gradations, just as dogs themselves may shade off into wolves according to the evolutionary hypothesis. And, of course, exactly the same remarks apply to written words.

It is obvious to begin with that, if we take some such word as "Socrates" or "dog," the meaning of the word consists in some relation to an object or set of objects. The first question to be asked is: Can the relation called "meaning" be a direct

relation between the word as a physical occurrence and the object itself, or must the relation pass through a "mental" intermediary, which could be called the "idea" of the object?

If we take the view that no "mental" intermediary is required, we shall have to regard the "meaning" of a word as consisting in what James would call "processes of leading." That is to say, the causes and effects of the occurrence of a word will be connected, in some way to be further defined, with the object which is its meaning. To take an unusually crude instance: You see John, and you say, "Hullo, John "—this gives the *cause* of the word; you call "John," and John appears at the door—this gives the *effect* of the word. Thus, in this case, John is both cause and effect of the word "John." When we say of a dog that he "knows" his name, it is only such causal correlations that are indubitable : we cannot be sure that there is any "mental" occurrence in the dog when we call him and he comes. Is it possible that all use and understanding of language consists merely in the fact that certain events cause it, and it, in turn, causes certain events ?

This view of language has been advocated, more or less tentatively, by Professor Watson in his book on *Behaviour*.* The behaviourist view, as I understand it, maintains that "mental" phenomena, though they may exist, are not amenable to scientific treatment, because each of them can only be observed by one observer—in fact, it is highly doubtful whether even one observer can be aware of anything not reducible to some bodily occurrence. Behaviourism is not a metaphysic, but a principle of method. Since language is an observable phenomenon, and since language has a property which we call "meaning," it is essential to behaviourism to give an account of "meaning" which introduces nothing known only through introspection. Professor Watson recognizes this obligation

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* *Behavior: An Introduction to Comparative Psychology*, by John B. Watson, Professor of Psychology in the Johns Hopkins University, New York, 1914. See especially pp. 321-334.

and sets to work to fulfil it. Nor is it to be lightly *assumed* that he cannot do so, though I incline to the belief that a theory of language which takes no account of images is incomplete in a vital point. But let us first see what is to be said in favour of the behaviourist theory of language.

Professor Watson denies altogether the occurrence of images, which he replaces by faint kinæsthetic sensations, especially those belonging to the pronunciation of words *sotto voce*. He defines "implicit behaviour" as "involving only the speech mechanisms (or the larger musculature in a minimal way; *e.g.*, bodily attitudes or sets)" (p. 19). He adds: "It is implied in these words that there exists, or ought to exist, a method of observing implicit behaviour. There is none at present. The larynx and tongue, we believe, are the loci of most of the phenomena" (p. 20). He repeats these views in greater detail in a later chapter. The way in which the intelligent use of words is learnt is thus set forth:

"The stimulus (object) to which the child often responds, a box, *e.g.*, by movements such as opening and closing and putting objects into it, may serve to illustrate our argument. The nurse, observing that the child reacts with his hands, feet, etc., to the box, begins to say '*box*' when the child is handed the box, '*open box*' when the child opens it, '*close box*' when he closes it, and '*put doll in box*' when that act is executed. This is repeated over and over again. In the process of time it comes about that without any other stimulus than that of the box which originally called out only the bodily habits, he begins to say '*box*' when he sees it, '*open box*' when he opens it, etc. The visible box now becomes a stimulus capable of releasing either the bodily habits or the word-habit, *i.e.*, development has brought about two things: (1) a series of functional connexions among arcs which run from visual receptor to muscles of throat, and (2) a series of already earlier connected arcs which run from the same receptor to the bodily muscles. . . . The object meets the child's vision. He runs to it

and tries to reach it and says '*box*'. . . . Finally the word is uttered without the movement of going towards the box being executed. . . . Habits are formed of going to the box when the arms are full of toys. The child has been taught to deposit them there. When his arms are laden with toys and no box is there, the word-habit arises and he calls '*box*'; it is handed to him and he opens it and deposits the toys therein. This roughly marks what we would call the genesis of a true language habit " (pp. 329–330).

A few pages earlier, he says : " We say nothing of reasoning since we do not admit this as a genuine type of human behavior except as a special form of language habit " (p. 319).

The questions raised by the above theory of language are of great importance, since the possibility of what may be called a materialistic psychology turns on them. If a person talks and writes intelligently, he gives us as much evidence as we can ever hope to have of his possessing a mind. If his intelligent speech and writing can be explained on Professor Watson's lines, there seems to remain nothing he can do to persuade us that he is not merely physical.

There is, I think, a valid objection to the behaviouristic view of language on the basis of fact and an invalid one of theory. The objection of fact is that the denial of images appears empirically indefensible. The objection of theory (which, in spite of its apparent force, I do not believe to be unanswerable) is that it is difficult, on the basis of the above quotations, to account for the occurrence of the word when the object is merely desired, not actually present. Let us take these in succession.

(1) *Existence of Images.*—Professor Watson, one must conclude, does not possess the faculty of visualising, and is unwilling to believe that others do. Kinæsthetic images can be explained away, as being really small sensations of the same kind as those that would belong to actual movements. Inner speech, in particular, in so far as it is not accompanied

by auditory images, may, I think, really consist of such small sensations, and be accompanied by small movements of the tongue or throat such as behaviourism requires. Tactile images might possibly be similarly explained. But visual and auditory images cannot be so explained, because, if taken as sensations, they actually contradict the laws of physics. The chair opposite to you is empty; you shut your eyes and visualise your friend as sitting in it. This is an event in you, not in the outer world. It *may* be a *physiological* event, but even so it must be radically distinguished from a visual sensation, since it affords no part of the data upon which our knowledge of the physical world outside our own body is built. If you try to persuade an ordinary uneducated person that she cannot call up a visual picture of a friend sitting in a chair, but can only use words describing what such an occurrence would be like, she will conclude that you are mad. (This statement is based upon experiment.) I see no reason whatever to reject the conclusion originally suggested by Galton's investigations, namely, that the habit of abstract pursuits makes learned men much inferior to the average in the power of visualising, and much more exclusively occupied with words in their "thinking." When Professor Watson says: "I should throw out imagery altogether and attempt to show that practically all natural thought goes on in terms of sensori-motor processes in the larynx (but not in terms of imageless thought)" (*Psychological Review*, 1913, p. 174*n*), he is, it seems to me, mistaking a personal peculiarity for a universal human characteristic.

The rejection of images by behaviourists is, of course, part of their rejection of introspection as a source of knowledge. It will be well, therefore, to consider for a moment the grounds in favour of this rejection.

The arguments of those who oppose introspection as a scientific method seem to me to rest upon two quite distinct grounds, of which one is much more explicit in their writings than the other. The ground which is the more explicit is that

data obtained by introspection are private and only verifiable by one observer, and cannot therefore have that degree of public certainty which science demands. The other, less explicit, ground is that physical science has constructed a spatio-temporal cosmos obeying certain laws, and it is irritating to have to admit that there are things in the world which do not obey these laws. It is worth while to observe that the definition of introspection is different according as we take the one or the other of these grounds of objection.

