

### III.—DIFFERENCE AS ULTIMATE AND DIMENSIONAL.<sup>1</sup>

BY ARCHIBALD A. BOWMAN.

THE subject of this paper is in the first instance the judgment "S is not P". By this is meant something more than the negative judgment as known to logic. I wish to indicate the direct assertion of a difference, and I contend that such an assertion is in its nature *sui generis* and denotes a unique character in the act of thinking, upon which formal logic at least bases no fundamental division. The logical value of affirmation and negation is identical, and in the general conception of predication as equally involving unity and difference it is a matter of relatively small importance whether we consider the proposition as asserting the synthesis of a manifold or discriminating elements within some universe of discourse. In each case we make explicit an aspect in predication which is complementary to an aspect assumed to start with, and we end with the two aspects on one level of assertion. Thus, if I affirm that all apple-trees are *rosacea*, I take two terms denoting objects which to my first unscientific apprehension have little enough in common and find that in spite of this appearance of difference they are largely coincident. If I deny that coltsfoot is dandelion, I emphasise a difference where community is already strikingly apparent. Logic is concerned only that these two aspects be present. With the manner of their conjunction or their relative strength of assertion it has nothing to do. For these depend on specific characters which lie beyond the general symbolic content of logical terms as such. I use the words "general symbolic content" on purpose. For I believe on the one hand that every term, even the most universal symbol, has a content, but that on the other the content of a term from a purely logical point of view is comprised in its function of unity and difference as an integral element in predication and in syllogism. The content of the logical symbol is thus the general notion of unity in difference. S means that

<sup>1</sup> A paper read to the Scots Philosophical Club, 21st May, 1910.

which can be at once distinguished from and united with P. It is in the symbolic generality of these notions that we find the source of the logical indifference to quality. P may stand for a rigorously defined conception or, it may be, for the almost undefined not-Y. In the infinite proposition the very distinction of affirmation and negation all but disappears; for although we find the one obverse more suitable in special connexions than the other, we regard the two forms, affirmative and negative, without reservation<sup>1</sup> as identical in value.

Clearly then there would be little force in a separate examination of the negative judgment as conceived by formal logic. But my contention is that behind the logical indifference to quality there is a vital distinction of kind between the affirmative and the negative judgment—a distinction which renders them no longer interchangeable. Each has its peculiar character and value, and when this is taken into account there is no process of obversion which will translate the one into the other. We are here dealing not merely with symbolic forms of unity and difference, each of which is continually collapsing into its opposite, but with facts as hard as any that experience contains and with elements as refractory as a critical epistemology could possibly encounter. For this reason it is advisable to seek a terminology which will make clear the difference between the logical proposition as such and the judgment we are now considering. The form "S is other than P" or "S is different from P" will serve our purpose, and for convenience we may designate this, as distinct from the logical negative judgment, a judgment of difference. The corresponding absolute affirmation would be "S is at one with P".

Of course like every other significant judgment the absolute negative falls within the sphere of logic and contains all the general features and consequently that qualitative indifference which logic discovers in any judgment whatsoever. But there is a fundamental sense in which we may maintain that these characters do not exhaust or exactly define it,—a sense in which, however expressed, it remains a *negation of the soul*. Doubtless it implies an affirmation: doubtless from an abstract point of view its form may be regarded as affirmative, and those

<sup>1</sup> More strictly, with the one reservation that in any argument the negative be attached to the copula or the predicate in such a way as to avert ambiguity in the terms. This again points to the definite value of a general symbolic content as determined by the demands of consistency—which is just another way of saying, "its function of unity and difference as an integral element in predication and in syllogism".

who consider that such implication, such dialectic pliability, at once stamps an expression of thought as partial and incomplete need take no offence at this attempt to indicate a final and genuine difference of kind. For the difference lies deeper than the expression. The point to emphasise is that between the judgments "S is different from P" and "S is at one with P" there is a fundamental distinction—a distinction of aspect if you will, but a distinction which is as real as any distinction can possibly be. I intend to go the length of saying that the distinction is irresolvable—at least in this sense (and the apparent truism will have to be made good) that the judgment "S is other than P" is for ever incapable of becoming the judgment "S is at one with P". Thus if differences are sublated (as I believe they are) they can never be sublated by ceasing to be different. Indeed the act of sublation, if it has any effect at all upon the distinguished elements, will have the effect only of more deeply establishing the differences by setting them definitely upon their common ground.