If privacy is the main objection to introspective data, we shall have to include among such data all bodily sensations. A tooth-ache, for example, is essentially private. The dentist may see that your tooth is in a condition in which it is likely to ache, but he does not feel your ache, and only knows what you mean by an ache through his own experience of similar occurrences. The correlation of cavities with toothaches has been established by a number of observations, each of which was private, in exactly the sense which is considered objectionable. And yet one would not call a person introspective because he was conscious of tooth-ache, and it is not very difficult to find a place for tooth-ache in the physical world. I shall not insist upon the fact that, in the last analysis, all our sensations are private, and the public world of physics is built on similarities, not on identities. But it is worth while to insist upon the privacy of the sensations which gives us knowledge of our own body over and above the knowledge we have of other bodies. This is important, because no one regards as scientifically negligible the knowledge of our own body which is obtained through these private data.

This brings us to the second ground of objection to introspection, namely, that its data do not obey the laws of physics. This, though less emphasised, is, I think, the objection which is really felt the more strongly of the two. And this objection leads to a definition of introspection which is much more in harmony with usage than that which results from making

privacy the essential characteristic of its data. For example, Knight Dunlap, a vigorous opponent of introspection, contends that images are really muscular contractions,* and evidently regards our awareness of muscular contractions as not coming under the head of introspection. I think it will be found that the essential characteristic of introspective data is concerned with *localization*: either they are not localized at all, or they are localized in a place already physically occupied by something which would be inconsistent with them if they were regarded as part of the physical world. In either case, introspective data have to be regarded as not obeying the laws of physics, and this is, I think, the fundamental reason why an attempt is made to reject them.

The question of the publicity of data and the question of their physical status are not wholly unconnected. We may distinguish a gradually diminishing degree of publicity in various data. Those of sight and hearing are the most public; smell somewhat less so; touch still less; visceral sensations hardly at all. The question turns on the degree and frequency of similarity of sensations in neighbours at the same time. If we hear a clap of thunder when no one else does, we think we are mad; if we feel a stomach-ache when no one else does, we are in no way surprised. We say, therefore, that the stomach-ache is *mine*, while the thunder is not. But what is mine includes what belongs to the body, and it is here that the stomach-ache belongs. The stomach-ache is *localized*: it has a position near the surface of the stomach, which is visible and palpable. (How the localization is effected need not concern us in this connexion.) Now, when we consider the localization of

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* *Psychological Review*, 1916, "Thought-Content and Feeling," p. 59. See also his articles in an earlier volume of the same review, "The Case against Introspection," 1912, pp. 404–413, and "The Nature of Perceived Relations," *ibid.*, pp. 415–446. In this last article he states "that 'introspection,' divested of its mythological suggestion of the observing of consciousness, is really the observation of bodily sensations (sensibles) and feelings (feelables) " (p. 427*n*).

images, we find a difference according to the nature of the images. Images of private sensations can be localized where the private sensations would be, without causing any gross or obvious violation of physical laws. Images of words in the mouth can be located in the mouth. For this reason, there is no *primâ facie* objection to regarding them, as Watson does, as small sensations : this view may or may not be true, but it is not capable of being rejected without more ado. In regard to all private sensations, the distinction between image and sensation is not sharp and definite. But visual and auditory images are in quite a different position, since the physical event to which they would point if they were sensations is not taking place.

Thus the crucial phenomena as regards introspection are images of public sensations, *i.e.*, especially visual and auditory images. On grounds of observaton, in spite of Watson, it seems impossible to deny that such images occur. But they are not public, and, if taken as sensations, contradict the laws of physics. Reverting to the case of visualizing a friend in a chair which, in fact, is empty, you cannot locate the image in the body because it is visual, nor (as a physical phenomenon) in the chair, because the chair, as a physical object, is empty. Thus it seems that the physical world does not include all that we are aware of, and that introspection must be admitted as a source of knowledge distinct from sensation.

I do not, of course, mean to suggest that visual and auditory images are our only non-physical data. I have taken them as affording the strongest case for the argument; but when they are admitted, there is no longer any reason to reject other images.

Our criticism of fact, as against Watson, has led us to the conclusion that it is impossible to escape the admission of images as something radically distinct from sensations, particularly as being not amenable to the laws of physics. It remains to consider a possible criticism of theory, namely, that

it is difficult, on his view, to account for the occurrence of a word when an absent object is desired. I do not think this criticism valid, but I think the considerations which it suggests a re important.

(2) *Words in the Absence of their Objects.*—In the account given by Watson of the child learning to use the word " box," attention is almost wholly concentrated on the way the word comes to occur in the presence of the box. There is only a brief reference to the use of the word when the object is absent but desired : " Habits are formed of going to the box when the arms are full of toys. The child has been taught to deposit them there. When his arms are laden with toys and no box is there, the word-habit arises and he calls ' *box*.'" The difficulty —I think not insuperable—which arises in regard to this account is that there seems no adequate stimulus for the word-habit in the circumstances supposed. We are assuming that the habit has been formed of saying " box" when the box is present; but how can such a habit lead to the use of the same word when the box is absent ? The believer in images will say that, in the absence of the box, an image of it will occur in the child, and this image will have the same associations as the box has, including the association with the word " box." In this way the use of the word is accounted for; but in Watson's account it remains mysterious. Let us see what this objection amounts to.

The phenomenon called " thinking," however it may be analysed, has certain characteristics which cannot be denied. One of the most obvious of these is that it enables us to act with reference to absent objects, and not only with reference to those that are sensibly present. The tendency of the behaviourist school is to subordinate cognition to action, and so regard action as physically explicable. Now I do not wish to deny that much action, perhaps most, is physically explicable, but nevertheless it seems impossible to account for *all* action without taking account of " ideas," *i.e.*, images of absent objects.

If this view is rejected, it will be necessary to explain away
all desire.   Desire is not dealt with by Watson :* it and
kindred words are absent from the index to his book.   In the
absence of such a phenomenon as desire, it is difficult to see
what is happening when the child with his arms full of toys
says " box."   One would naturally say that an image of the box
occurs, combined with the feeling we call " desire," and that the
image is associated with the word just as the object would be,
because the image resembles the object.   But Watson requires
that the arms full of toys should cause the word " box " without
any intermediary.   And it is not at first sight obvious how
this is to be brought about.

To this objection there seem two possible replies : one, that
the occurrence of the image on the usual theory is just as
mysterious as the occurrence of the word on Watson's theory ;
the other, that the passage from full arms to the word " box "
is a telescoped process, derived from the habit of the transition
from full arms to the box and thence to the word " box."   The
objection to the second of these replies seems to be that the
transition to the word " box " in the absence of the box *feels*
quite unlike the transition to the word through the actual box :
in the latter there is satisfaction, in the former dissatisfaction.
Telescoped processes give similar feelings to complete pro-
cesses ; in so far as they differ, they give more satisfaction as
involving less effort.   The word " box " is not the terminus of
the child's efforts, but a stage towards their success.   It seems
difficult, therefore, to assimilate the occurrence of a word in
desire to a telescoped process.   The retort to the first reply,
namely, that the occurrence of the image is as mysterious as
the occurrence of the word, is that, if images are admitted, we
can admit psychological causal laws which are different from
those of the physical world, whereas on Watson's view we shall

* The only discussion of desire by Watson, as far as I know, is in
connexion with psycho-analysis in his article, " The Psychology of Wish
Fulfilment," *Scientific Monthly*, November, 1916.

have to admit physiological laws which are different from those
of physics.   In the physical world, if A often causes B, and B
often causes C, it does not happen that, in those cases where A
fails to cause B, it nevertheless causes C by a telescoped pro-
cess.   I go often to a certain restaurant (A), eat there (B), and
find my hunger satisfied (C).   But, however, often this has
happened, if, on a certain occasion, the restaurant is closed, so
that B fails, I cannot arrive at C.   If I could, economy in war-
time would be easier than it is.   Now, the process Watson
assumes is strictly analogous to this.   In·his theory we have a
frequent transition from arms-full (A) to the box (B) and
thence to the word " box " (C).   Then one day the transition
from A to B fails, but nevertheless the transition from A to C
takes place.   This demands other causal laws than those of
physics—at least *primá facie.*   If images are admitted, it is
easy to see that the laws of their occurrence and effects are
different from those of physics, and therefore the above diffi-
culty does not exist in regard to them ; but if they are denied,
a difference of causal laws is required within the realm of
matter.

   This argument, however, is by no means conclusive.   The
behaviour of living matter is obviously in some respects
different from that of dead matter, but this does not prove
that the difference is ultimate.   Gases and solids behave
differently, yet both obey ultimate physical laws.   The chief
peculiarities in the behaviour of animals are those due to habit
and association, all of which, I believe, may be summarised in
the one law: " When A and B have often existed in close
temporal contiguity, either tends to cause the other."   This
law will only apply to occurrences within the body of a single
animal.   But I think it suffices to account for telescoped
processes, and for the use of words in the absence of their
objects.   Thus in Watson's instance, the child has frequently
experienced the sequence: arms-full, box, the word "box."
Thus arms-full and the word " box " have frequently existed in

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close temporal contiguity, and hence arms-full can come to cause the word "box." They cannot cause the box itself, because this is governed by physical laws independent of the child's body; but they can cause the word. (The above law, however, may be explained on orthodox physical lines by the properties of nervous tissue, and does not demand a *fundamental* distinction between physiology and physics.) If, therefore, images were not empirically undeniable, I should not consider them theoretically necessary in order to account for the occurrence of words in the absence of their objects.

William James, in his *Essays in Radical Empiricism*, developed the view that the mental and the physical are not distinguished by the stuff of which they are made, but only by their causal laws. This view is very attractive, and I have made great endeavours to believe it. I think James is right in making the distinction between the causal laws the essential thing. There do seem to be psychological and physical causal laws which are distinct from each other.* We may define psychology as the study of the one sort of laws, and physics as the study of the other. But when we come to consider the stuff of the two sciences, it would seem that there are some particulars which obey only physical laws (namely, unperceived material things), some which obey only psychological laws (namely, images, at least), and some which obey both (namely, sensations). Thus sensations will be both physical and mental, while images will be purely mental. The use of words actually pronounced or written is part of the physical world, but in so far as words obtain their meaning through images, it is impossible to deal adequately with words without introducing psychology and taking account of data obtained by introspection. If this conclusion is valid, the behaviourist theory

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* I do not pretend to know whether the distinction is ultimate and irreducible. I say only that it is to be accepted practically in the present condition of science.

of language is inadequate, in spite of the fact that it suggests much that is true and important.

I shall henceforth assume the existence of images, and shall proceed, on this assumption, to define the " meaning " of words and images.

In considering the meaning of either a word or an image, we have to distinguish—

> (1) The causes of the word or image,
> (2) Its effects,
> (3) What is the relation that constitutes meaning.

It is fairly clear that " meaning" is a relation involving causal laws, but it involves also something else which is less easy to define.

The meaning of words differs, as a rule, from that of images by depending upon association, not upon similarity.

To " think " of the meaning of a word is to call up images of what it means. Normally, grown-up people speaking their own language use words without thinking of their meaning. A person " understands " a word when (*a*) suitable circumstances make him use it, (*b*) the hearing of it causes suitable behaviour in him. We may call these two active and passive understanding respectively. Dogs often have passive understanding of some words, but not active understanding.

It is not necessary to " understanding " a word that a person should " know what it means," in the sense of being able to say " this word means so-and-so." A word has a meaning, more or less vague ; but the meaning is only to be discovered by observing its use: the use comes first, and the meaning is distilled out of it. The relation of a word to its meaning is, in fact, of the nature of a causal law, and there is no more reason why a person using a word correctly should be conscious of its meaning than there is for a planet which is moving correctly to be conscious of Kepler's laws.

To illustrate what is meant by " understanding " words and

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sentences, let us suppose that you are walking in London with an absent-minded friend. You say " look out, there's a motor coming." He will glance round and jump aside without the need of any " mental " intermediary. There need be no " ideas," but only a stiffening of the muscles, followed quickly by action. He " understands " the words, because he does the right thing. Such " understanding" may be regarded as belonging to the nerves and brain, being habits which they have acquired while the language was being learnt. Thus understanding in this sense may be reduced to mere physiological causal laws.

If you say the same thing to a Frenchman with a slight knowledge of English, he will go through some inner speech which may be represented by " Que dit-il? Ah oui, une automobile." After this, the rest follows as with the Englishman. Watson would contend that the inner speech must be actually incipiently pronounced; we should argue that it might be merely imagined. But this point need not detain us at present.

If you say the same thing to a child who does not yet know the word " motor," but does know the other words you are using, you produce a feeling of anxiety and doubt: you will have to point and say " there, that's a motor." After that, the child will roughly understand the word " motor," though he may include trains and steam-rollers. If this is the first time the child has heard the word " motor," he may, for a long time, continue to recall this scene when he hears the word.

So far we have found four ways of understanding words :—

(1) On suitable occasions you use the word properly.

(2) When you hear it, you act appropriately.

(3) You associate the word with another word (say in a different language) which has the appropriate effect on behaviour.

(4) When the word is being first learnt, you associate it

with an object, which is what it "means"; thus the word acquires some of the same causal efficacy as the object. The word "motor!" can make you leap aside, just as the motor can, but it cannot break your bones.