A few illustrations will serve to render at least somewhat more clear these bald and unproved assertions. The judgment "S is one more than P" would be classed by logic among affirmative judgments. It asserts an identity between the contents "S" and "one more than P". But if we consider the terms of the judgment not as "S" and "one more than P" but as "S" and "P" (and logic at least can have no objection to our bringing together any two terms in a judgment of some sort—a negative judgment for example) then we find ourselves unable to express their relationship except as a difference. We can say indefinitely "S is not P," or more definitely "S differs from P in respect of the quantity X"; but in no sense can the terms S and P as such be applied to each other in the same direct way in which the terms "S" and "one more than P" are mutually referred. Without any attempt at a definition (which for reasons yet to be made plain I regard as impracticable) we may take as fundamentally significant of the judgment of difference or genuine negation that, given the terms S and P, we cannot relate them directly in the judgment "S is P" but must modify either the copula or the predicate and say "S is not P" or "S is greater than P". Whether we adopt the logically affirmative or the logically negative form is indifferent. In each case what we have is the judgment of difference or genuine negation. I should say further, that it is a matter of indifference whether or not we are able exactly to designate the point of difference or respect in which two terms

differ. We are able in experience to detect differences without being able so to designate them, and the fact that we are in some cases able to make the respect of difference perfectly definite does not render a negation as such less genuine.

The fragment of a melody which I have heard, let us suppose, is struggling to reinstate some missing notes in my mind. I take up various combinations suggested by a certain adaptation to the general scheme of the piece or by a feeling of continuity. The mere perception of these combinations compels me instantly to reject them. They are different from the notes which I am seeking. If "S" stands for one of the rejected combinations and "P" for the missing notes, then my judgment is "S is not P" or "S is different from P". Now what I am trying to maintain is that while logic can find an affirmative and a negative expression for this judgment, the judgment itself belongs to one and one alone of two mutually irreducible types which I have ventured to distinguish in the symbolic judgments "S is different from P" and "S is at one with P". The judgment we are considering is the judgment "S is different from P," and probably it implies another judgment of the type "S is at one with P". I.e., the rejection of an unsuccessful combination of notes carries with it the implicit assertion that some other combination (as yet undiscovered) is the one I am in search for. My particular point is that these two assertions, mutually implicated as they are, are in no sense one judgment, and that the implicit affirmation does not entitle us, except as a matter of bare expression, to transfer the affirmative character to the judgment "S is other than P". I do not wish to insist upon the fact that the implicit affirmation is as yet a mere unknown potentiality, while the negative judgment is the clearly formulated content of a present experience; for I do not think the point involved in my contention. But it is not without its significance that I can actually have the experience of being forced to negate two ideas of each other without being able to fill in the content of the corresponding affirmation. The fact might be interpreted in one or other of two ways. It might be turned against my contention. For it could be plausibly argued that if I have a negative judgment which implies an *undecided* affirmation, I cannot speak of the negative judgment as *distinct from* the affirmation which it implies. The affirmation is therefore merely a character in the negation; i.e. the negation is not genuine or complete. Or, to vary the form of the argument, the rejection of S as failing to meet the ideal demands of P is identically the same thing as the assertion that some other

combination, "X," as yet problematical, does meet these demands. To this I would answer: (1) that the judgment "X is P" does not convey to my mind exactly the same meaning as the judgment "S is not P"; (2) that the fact that a perfectly definite negation implies a perfectly indefinite affirmation does not seem to me to mean that the negation as such is in any sense affirmative; and (3) that if we do admit that "X is P" and "S is other than P" are identical contents, since X is in itself unknown, the only meaning we can as yet give it is "other than S"; and the judgment becomes "Something other than S is P," or "P is other than S"—which is once more the pure negation of the judgment of difference. The conclusion is that an undefined implicit affirmation is impotent to modify the negativity of a definite denial.

The illustration I have used makes one thing at least clear. To be able to deny that "S is P" does not mean to the subject the same thing as to be able to assert that "X is P," because he may be able to deny the one without being able in any significant sense to affirm the other. Doubtless he is not content with a negation to which he cannot furnish the corresponding affirmative. He feels that the negation itself is not a completely satisfying content. It is not as definite a negation as he wants. But a more perfect negation does not mean a negation with a definite admixture of affirmation in it but only a negation which is capable of greater precision. And the effect of rendering it precise (an effect which may certainly be brought about by making the implied affirmative explicit) is not to touch its negativity with affirmation but to authenticate the negation itself. Suppose in our illustration I do succeed at length in hitting the desired combination of notes and recognising it as such. At once "X" becomes a definite content and the affirmation implied in the judgment of difference is made explicit. But this only confirms our rejection of "S," as a combination of notes other than that of which we were in search. Previously we could declare "S is other than P" only because S failed to give us that continuity of impression which we hoped to recognise as identical with the continuity of our former impressions. But now we are enabled to maintain that "S is other than P" because we have discovered X which is identical with P to have certain quite specific differences from S. We therefore not only know the bare fact that S and P are different; we can exactly specify the nature of the difference.