So far, everything can be accounted for by behaviour. But so far we have only considered what may be called the "demonstrative" use of language to point out a feature in the present environment, we have not considered what we may call its "narrative" use, of which we may take as an instance the telling of some remembered event.

Let us take again the case of the child hearing the word "motor" for the first time. On some later occasion, we will suppose, the child remembers the incident and relates it to some-one else. In this case, both the active and passive under-standing of words is different from what it is when words are used demonstratively. The child is not seeing a motor, but only remembering one; the hearer does not look round in expectation of seeing a motor coming, but "understands" that a motor came at some earlier time. The whole of this occurrence is much more difficult to account for on behaviourist lines—indeed, it does not call for any particular behaviour. It is clear that, in so far as the child is genuinely remembering, he has a picture of the past occurrence, and his words are chosen so as to describe the picture; and in so far as the hearer is genuinely apprehending what is said, the hearer is acquiring a picture more or less like that of the child. It is true that this process may be telescoped through the operation of the word-habit. The child may not genuinely remember the incident, but only have the habit of the appropriate words, as in the case of a poem which we know by heart though we cannot remember learning it. And the hearer also may only pay attention to the words, and not call up any corresponding picture. But it is nevertheless the possibility of a memory-image in the child and an imagination-image in the hearer that makes the essence of the "meaning" of the words. In so far

as this is absent, the words are mere counters, capable of meaning, but not at the moment possessing it. We may say that, while words used demonstratively describe and are intended to cause sensations, the same words used in narrative describe and are intended to cause images.

We have thus two other ways in which words can mean (perhaps not fundamentally distinct), namely, the way of memory and the way of imagination. That is to say :—

(5) Words may be used to describe or recall a memory-image : to describe it when it already exists, or to recall it where the words exist as a habit and are known to be descriptive of some past experience.

(6) Words may be used to describe or create an imagination-image : to describe it, for example, in the case of a poet or novelist, or to create it in the ordinary case of giving information—though in the latter case, it is intended that the imagination-image, when created, shall be accompanied by belief that something of the sort has occurred.

These two ways of using words may be spoken of together as the use of words in " thinking." This way of using words, since it depends upon images, cannot be fully dealt with on behaviourist lines. And this is really the most essential function of words : that, primarily, through their connexion with images, they bring us into touch with what is remote in time or space. When they operate without the medium of images, this seems to be a telescoped process. Thus the problem of the meaning of words is reduced to the problem of the meaning of images.

The " meaning " of images is the simplest kind of meaning, because images resemble what they mean, whereas words, as a rule, do not. Images are said to be " copies " of sensations. It is true that this assumption is liable to sceptical criticism, but I shall assume it to be true. It appears to common-sense to be verified by such experiences as, *e.g.*, recalling a familiar room, and then going into the room and finding it as it was remem-

bered. If our memory was wrong, we must suppose that the
room and our image of it have undergone similar changes,
which does not seem a plausible hypothesis. Thus for practical
purposes we are justified in assuming that, in this case, our
image resembled what the room was when we previously saw it.
We may then say that our image "means" the room.

The question what a given image "means" is partly within
the control of our will. The image of a printed word may
mean, not the word, but what the word means. The image of a
triangle may mean one particular triangle, or triangles in
general. In thinking of dogs in general, we may use a vague
image of a dog, which means the species, not any individual.
Similarly in recalling a friend's face we usually do not recall
any one special occasion when we have seen it, but a com-
promise image of many occasions.

While some images mean particulars and others mean uni-
versals (in early stages of thought meaning is too vague to
be either definitely particular or definitely universal), all images
are particulars, but what they mean depends upon the nature
of their causal efficacy. An image means a universal if its
effects depend only upon its prototype being an instance of that
universal. Thus, if I call up an image of a dog with a view
to a general statement about dogs, I only *use* those charac-
teristics of my image which it shares with all images of dogs.
We can, to some extent, use or ignore the particular features
of an image as we choose. In using *words*, we always ignore
all that is peculiar to the instance of the word, except in
elocution and caligraphy. Two instances of the word "dog"
are more alike than two dogs; this is one reason why words
help in dealing with universals.

If we accept Hume's principle that simple ideas are derived
from impressions, we shall hold that at any rate the simple
sensible qualities that enter into an image are "copies" of
sensible qualities that have been given in sensation. Complex
images are often, but not always, copies of complex sensations;

their constituents, if Hume is right, are always copies of something given in sensation. That of which an image is a copy is called its "prototype"; and this, or its parts, by Hume's principle, is always an indispensable part of the cause either of the image, or of its constituents (in the case of a complex imagination image).

The effects of an image tend to resemble those of its prototype, or to produce desire or aversion for it. This is one link between an image and its meaning. The thought of a drink has effects on a thirsty man which are similar to those of a sight of the foaming glass. This similarity belongs also to words, primarily, no doubt, through their power of calling up images, but afterwards directly.

The way in which an image resembles its prototype is peculiar. Images as a class have (with rare exceptions) characteristic differences from sensations as a class, but individual images, subject to these differences, resemble individual sensations. Images, however, are of various degrees of vagueness, and the vaguer they are the more different objects can be accepted as their prototypes. The nearest approach that I can make to a definition of the relation of image and prototype is this : If an object O is the prototype (or a prototype, in the case of vagueness) of an image, then, in the presence of O, we can recognise it as what we had an image "of." We may then say that O is the "meaning" (or a meaning, in the case of vagueness) of the image. But, as we saw, meaning is to some extent subject to the will : a " generic" image, for example, is simply one intended to be generic.

III. *Propositions and Belief.*

In regard to belief, there are three elements to be considered, namely: (1) the content which is believed, (2) the relation of the content to its "objective," *i.e.*, to the fact which makes it true or false, (3) the element which *is* belief, as opposed to consideration of the same content, or doubt con-

cerning it, or desire for it, etc. The second of these questions I propose to postpone until the next section; for the present, therefore, we are not concerned with the question what makes a belief true or false, though it is important to remember that the property of being true or false is what specially characterises beliefs. The other two questions we will consider in this section.

(1) *The Content of a Belief.*—The view to be taken on this question depends, to some extent, upon the view we take of " ideas " or " presentations." We have here a great variety of theories urged by different authors. Many analytic psychologists—Meinong, for example—distinguish three elements in a presentation, namely, the act (or subject), the content, and the object. Realists such as Dr. Moore and myself have been in the habit of rejecting the content, while retaining the act and the object. American realists, on the other hand, have rejected both the act and the content, and have kept only the object ; while idealists, in effect if not in words, have rejected the object and kept the content.

Is there any way of deciding amid this bewildering variety of hypotheses ?

I have to confess that the theory which analyses a presentation into act and object no longer satisfies me. The act, or subject, is schematically convenient, but not empirically discoverable. It seems to serve the same sort of purpose as is served by points and instants, by numbers and particles and the rest of the apparatus of mathematics. All these things have to be *constructed*, not postulated : they are not of the stuff of the world, but assemblages which it is convenient to be able to designate as if they were single things. The same seems to be true of the subject, and I am at a loss to discover any actual phenomenon which could be called an " act " and could be regarded as a constituent of a presentation. The logical analogies which have led me to this conclusion have been reinforced by the arguments of James and the American

realists. It seems to me imperative, therefore, to construct a theory of presentation and belief which makes no use of the "subject," or of an "act" as a constituent of a presentation. Not that it is certain that there is no such thing as a "subject," any more than it is certain that there are no points and instants. Such things *may* exist, but we have no reason to suppose that they do, and therefore our theories ought to avoid assuming either that they exist or that they do not exist. The *practical* effect of this is the same as if we assumed that they did not exist, but the theoretical attitude is different.

The first effect of the rejection of the subject is to render necessary a less relational theory of mental occurrences. Brentano's view, for example, that mental phenomena are characterised by "objective reference," cannot be accepted in its obvious sense. A sensation in particular can no longer be regarded as a relation of a subject to a sense-datum; accordingly the distinction between sensation and sense-datum lapses, and it becomes impossible to regard a sensation as in any sense cognitive. *Per contra*, a sensation becomes equally part of the subject-matter of physics and of psychology: it is simultaneously part of the mind of the person who "has" the sensation, and part of the body which is "perceived" by means of the sensation.* This topic demands amplification, but not here, since it is not very relevant to our present theme.

Apart from sensations, "presentations" appear, as a matter of observation, to be composed of images. Images, in accordance with what has just been said, are not to be regarded as relational in their own nature; nevertheless, at least in the case of memory-images, they are felt to point beyond themselves to something which they "mean." We have already dealt with the meaning of images as far as was possible without introducing belief; but it is clear that, when we remember by

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* Assuming the theory of bodies developed in my "Knowledge of the External World."

means of images, the images are accompanied by a belief, a belief which may be expressed (though with undue explicitness) by saying that they are felt to be copies of something that existed previously. And, without memory, images could hardly acquire meaning. Thus the analysis of belief is essential even to a full account of the meaning of words and images—for the meaning of words, we found, depends on that of images, which in turn depends on memory, which is itself a form of belief.

We have thus, so far, two sorts of mental "stuff," namely, (a) sensations, which are also physical, and (b) images, which are purely mental. Sensations do not "mean," but images often do, through the medium of belief.

The theory of belief which I formerly advocated, namely, that it consisted in a multiple relation of the subject to the objects constituting the "objective," i.e., the fact that makes the belief true or false, is rendered impossible by the rejection of the subject. The constituents of the belief cannot, when the subject is rejected, be the same as the constituents of its "objective." This has both advantages and disadvantages. The disadvantages are those resulting from the gulf between the content and the objective, which seem to make it doubtful in what sense we can be said to "know" the objective.* The advantages are those derived from the rehabilitation of the content, making it possible to admit propositions as actual complex occurrences, and doing away with the difficulty of answering the question: what do we believe when we believe falsely? The theory I wish to advocate, however, is not to be recommended by these advantages, or rejected on account of these disadvantages: it is presented for acceptance on the ground that it accords with what can be empirically observed,

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* An important part of "knowing" will consist in the fact that, by means of "ideas," we are able to act in a way which is appropriate to an absent object, and are not dependent upon the stimulus of present sensation. I have not developed this order of ideas in the present paper, but I do not wish to minimise its importance.

and that it rejects everything mythological or merely schematic. Whether it is epistemologically convenient or inconvenient is a question which has no bearing upon its truth or falsehood, and which I do not propose to consider further.

Are sensations and images, suitably related, a sufficient stuff out of which to compose beliefs? I think they are. But this question has to be asked twice over, once as regards the content, *i.e.*, what is believed, and then again as regards the believing. For the present, we are concerned with the content.

That what is believed must always be the sort of thing which we express by a proposition, is a view which I am not concerned either to assert or to deny. It may be that a single simple image may be believed. For our purposes, however, the important beliefs, even if they be not the only ones, are those which, if rendered into explicit words, take the form of a proposition, *i.e.*, that A is B, or that x has the relation R to y, or that all men are mortal, or that something like *this* existed before, or any other such sentence. But the psychological classification of the contents of beliefs is very different from the logical classification, and at present it is psychological questions that concern us. Psychologically, some of the simplest beliefs that occur seem to be among memories and expectations. When you recall some recent event, you are believing something. When you go to a familiar place, you may be expecting to find things much as usual: you may have an image of your host saying how-do-you-do, and you may believe that this will happen. In such cases, the belief is probably not put into words, but if it were, it would take the form of a proposition.

For the present I shall define a " proposition " as *the content of a belief*, except when, if ever, the content is simple. But since we have not yet defined " belief," this definition cannot be regarded as yet as a very valuable one.

The content of a belief *may* consist only of words, but if it does, this is a telescoped process. The primary phe-

nomenon of belief consists of belief in images, of which, perhaps, memory is the most elementary example. But, it may be urged, a memory-belief does not consist *only* of the memory-image, together with bare believing: it is clear that the images may be the same for a memory and an expectation, which are nevertheless different beliefs. I incline to the view that the difference, in this case, is not in the content of what is believed, but in the believing; "believing" seems to be a generic term, covering different kinds of occurrences, of which memory and expectation are two. If this is so, difference of tense, in its psychologically earliest form, is no part of what is believed, but only of the way of believing it; the putting of the tense into the content is a result of later reflection. We may accordingly continue to regard images as giving the whole content of what is believed, when this is not expressed in words.

I shall distinguish a proposition expressed in words as a "word-proposition," and one consisting of images as an "image-proposition." As a general rule, a word-proposition "means" an image-proposition; this is the case with false propositions as well as with true ones, since image-propositions are as capable of falsehood as word-propositions.* I shall not speak of the fact which makes a proposition true or false as its "meaning," because this usage would be confusing in the case of falsehood. I shall speak of the relation of the proposition to the fact which makes it true or false as its "objective reference," or simply its "reference." But this will not occupy us till the next section.

The correspondence of word-propositions and image-propositions is, as a rule, by no means exact or simple. A form of words, unless artificially constructed, usually expresses not only the content of a proposition, but also what may be called a

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* There are, however, limitations of parallelism due to the fact that words often express also what belongs to the nature of the believing, as well as what belongs to the content. We have just had an instance of this in the case of tense; another will be considered later as regards negation.

" propositional attitude "—memory, expectation, desire, etc.
These attitudes do not form part of the proposition, *i.e.*, of the
content of what is believed when we believe, or desired when
we desire.

Let us illustrate the content of a belief by an example.
Suppose I am believing, but not in words, that " it will rain."
What is happening ?   (1) Images, say, of the visual appearance
of rain, the feeling of wetness, the patter of drops, interrelated,
roughly, as the sensations would be if it were raining, *i.e.*, there
is a complex *fact composed of images*, having a structure
analogous to that of the objective fact which would make the
belief true. (2) There is *expectation*, *i.e.*, that form of belief which
refers to the future ; we shall examine this shortly.   (3) There
is a relation between (1) and (2), making us say that (1) is
" what is expected."   This relation also demands investigation.