But the development of the illustration has brought with

it several important consequences, some of which seem to threaten the argument throughout. *E.g.* it will be objected that if we can not only deny that *S* is *P* but can specify the exact respect in which it is not *P*, then the judgment is not purely negative but contains a very emphatic affirmative element. Suppose that *S* differs from or is not *P* in respect of  $\varsigma$  (say that 4 differs from 3 in respect of one unit of increment), then this one unit of increment is a genuine affirmation in the judgment "*S* is not *P*". And suppose further that  $\Sigma$  differs from *P* in respect of  $\Pi$  (or 5 differs from 3 in respect of two additional units), then, if we persist in asserting the purely negative nature of the judgment of difference, we shall be forced to conclude that from two negatives a genuine inference can be drawn; for we can infer that  $\Sigma$  is more than  $\varsigma$ . Again, on the very face of it it appears that no judgment can be purely negative, for the terms which it contains are more or less definite and are therefore names for realities of some sort—are in fact themselves, so to speak, curtailed or implicit affirmations. A judgment which is pure negation would therefore necessarily be the attribution of the predicate "nothing" to the subject "nothing"; *i.e.* it would be no judgment at all. And still further the negative judgment "*S* is not *P*" may be very slightly negative and yet the judgment may have a very large and rich meaning due to the full connotation of the terms. The difference between *S* and *P* which we actually predicate may be minimal and the points of congruity may be relatively immense. To revert to our illustration, *S* may differ from *P* only by a single note or by a single transposition; and *P* may be a sonata of Beethoven and *S* a rendering perfect in spirit and in technique save for one note wrongly struck or timed. In such a case (which I do not mean to suggest is possible or even conceivable) it would be the limit of pedantry to ask whether what had been played was really the sonata in question; to deny it might almost seem paradox. The terms contain so large an element of identity that the judgment of difference has become practically untrue, and to assert it in the categorical and exclusive sense of a pure negation is to outrage meaning. If the minutest differences are to be made the basis of such an absolute exclusion, nay, unless the very greatest divergencies are in certain cases to be allowed freely to override negation of this sort, the law of identity itself will disappear in a universal nihilism. The Moonlight Sonata has perhaps never been executed or even thought of exactly as it was at first conceived by the Master. Is there therefore no unique and abiding Moonlight Sonata?

And in spite of the great and intrinsic variations need we refuse to identify the features of the voluptuous Fornarina as she appears in Giulio Romano's portrait with the chaste and impressive Donna Velata and perhaps the archetypal Madonna di San Sisto? These questions lead too abruptly into the heart of our subject and we must not multiply them further at present. It will be enough if I entrench my position against their more immediate implications, and this will serve the purpose of making my contention still clearer.

In maintaining the absolute nature of negation or the judgment of difference, I did not mean to assert that, in order to meet this demand, the terms of such a judgment must themselves be devoid of any common element or of any positive character. These terms may be composite and may have very much in common, or they may be organically related. They must certainly have a positive character of some sort. But what is *asserted* in the judgment of difference is *not* their common features nor their affirmative nature. Again, I frankly admitted that every negation carries with it its affirmative implication, but I still maintain that this implication or these implications (for it must be noticed that they may be many) are not *asserted* in the judgment of difference. To declare that the only absolutely negative judgment would be the judgment "Nothing is nothing" is to miss the point. What I am contending for is not that the terms of a pure negation must be infinitely exclusive, but the much simpler proposition that negation is an absolute character in the relationship of terms—a relationship which may have many other and affirmative characters; and when I speak of the absolute character of negation what I mean is that negation is not in itself affirmation, and whatever may be its affirmative implications, is impotent of itself to render them up. Of course a truth is frequently, perhaps always and essentially, revealed in its affirmative and negative aspects in a single act of thought; and these two in all cases immensely reinforce each other.

But we have seen that it is possible to formulate a fairly clear and emphatic negation without knowing on what affirmation exactly it is based. And we may now supplement this truth and say that if indeed we can hardly conceive an affirmation without knowing certain implied negations we can hardly ever know the full extent of the negations involved. What we do know depends largely on the accidents of our knowledge, on our experience and our critical discernment. It is far from my intention to convert a definitive difference into the negation which is mere nothing-



ness, and I consider that Plato takes a fundamental step in the right direction when in the *Sophist* he transforms the  $\mu\eta\ \delta\upsilon$  into a definite character within the real. In fact my whole argument is that the negative must be preserved as a distinct and irreducible feature of reality. As regards the preposterous illustration which I have tried to turn against myself, I hardly think it can maintain even its own pretensions. If a Beethoven Sonata played to perfection save for one flaw is not a monster in nature, still it is doubtful how far, in view of the one defect, it could be regarded as even otherwise perfect. The "dram of eale" has much more extensively damaging properties where the "noble substance" bears "the stamp of one defect" than where the "noble substance" is altogether wanting; and we can well believe that the achievement which falls just short of perfection, which misses the ideal by a hairsbreadth, may take much deeper damnation in the judgment of the artist and of the artist's master (in the judgment, that is, of those most competent to judge, because those who have the standard most definitely before them) than the attainment that never aspired to genuine ideals at all. Perhaps therefore the difference that divides the perfect from the just-not-perfect is not a small difference but a great—one less in fact than the difference that divides everything from nothing.