The most important thing about a proposition is that,
whether it consists of images or of words, it is, whenever it
occurs, an actual fact, having a certain analogy of structure—
to be further investigated—with the fact which makes it true
or false.   A word-proposition, apart from niceties, " means " the
corresponding image-proposition, and an image-proposition has
an objective reference dependent upon the meanings of its
constituent images.

(2) *Believing.*—We come now to the question what actually
constitutes believing, as opposed to the question of the content
believed.

"Everyone," says William James, " knows the difference
between imagining a thing and believing in its existence,
between supposing a proposition and acquiescing in its truth.
. . . *In its inner nature, belief, or the sense of reality, is a sort of
feeling more allied to the emotions than to anything else.*"*

In the main, this view seems inevitable.   When we believe
a proposition, we have a certain feeling which is related to the
content of the proposition in the way described as " believing

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* *Psychology*, Chap. XXI, vol. ii, p. 283.   James's italics.

that proposition." But I think various different feelings are collected together under the one word "belief," and that there is not any one feeling which pre-eminently *is* belief.

Before we can begin the analysis of belief, however, it is necessary to consider a theory which, whether explicitly advocated or not, seems implicit in pragmatism, and capable, if true, of affording a strong argument in favour of that philosophy. According to this theory—for which I cannot make any author responsible—there is no single occurrence which can be described as "believing a proposition," but belief simply consists in causal efficacy. Some ideas move us to action, others do not; those that do so move us are said to be "believed." A behaviourist who denies images will have to go even further, and deny image-propositions altogether. For him, I suppose, a belief will be, like a force in physics, an imagined fictitious cause of a series of actions. An animal, desiring A (in whatever may be the behaviouristic sense of "desire"), proceeds to try to realise B ; we then say that the animal "believes" that B is a means to A. This is merely a way of collecting together a certain set of acts; it does not represent any single occurrence in the animal. But this view, whatever may be said in its favour where animals are concerned, is condemned as regards human beings by the admission of images. These being admitted, it becomes impossible to deny that image-propositions occur in people, and it is clear that belief has specially to do with propositions, given that propositions occur. And, this being admitted, we cannot make the differentia between a proposition believed and a proposition merely considered consist *only* in the presence or absence of causal efficacy. If we adhere to the maxim "same cause, same effect," we must hold that, if a proposition believed has different effects from those of the same proposition merely considered, there must be some *intrinsic* difference between believing and considering. The fact that believing moves us as considering does not, is evidence of some intrinsic difference between the two phenomena,

even when the proposition concerned is the same in both cases.[*]
This objection seems fatal to the causal-efficacy view as above
stated, though I think some things that are true are *suggested*
by the view.

It seems to me that there are various feelings that may
attach to a proposition, any one of which constitutes belief.
Of these I would instance memory, expectation, and bare
non-temporal assent. Whether there are others, I do not
know. Memory requires for its truth that the objective of the
proposition should be in the past, expectation that it should be
in the future, while bare assent does not necessitate any
special time-relation of the belief to the objective. Possibly
disjunctions and implications may involve other kinds of belief-
feelings. The chief importance of these different feelings, from
our point of view, lies in the difficulty they create in trans-
lating the phenomena of belief into words. Tense puts the
time-relation, apparently, into the content of what is believed,
whereas, if the above theory is correct, tense is primarily
embodied in the nature of the belief-feeling. However this
may be, we can simplify our discussion by confining ourselves
to bare assent, since it is undoubtedly possible to assent to a
proposition concerning the past or the future, as opposed to
remembering or expecting it.

When a belief, not expressed in words, is occurring in a
person, and is constituted by the feeling of assent, what is
actually happening, if we are right, is as follows: (*a*) we have
a proposition, consisting of inter-related images, and possibly
partly of sensations; (*b*) we have the feeling of assent; (*c*) we
have a relation, actually subsisting, between the feeling of
assent and the proposition, such as is expressed by saying that
that is the proposition assented to. For other forms of belief,
we have only to substitute other feelings in place of assent.

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[*] *Cf.* Brentano, *Psychologie vom empirischen Standpunkte* (Leipzig,
1874), p. 268 (criticizing Bain, *The Emotions and the Will*).

It might be urged, as against the above theory, that belief is not a positive phenomenon, though doubt and disbelief are so. It might be contended that what we call belief involves only the existence of the appropriate images, which will have the effects that are characteristic of belief unless some other simultaneous force operates against them. It is possible to develop a behaviouristic logic, starting with the definition that two propositions are logically incompatible when they prompt bodily movements which are physically incompatible. *E.g.*, if one were a fish, one could not at the same time believe the two propositions " this worm is good to eat " and " this worm is on a hook." For beliefs (in this view) would be embodied in behaviour: the one belief, in eating the worm ; the other, in avoiding it—always assuming (as behaviourists invariably do) that the fish in question is not tired of life. Without going so far as this, we might nevertheless agree with the passage which James (*loc. cit.*, p. 288) quotes (inaccurately) from Spinoza :—

" Let us conceive a boy imagining to himself a horse, and taking note of nothing else. As this imagination involves the existence of the horse, *and the boy has no perception which annuls its existence* [James' italics], he will necessarily contemplate the horse as present, nor will he be able to doubt of its existence, however little certain of it he may be. I deny that a man in so far as he imagines [*percipit*] affirms nothing. For what is it to imagine a winged horse but to affirm that the horse [that horse, namely] has wings ? For if the mind had nothing before it but the winged horse it would contemplate the same as present, would have no cause to doubt of its existence, nor any power of dissenting from its existence, unless the imagination of the winged horse were joined to an idea which contradicted [*tollit*] its existence." (*Ethics*, II., 49, Scholium.)

To this doctrine James entirely assents, adding in italics :—

"*Any object which remains uncontradicted is ipso facto believed and posited as absolute reality.*"

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Now if this view is correct, it would seem to follow (though James does not draw this inference) that there is no need of any specific feeling of belief, and that the mere existence of images yields all that is required. The state of mind in which we merely consider a proposition, without believing or disbelieving it, will then appear as a sophisticated product, the result of some rival force adding to the image-proposition a positive feeling which may be called suspense or non-belief—a feeling which may be compared to that of a man about to run a race, waiting for the signal. Such a man, though not moving, is in a very different condition from that of a man quietly at rest. And so the man who is considering a proposition without believing it will be in a state of tension, restraining the natural tendency to act upon the proposition which he would display if nothing interfered. In this view, belief primarily consists merely in the existence of the appropriate images without any counteracting forces.