A further obvious but important criticism might be offered. It might be said that my answer to the objections supposed rests upon a false distinction of terms themselves and their assertion in judgment. While admitting *e.g.* that terms generally speaking have a certain positive character, that they represent something which is rather than is not, and further that mutually exclusive terms may represent objects having much in common, I go on to maintain that what is actually *predicated* in the judgment of difference is *not* what the terms have in common, and that therefore the terms and their predication in such cases are two distinct things. Of course I am not unaware of the serious difficulties resulting from any attempt to distinguish between the terms of a proposition and its assertion; but I believe that such objections as the present are frequently employed by an obscurantist idealism in such a way as to take unfair advantage of their inherent generality. It may be quite true that terms cannot be separated from their assertion in judgments and that the floating idea is a chimæra, and if my argument really rests upon such psychical and logical impossibilities I am prepared to renounce it. But first of all I wish to ask quite definitely what is meant. Here is a judgment "S (=



*abcdefg*) is not  $P (= aboxefg)$ ". By *S* I understand *abcdefg* and by *P* *aboxefg*; and what I mean is no doubt that in some sense I *judge* or *assert* *S* to be the combination *abcdefg* and *P* to be the combination *aboxefg*; and I do not for an instant imply that in judging *S* to be other than *P* I am not at the same time in *some sense* judging *S* and *P* to be very largely identical. This, however, does not seem to alter the fact that the judgment "*S* is not *P*" is not *as such* identical with the judgment that *S* in very many and possibly fundamental respects is the same as *P*. If it is true that I am really judging both, I am not judging both in exactly the same sense; and in the sense in which I am judging the one I may not be judging the other at all. At the very least there is a "both" in the case. Now suppose it is being judged that *S* is not *P* in respect of the difference between '*d*' and '*x*'. We may grant the uttermost demand of our supposed critics and concede that in the judging that *S* is not *P* in this specific respect, we are at the same time and of necessity, nay in the identical act of thought, judging that *S* and *P* are one in respect of the common elements *abcefg*. Perhaps it will not be demanded that we should consider this latter judgment as definitely before our minds. We may for example be allowed to consider the terms *S* and *P* which mean so and so for us or are *judged* to be equivalent to so and so, as generally grasped rather as a universal symbol for these and many other specific judgments, which can be unfolded by a process of analysis, than in the form of the actual definite judgments themselves. But waiving even this very moderate claim for abatement we will suppose that in the article of judging that *S* is not *P* in some respects I must invariably be consciously and clearly judging that *S* is *P* in certain other respects. Now granting all this, which is surely the limit of what can be asked, I fail to see that the judgment "*S* is not *P*" is the judgment "*S* is *P*". The two assertions, it seems to me, even granting their insoluble implications, are still distinct and different assertions, and the judgment "*S* is not *P*" *does not assert* that "*S* is *P*". The upshot of the matter is this: either the judgments are completely identical (which they cannot possibly be, and which no one would maintain that they are), or else they contain a certain difference, and this is my whole contention. Something is asserted in the judgment "*S* is not *P*" which is not and cannot be asserted in the judgment "*S* is *P*". It requires no great act of intellectual renunciation to concede further that the difference between the two judgments is that the one does not assert community while the other does.

The matter can hardly end here however. I shall be accused of employing a false mechanical symbolism and so misrepresenting the nature of the great mass of judgments.  $S = abcdefg$  and  $P = abcxefg$  are not true formulæ for terms in general. For in the first place  $abc$  etc. may not be definitely distinguishable units but organic features inseparable except by an act of abstraction. And further the mode of representing the affirmative and true negative judgment as an equation of common and identical elements and a mutual negation of disparates is fundamentally false. What we get is in the one case a judgment of pure identity and in the other a judgment of pure difference. In neither case do we find that unity in difference which is the elemental character of judgment.

In reply to this I must confess the limits of my symbolism. To represent  $P$  as equal to  $abc$  etc. certainly has a mechanical look. I do not mean by these symbols (I do not think that my argument demands that I should mean by them) atomic particulars. They are at the most distinguishable features and may certainly be organic. All I insist upon is that they *are* distinguishable. My argument is in no way affected by this. In fact it demands some such development. For what I mean by the judgments " $S$  is  $P$ " and " $S$  is not  $P$ " is not the absolute equation of the identical elements and the total mutual exclusion of the disparates. The *terms* of the proposition are not  $a, b, c, \dots$  etc. but  $S$  and  $P$ ; and when I say that " $S$  is not  $P$ " or " $S$  differs from  $P$ " I really mean to make an assertion about  $S$  as a whole and not about  $a, b, c$ , etc. Of course the assertion I make is in its nature necessarily abstract, for judgment is always essentially abstraction; and it is ultimately this truth in Kant's mind that prevents the Categories, based as they are upon types of judgment, expanding into noumenal principles. The assertion that I make is that  $S$  differs from  $P$ ; and my point is that in this instance I assert no more. I do not assert anything about what  $S$  and  $P$  do or may have in common. My statement is confined to difference. But this is not equivalent to saying that  $S$  and  $P$  *only* differ or differ in every respect. That would be quite a different assertion—one which I may or not be able to make. The distinction must be kept clear between *only asserting* difference and asserting that the relation between two terms is *only one of difference*. And the fact that it is possible for me to make an assertion which is only a statement of difference, without at the same time asserting that the terms in question *only differ*, seems to me to indicate the exact sense in which we can and must assert that difference is absolute.