What most recommends the above view, to my mind, is the way in which it accords with mental development. Doubt, suspense of judgment, and disbelief all seem later and more complex than a wholly unreflecting assent. Belief as a positive phenomenon, if it exists, seems to be a product of doubt, a decision after debate, an acceptance, not merely of *this*, but of *this-rather-than-that*. It is not difficult to suppose that a dog has images (possibly olfactory) of his absent master, or of the rabbit that he dreams of hunting. But it is very difficult to suppose that he can entertain mere imagination-images to which no assent is given. (When we speak of "assent" we mean for the moment merely that influence upon action which might naturally be expected to accompany belief.) The influence of hallucinatory images also fits well with this theory. Such images, it would seem, often become gradually more and more vivid, until at last they exclude the contrary images which would prevent them from influencing action.

I think it may be conceded that a mere image, without the

addition of any positive feeling that could be called " belief," is apt to have a certain dynamic power, and in this sense an uncombated image has the force of a belief. But although this may be true, it does not account for any but the simplest phenomena in the region of belief. It will not, for example, explain either memory or expectation, in both of which, though they differ widely in their effects on action, the image is a sign, something pointing beyond itself to a different event. Nor can it explain the beliefs which do not issue in any proximate action, such as those of mathematics. I conclude, therefore, that there are belief-feelings of the same order as those of doubt or desire or disbelief, although phenomena closely analogous to those of belief can be produced by mere uncontradicted images.

Instances like that of the boy imagining a winged horse are liable to produce a certain confusion. The image of the winged horse of course exists, and if the boy took this to be real, he would not be in error. But images accompanied by belief are normally taken as signs: the belief is not in the image, but in something else that is indicated (or, in logical language "described") by the image. This is especially obvious in such a case as memory. When we remember an event by means of present images, we are not believing in the present existence of the images, but in the past existence of something resembling them. It is almost impossible to translate what is occurring into words without great distortion. The view which I am advocating is that, in such a case, we have a specific feeling, called remembering, which has a certain relation to the memory-image. The memory-image constitutes the image-proposition, but the translation of our belief into words is " something like this *was*," not " something like this *is*," as it would be an assent not of the nature of memory or expectation. And even this translation is hardly accurate, for words point not only to images, but beyond images to what these mean. Therefore, when we use a word as if it meant the image, we

need an unnatural duplication of words in order to reach what
the image stands for. This produces the appearance of
unexpected complication, leading to an undue lack of plausi-
bility. But the whole question of adapting language to
psychology, after all the ages during which it has been adapted
to bad logic, is so difficult that I can hardly do more than
indicate some of its problems.

IV. *Truth and Falsehood.*

We come now to the question which we left on one side at
the beginning of our third section, namely : What is the relation
of the content of a belief to its " objective," *i.e.*, to the fact
which makes it true or false ?

In an earlier paper before the Aristotelian Society,* in
criticism of Mr. Joachim, I have given my reasons for holding
that truth consists in correspondence rather than in internal
consistency. I do not propose to repeat those arguments at
present, but shall assume, without more ado, that the truth or
falsehood of a belief depends upon its relation to a fact other
than itself. This fact I call its "objective." In so doing, I am
not following exactly the same usage as Meinong, who holds
that there are false objectives as well as true ones, and who,
therefore, does not identify his objectives with the facts that
make propositions true or false. I cannot call the fact the
" meaning " of the proposition, since that is confusing when the
proposition is false : if on a fine day I say " it is raining," we
cannot say that the meaning of my statement is the fact that
the sun is shining. Nor can I use the word " denotation," since
that assimilates propositions too much to names and descriptions.
But I shall say that a proposition " refers to " its objective.
Thus, when we are concerned with image-propositions,

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* "On the Nature of Truth," *Proc. Arist. Soc.*, 1907. Reprinted,
with some alterations, in *Philosophical Essays*, under the title, "The
Monistic Theory of Truth."

"referring to" takes the place of "meaning." Word-propositions, on the other hand, while also "referring to" objectives, may, in simple cases, be legitimately spoken of as "meaning" image-propositions.

According to the theory of propositions suggested in the previous section, it would be a mistake to regard truth and falsehood as relations of the "ideal" to the "real." Propositions are facts in exactly the same sense in which their objectives are facts. The relation of a proposition to its objective is not a relation of something imagined to something actual : it is a relation between two equally solid and equally actual facts. One of these, the proposition, is composed of images, with a possible admixture of sensations ; the other may be composed of anything.

Whether an image which is too simple to be called a proposition can be in any sense true or false, is a question which I shall not discuss. It is propositions, and *their* truth and falsehood, that I am concerned with ; whether there is any other truth or falsehood may be left an open question.

There are two different questions in regard to truth and falsehood, of which one may be called formal, the other material. The formal question concerns the relations between the form of a proposition and the form of its objective in the respective cases of truth and falsehood ; the material question, which has been specially emphasised by pragmatists, concerns the nature of the effects of true and false beliefs respectively. In so far as people wish to believe truly (which I am told is sometimes the case), it is because true beliefs are supposed to be, as a rule, a better means to the realisation of desires than false ones. Unless the material question is remembered, the schematic treatment of the formal question may appear very barren and scholastic. Nevertheless, it is to the formal question that I propose to address myself.

The simplest possible schema of correspondence between proposition and objective is afforded by such cases as visual

memory-images. I call up a picture of a room that I know, and in my picture the window is to the left of the fire. I give to this picture that sort of belief which we call "memory." When the room was present to sense, the window was, in fact, to the left of the fire. In this case, I have a complex image, which we may analyse, for our purposes, into (a) the image of the window, (b) the image of the fire, (c) the relation that (a) is to the left of (b). The objective consists of the window and the fire with the very same relation between them. In such a case, the objective of a proposition consists of the meanings of its constituent images related (or not related, as the case may be) by the same relation as that which holds between the constituent images in the proposition. When the objective is that the same relation holds, the proposition is true ; when the objective is that the same relation does not hold, the proposition is false. According to what was said about negative facts in Section I, there is always one or other of these two possible objectives, and the proposition is therefore always either true or false.

But such idyllic simplicity of correspondence is rare. It is already absent in the word-propositions which mean such simple visual image-propositions. In the phrase "A is to the left of B," even if we treat " is-to-the-left-of " as one word, we have a fact consisting of *three* terms with a *triadic* relation, not two terms with a dyadic relation. The linguistic symbol for a relation is not itself a relation, but a term as solid as the other words of the sentence. Language might have been so constructed that this should not have been always the case : a few specially important relations might have been symbolised by relations between words. For instance, "AB" might have meant "A is to the left of B." It might have been the practice that pronouncing A on a high note and B on a low note meant that A was B's social superior. But the practical possibilities of this method of symbolising relations are obviously very limited, and in actual language relations are

symbolised by words (verbs and prepositions chiefly) or parts
of words (inflections).* Hence the linguistic statement of a
fact is a more complex fact than that which it asserts, and the
correspondence of a word-proposition with its objective is never
so simple as the simplest correspondence in the case of image-
propositions.