Having prepared the way by brushing aside certain possible misapprehensions, I must now proceed to develop my conception of the nature of difference. To begin with, I accept without present question a proposition which may seem at first sight to imperil my whole position—the proposition *viz.* that difference is a matter of degree. The sense in which I understand this must of course be carefully defined. That X differs from Z more than it does from Y is a proposition with a very real meaning, and whether or not we are able to say what that meaning is we are at least usually able in experience to apprehend a difference of degree. If X is a shade of green and Y the same green one perceptible degree more saturated, Z will represent the next observable degree of saturation. A series of this nature we at once recognise as having its actual existence for us, as well as many analogies, within experience. And we are able to *understand* it in this sense—i.e. by referring it to a character in a content with which experience has familiarised us. Apart from the possibility of such a reference it is certain that no mere conceptual process could enable us to grasp the nature of series or gradation or degree. This proposition wants no experimental demonstration. The proof of it lies in the impossibility of defining these ideas without presupposing them. The question of definition is a very wide and difficult one, and whether or not it is possible to define anything without this circular process is a point that might be debated. But this much will be granted. There are elements within experience, ideas and objects, which can be defined by being placed in a context or inclusive system, and therefore without at least any immediate reference back to themselves; and there are characters within experience which the very attempt to formulate them presupposes straight away. We cannot refer them to anything else and every endeavour to do so ends in a circle which is genuinely vicious. Not that these characters are totally incapable of definition. They are everywhere being defined within experience but not by reference to anything further than their own content. The significance of such necessarily circular definitions and the interpretation we must put upon them are clear. Wherever they are forced upon us we may be sure that we have come upon some fundamental and irreducible character of experience; and we are compelled, as the only alternative to a suicidal empiricism, to accept Kant's transcendental arrangement and bring the indefinables under some such rubric as his Axioms and Anticipations, Analogies and Postulates. Now, that degree is such a fundamental

character I am compelled to suppose, if for no other reason than the impossibility of evading the circular statement. Perhaps we could not establish this more strikingly than by quoting the argument of a recent writer who not only attempts to escape the inevitable circle, but thinks he has succeeded. But before doing so I wish to point out that I am using the term degree in the very widest sense and not merely of qualitative intensity. Thus degree as I apply the word would include all variations in *extensive* magnitude as well—all that falls within the Kantian Axioms of Intuition as well as the Anticipations of Perception. In fact wherever we can arrange a series so that members approach to and recede from each other on any principle of arrangement whatsoever we have what I mean by degree.

In his treatise *Über die Bedeutung des Weber'schen Gesetzes*, which he describes as a "Supplement to the Psychology of Comparison and Measurement," Meinong takes up the conception of quantity and tries to define it without presupposing it in the terms of his definition. Provisionally he declares it to be characteristic of all magnitudes to set a limit over against Naught—"gegen Null zu limitieren"—and he continues: "The one vulnerable point in this is the question whether the nature of magnitude is not here defined by reference to change of magnitude, thus involving a *circulus in definiendo*. For what does the setting of a limit over against Naught mean if not a drawing near to the same, and what else can? Nearer and Further be but smaller and greater distance. In order to characterise Magnitude in general, Naught would thus be claimed as a special instance of Magnitude, so that the roundabout way by Naught appears to lead only to an *idem per idem*. . . .

"Above all we may assert the following with complete justice of the word Naught. Naught is, strictly speaking, in reality already something which no one could grasp who wants the apprehension of Magnitude. Naught in fact is the negation of Magnitude. Instead therefore of saying: 'Magnitude is or has what is capable of setting a limit over against Naught,' let us rather lay down the proposition: 'Magnitude is or has that which permits us to interpolate members between itself and its contradictory opposite'. Only the reference to interpolation now demands a clear definition. The nearest way is to think of resemblance. Let  $x$  be the given magnitude. The definition just given means:  $x$  will be entitled to the designation great or greatness if between  $x$  and non- $x$  something can be inserted which will be both liker  $x$  and non- $x$  and less different from  $x$  and non- $x$  than  $x$  and non- $x$  from

each other. But once again we here revert to a *More* and *Less* (resemblance or difference as the case may be)—hence to Magnitude. This can be avoided by calling to aid the idea of Direction, which, as is evident without more ado, may in truth lay claim to a much, nay an incomparably wider sphere of application than language acknowledges in the word Direction so rarely employed beyond its spatial use. Let a *y* be granted which as viewed from *x* falls in the same direction as non-*x*, then *x* is or has Magnitude and non-*x* is Naught; and I can now in this characterisation find not the remotest appearance of a vicious circle.”<sup>1</sup>