Again, the case of negative facts and negative propositions
is full of complexities. Propositions, whether of images or
words, are always themselves *positive* facts. In the case of
word-propositions, there are different positive facts (phrases),
of which one is true when the objective is positive, the other
when it is negative : the phrases "A loves B" and "A does
not love B" are both themselves positive facts. We cannot
symbolise the assertion that A does not love B by merely
having the words "A" and "B" without the word "loves"
between them, since we cannot practically distinguish the fact
that the word "loves" does not occur between them from the
fact that, *e.g.*, the word "hates" does not occur between them.
Words and phrases, being intended for communication, have to
be sensible ; and sensible facts are always positive. Thus there
is no identity between the distinction of positive and negative
facts and the distinction of positive and negative word-
propositions : the latter are themselves both positive facts,
though differing by the absence or presence of the word "not."

In the case of image-propositions, there is again a lack of
parallelism with negative facts, but of a different kind. Not
only are image-propositions always positive, but there are not
even two kinds of positive image-propositions as there are of
word-propositions. There is no "not" in an image-proposition ;
the "not" belongs to the feeling, not to the content of the
proposition. An image-proposition may be believed or dis-

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* This is not wholly true of very primitive languages. But they
are so vague and ambiguous that often they cannot be said to have
any way of expressing one relation rather than a number of others
that might equally be meant by the phrase which is used.

believed ; these are different feelings towards the same content, not the same feeling towards different contents. There is no way of visualising " A-not-to-the-left-of-B." When we attempt it, we find ourselves visualising " A-to-the-right-of-B " or something of the sort. This is one strong reason for the reluctance to admit negative facts.

We have thus, as regards the opposition of positive and negative, the following different sorts of duality :

(1) Positive and negative facts.

(2) Image propositions, which may be believed or disbelieved but do not allow any duality of content corresponding to positive and negative facts.

(3) Word-propositions, which are always positive facts, but are of two kinds, one verified by a positive objective, the other by a negative objective.

Thus the simpler kinds of parallelism between proposition and fact are only to be looked for in the case of positive facts and propositions. Where the fact is negative, the correspondence necessarily becomes more complicated. It is partly the failure to realise the lack of parallelism between negative facts and negative word-propositions that has made a correct theory of negative facts so difficult either to discover or to believe.

Let us now return to positive facts and beliefs in image-propositions. In the case of spatial relations, we found that it is possible for the relation of the constituent images to be the same as the relation of the constituents of the objective. In my visualising of A to the left of B, my image of A is to the left of my image of B. Does this identity of relation, as between the image-proposition and its objective, ever occur except in the case of spatial relations ?

The case which it is natural to consider next is that of temporal relations. Suppose I believe that A precedes B. Can this belief have for its content an image of A preceding an image of B ? At first sight, most people would unhesitat-

ingly reject such an hypothesis. We have been told so often that an idea of succession is not a succession of ideas, that we almost automatically regard the apprehension of a sequence as something in which the earlier and later parts of the sequence must be simultaneously presented. It seems rash to challenge a view so generally regarded as unquestionable, and yet I cannot resist grave doubts as to its truth. Of course it is a fact that we often have successive images without the belief that their prototypes have the same time-order. But that proves nothing, since in any case belief is something which has to be added to an image-proposition. Is it certain that we cannot have an image of A followed by an image of B, and proceed to *believe* this sequence? And cannot this *be* the belief that A precedes B? I see no reason why this should not be the case. When, for example, I imagine a person speaking a sentence, or when, for that matter, I actually hear him speak it, there does not seem, as a question of empirical fact, to be any moment at which the whole sentence is present to imagination or sense, and yet, in whatever may be the usual meaning of the phrase, I can " apprehend the sentence as a whole." I hear the words in order, but never the whole sentence at once; yet I apprehend the sentence as a whole, in the sense that it produces upon me the intended effect, whatever that may be. You come to me and say: " Your roof has fallen in, and the rain is pouring down into the rooms, ruining all your furniture." I understand what you say, since I express consternation, ring up the landlord, write to the insurance company, and order a van to remove my belongings. Yet it by no means follows that the whole sentence was imaginatively present to me at any one moment. My belief in your statement is a causal unit, and it is therefore supposed to be a unitary occurrence. But in mental affairs the causal unit may well be several events at different times. This is part of Bergson's point about repetition; it is also suggested by the law of habit. It may well turn out to be one of the fundamental differences between physics and

psychology. Thus, there seems no good reason why, when we believe in a succession, there should be any one moment within which the whole content of the belief is existing. The belief in a succession may quite well be itself a succession. If so, temporal relations, like spatial ones, allow the simplest type of correspondence, in which the relation in the image-proposition is identical with that in the objective. But I only wish to suggest this view as a possible one: I do not feel prepared to say with any conviction that it is in fact true.

The correspondence of proposition and fact grows increasingly complicated as we pass to more complicated types of propositions: existence-propositions, general propositions, disjunctive and hypothetical propositions, and so on. The subject is important, and capable, I believe, of throwing much new light on logic; but I shall not pursue it here.

The general nature of the formal correspondence which makes truth or falsehood can be seen from the simplest case : the case of a dyadic relation which is the same in the fact and in the image-proposition. You have an image of A which is to the left of your image of B : this occurrence is an image-proposition. If A is to the left of B, the proposition is true ; if A is not to the left of B, it is false. The *phrase* " A is to the left of B " means the image-proposition, and is true when this is true, false when this is false ; on the other hand, the phrase " A is not to the left of B " is true when the image-proposition is false, and false when it is true. Thus for this simplest case we have obtained a formal definition of truth and falsehood, both for image-propositions and for word-propositions. It is easy to see that the same *kind* of definition can be extended to more complicated cases.

It will be observed that truth and falsehood, in their formal sense, are primarily properties of propositions rather than of beliefs. Derivatively, we call a belief true when it is belief in a true proposition, and a disbelief true when it is disbelief in a false proposition ; but it is to propositions that

the *primary* formal meanings of "truth" and "falsehood" apply.

But when we come to what gives importance to truth and falsehood, as opposed to what constitutes their formal definition, it is beliefs, not propositions, that are important. Beliefs influence action, and the effects of true beliefs, I am told, are more agreeable than those of false beliefs. The attempt to *define* truth in this way seems to me a mistake. But so long as we confine ourselves to the formal definition of truth, it is difficult to see why any one should take an interest in it. It is therefore important to remember the connexion of beliefs with action. But I do not think either that the pleasant effects of a belief are alone a sufficient verification of it, or that verification can be used to *define* truth. There are true propositions, for example, about past matters of fact, which cannot be verified. The formal definition of truth by correspondence of a proposition with its objective seems the only one which is theoretically adequate. The further inquiry whether, if our definition of truth is correct, there is anything that can be known, is one that I cannot now undertake; but if the result of such an inquiry should prove adverse, I should not regard that as affording any theoretical objection to the proposed definition.