The answer to this is that in his extended use of the term Direction, Meinong is either using language which has no relevant application to magnitude at all, or else, if Direction does contain a specific reference to magnitude, then it assumes the thing which it is supposed to define. He does not really escape the assumption of the non-*x*, which, as he points out, in itself involves the assumption of magnitude. I have enlarged on this somewhat obvious conclusion as regards the nature of degree because my theory is bound up and stands or falls with the question of difference as a matter of degree and the peculiar interpretation given to this question. From one point of view, for example, the very concession that difference admits of degree would seem fatal to my designation of the judgment of difference as absolute. If all difference is a matter of degree then it is surely obvious that any assertion of difference must be relative. The objection looks formidable; but it has really been already denuded of all force. It is true that differences (and degrees of difference) are related to one another, and without such relation they could not be conceived. But when we ask what is the nature of such a relation we find ourselves unable to reach a point of reference outside the circle of the thing defined. Thus it is hopeless to look for any immediate solution of the *ultimate* nature of difference to its character as admitting of degree. We shall get no light on the question what finally and most generally a difference is by asking what constitutes a thing more or less of a difference, any more than we could hope to explicate the nature of space by asking what it was that constituted a thing spatially greater or less. The fact is that more and less, with the whole conception of degree, falls within the idea of difference, as an ultimate form of difference; and it is therefore quite impossible to turn these notions critically upon the idea which includes them. In

<sup>1</sup> Pp. 6-8: “Sonder-Abdruck” aus *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*. Bd. xi.

other words a degree is itself a difference, and, although it may be of infinite use in experience, we cannot employ it as a criterion, because difference is the prior assumption. It would be neither a tautology nor a meaningless epigram but would contain an important truth if we asserted that *degree* of difference is intelligible only as *difference* of degree.

I have just described degree as an "ultimate form" of difference, and the words were chosen with a special intention. For the assertion that the whole conception of degree falls within the idea of difference might seem to conflict with my other assertion that degree is a fundamental and irreducible character in reality. I do not think my words contain this contradiction. For I do not mean that a degree is in any way *defined* or that it gains anything in content by falling within the conception of difference, any more than difference is defined by being characterised as expressible in degree. We cannot think degree without thinking difference; but this of itself is the proof that in thinking degree we are thinking something ultimate. For if it were not so, if degree were really reducible to difference in a sense which would deprive it of its ultimate character, we should be able to dismember the idea and find a prior idea of degree subsumed under the wider conception difference, and so enlarged and specified. What we are unable to dismember we must regard as ultimate.

Now whether or not degree is a conception adequate to the whole nature of difference, it is the only conception which seems to promise a general statement. In difference regarded as qualitative the subject shrinks from general treatment and throws us back persistently upon definite experience. Where quality is concerned we cannot in the ordinary course of things hope for even such a scheme of difference as will enable us to say "S is different from P in respect of A," but must content ourselves with the tautology, "S is different from P in respect of the apprehended difference between P and S". The aspect of degree on the other hand has opened up prospects of further advance and the possibility that indirectly light may be thrown on the obscurities of qualitative distinction itself. Thus, for example, it is evident that certain differences of degree are at the same time and *ipso facto* qualitative differences. In order to make this clear with the help of illustrations let me repeat in substance what I understand by degree. Wherever we find a systematic arrangement of facts or ideas such that X, Y and Z approximate uniformly to each other along the lines peculiar to the system, we have what I mean. The term degree however

does not seem specially suitable to such a conception. It is usually appropriated to the particular type of approximation found in a system of which the characteristic mode is intensity, and my meaning includes much more than this. It includes for example the time series and space, the moral universe and all forms of approximation to ideals. I propose therefore to substitute for the word degree a word the customary connotation of which has reference to the space and time series, but which I think might be very profitably extended, the word Dimension; and just as an object, spatially considered, may be regarded as a meeting place and special articulation of three dimensions so the object in its concrete fullness may be regarded as the meeting place of many more. It has its own position for example in a definitely graded universe of colour, of utility, of beauty and of truth.

Defining the word dimension in the terms just applied to degree, I find the following to be its fundamental characteristics. A dimension is a perfectly unique mode in which some specific function (whether of consciousness or of the object of consciousness) keeps developing itself according to a uniform principle. Thus if we could take a section of anything regarded from the standpoint of its dimensional nature, we should find its *characteristic* identical with that of any other section in the same dimension. In the general scheme of its arrangement one portion of space or time is identical with another. In every dimension there will be a single way of advance leading in one direction to uniform accretion and in the other to uniform diminution. Of course I speak of the accretion and diminution as uniform only in the sense indicated by the peculiar nature of the dimensional principle. Thus the absolute quantity of increment need not be uniform. I would regard a series advancing in any fixed ratio as dimensional. It is characteristic of a dimension that no limit can be set to it either in the outward or the inward direction. It is thus in its nature absolutely continuous. At the same time if we arrest it in any particular of its infinite extension what we shall strike upon will be and must be something discrete and definite. There is doubtless something paradoxical in this and the same paradox appears in the very idea of accounting for difference by referring it to a function which we have described as uniform. It is not my intention to attempt any ultimate solution. Enough for the present that a distinction must be drawn between a dimension itself and its content. How this is possible or what use there is in the conception of dimension if it must be kept detached from the actual differences which it con-



tains is a question which need not trouble us when we consider the actual fruitfulness of the dimensional idea in the spatial universe. Space we experience only in the form of defined spaces, yet we can conceive it only as continuous dimension. In this sense we can distinguish a dimension and its content. The one is for ever schematic and general, the other specific and individual. The attempt to understand an object leads us to a dimension: if we wish to realise dimension in actual experience we are inevitably brought up against discrete particulars.

I know that the distinction between a thing and its content exposes me at once to objections, but I do not think that the most convinced Hegelian could object to my insisting on the difference between continuity and discreteness, provided I admit (as I do) the reality and at the same time the mutual implication of the two. Every particular within a dimensional system is fundamentally discrete; at the same time it is intrinsically a member in a fundamentally continuous dimension. How this can be is not our present problem; but the difficulty is interesting as being probably identical with that which lies at the bottom of the divergencies in Kant's statement of the nature of space. These differences are not to be explained on any merely extrinsic grounds. The truth is, it seems to me, that Kant never really recedes from his earlier position. In the "Analytic" he transforms his first statement by substituting the notion of space as synthesised for that of space as given; but the determinate space which is the product of synthesis differs from that infinite transcendental whole which we must still in any case presuppose. The one conception cannot therefore stand as the exact substitute of the other, and a complete statement of Kant's position as well as of the nature of space would seem to demand both.

The distinction of continuous and discrete suggests the still more general distinction which has been already pointed to in what was said of degree. No dimension is reducible to any collocation or aggregation of its own content regarded as prior. It is not a product but a presupposition—always in the form of some regulative principle furnishing the condition either of positive experience (*e.g.* space and time) or of some ideal process (*e.g.* morality).

Most interesting of all perhaps from the point of view of our problem is the fact that all our sense experiences with their inexplicable qualitative differences fall within a dimensional universe. Of course I am not thinking of their physical concomitants, and in fact I am not applying quantitative

conceptions to sensation at all. Whether quantitative conceptions are applicable in any sense but that of analogy is a serious problem. Certainly this seems clear: a difference of intensity is not completely explained as a difference of quantity. It is not merely, it seems to me, in the upper limits of intensity that further stimulation will result in distinct qualitative change. The change is qualitative throughout, and the current method of regarding intensity merely as a matter of quantity brings insuperable difficulties. The general criticism of Fechner's law that it presupposes an impossible unit of sensation seems to involve much more than Fechner's law, *viz.*, the whole conception of quantity in this connexion. Indeed if we accept this conception we must go the whole length with Fechner; for wherever we have quantity we must be able to assume an invariable, even if arbitrary unit. Thus Fechner was not merely attempting to add definiteness to Weber's statement: he was bringing out a genuine unacknowledged presupposition of the quantitative view. Of course the difficulty of stating the truth in Weber's law without resorting to quantitative metaphors is all but insuperable. Thus if we say that our power to observe differences of sensation depends not on an absolute but on a relative difference of the stimulation, we are using language saturated with the quantitative connotation; and the difficulty is rendered greater by the fact that in the one series the quantitative idea is to be taken literally. The word difference is itself a source of danger. For example, if we employ Prof. Stout's notation and designate a series of sensations corresponding to an increasing intensity of stimulation by the letters  $r_1, r_2, r_3$  and  $r_4$ , we find ourselves at once referring to the degree of unlikeness between  $r_1$  and  $r_3$  as equal, under certain conditions of increase in the stimulus, to the degree of unlikeness between  $r_3$  and  $r_4$ . It is hardly possible to rid the mind of the tacit supposition that this must mean that when we estimate the amount of increase of  $r_2$  over  $r_1$ , and the amount of increase of  $r_4$  over  $r_3$ , we have in each case an identical quantity of sensation—which is in substance just the assumption of Fechner's law, although here the unit need not be the minimal difference. In fact to understand Weber's law in any valid sense there is demanded of us the intellectual *tour de force* of conceiving differences as "equal," *i.e.* as represented by an identical and independent quantity of sensation which may yet be infinitely variable. The difficulty may be partly obviated by laying due stress on the word difference, and remembering that, absolute as every difference is, it implies the mutual reference

of two terms and cannot therefore, except in some very abstract system of reckoning, be conceived as *independent*. We may illustrate this from the numerical system itself—the abstract formulation of quantity in terms of discrete units. Arithmetically considered the difference between 1 and 2 and the difference between 19 and 20 is in each case one; but the difference between 1 and 2 is surely not equal to the difference between 19 and 20. These considerations as to the mutual reference of factors in all difference do not conflict with but rather confirm my contention that all difference is absolute. So absolute is every difference that it can be given only by the exact reinstatement of the context within which it falls. Thus the difference between 19 and 20 rightly understood is not interpretable in terms of the difference between 1 and 2, or in any other terms but its own.

Difference of intensity in sensation, then, I regard as a difference of quality; but as such it is a difference of degree, and falls within a dimensional scheme. One source of the tendency to conceive intensity from the quantitative standpoint is, I imagine, the complex nature of sensation as falling at once into several dimensions which vary independently. Take sound for instance. Sound is a three-dimensional sensation. . . But any note may vary in loudness while remaining uniform in pitch and timbre. What more natural than to conceive this variation of an invariable as mere change of quantity? And yet there is a distinctiveness in the differences of loudness, which cannot be got into the abstract idea of mere increase or decrease by units. Or take the increased brightness or faintness of a colour. Is an increase or decrease in the brightness of an identical tone exactly and only the same thing which happens when the note G is sounded louder or softer on the bugle? Or can we even abstract a common element without the resort to analogy?

Granted then that differences of intensity are not to be accurately interpreted as merely quantitative, how are they to be explained? What is the dimension within which they fall? We can only answer: It is one among other dimensions, regulative of a certain form of experience, yet apprehensible only in this specific experience, and peculiar, in each instance, to a specific sense. As a fundamental principle, we cannot refer it to anything beyond itself, but experience teaches us how to order its content according to a single rule. All sensations fall into some such dimension and most into more than one. A concrete object apprehensible in sense we must regard as the meeting-place of many such.

The application of the dimensional idea to concrete wholes

of experience, even to sensations, brings with it a peculiar difficulty. I have said that continuity is fundamental in the nature of dimension; but within an actual experience I suppose such continuity is never realisable. As I phrased it before, in experience we are always brought up against discrete particulars. By this I do not mean to deny the continuum principle within experience as a whole. I am referring to the specific dimensions in their isolation and to the specific sense experiences which fall within them. Thus, for example, although I would admit the continuity of any mental state as a whole with that which went immediately before, I do not suppose it is possible for any one, in moving the eye along the spectrum, to obtain an absolutely continuous presentation of every possible variety of colour-tone. In listening to a single note of gradually increasing loudness the consciousness moves by jerks, with intervals where discrimination completely fails. It would seem therefore that in introducing the dimensional idea into actual experience we are introducing it where its fundamental character can never be realised.

There are several things to be said in reply to this. In the first place our actual impression may be that of a continuous experience. Differences which we are unable in any special connexion to distinguish will not interfere with the even flow of the presentation-continuum so far as our experience is concerned. In the second place the validity of the dimensional idea does not depend upon our being able to follow any dimension with an actual experience into every phase of its possible self-evolution. This would demand an experience of the infinite in both directions. And this difficulty is not peculiar to the dimensions of the specific sensations. The general forms of space and time are equally inaccessible to complete experiential articulation. All that is required is the principle of direction and an experience which, although never completely dissolvable, does order itself according to the lines of the principle. And this further consideration must be added. Although any individual experience, or any limited range of experience, must, from its very conditions, be discrete in the sense explained, it does not follow that experience in its general notion need be so limited. We do not require to go outside the nature of experience itself, except to the extent of expanding it, in order to conceive an experience which will somehow and somewhere have filled up all the lacunæ which we must suppose in any fragment of it. The *de facto* discontinuity of our perceptions (a discontinuity which need not be *perceived*

or even *perceivable*) does not imply the transference of this discreteness to the dimension itself. Thus suppose in the series ABCD etc. each of these letters represents a minimal difference in some special direction. Between every two members of the series we may insert a symbol representing a perception of difference which would be possible in some other connexion. Thus we get the series  $a\beta\gamma\delta$  etc. The mind cannot perceive anything between A and B, but it may perceive  $a$  and  $\beta$  relatively to each other. And the possibility, so to speak, of switching off the series ABCD on to that  $a\beta\gamma\delta$  is quite intelligible, if we think of D as followed not by E, the next minimal difference, but by  $\epsilon$ , a somewhat "greater" increase, the co-ordinates of which in the series of minimal differences are  $a\beta\gamma\delta$ . Thus we evade any suggestion of a contradiction in the idea of the dimension as continuous and its content within experience as discrete.

But we have only raised a fresh problem, and a much more formidable one. If experience is potentially at least capable in different ways and at different times of the infinite differentiations characteristic of a continuum, are we not entitled to think of an experience able to contain these differentiations in an actual *de facto* continuity? Experience would seem to contain such a notion at least as a limiting conception. For we know that minds and sentient organisms differ in their power of discrimination. Thus if we add to the notion of experience that of infinity we have the notion of an experience of infinitesimals. But are infinitesimal differences differences at all? Where S and P differ from each other by an infinitely small degree, can we assert "S is not P" in that absolute sense which we maintain to be the character of the judgment of difference? The only answer is: We must keep to our fundamental conceptions, whether applying them on the finite or the infinite scale. If S and P are differences at all, then as such they are genuinely discrete: if they are infinitesimals then they are continuous; and we must conclude that on the infinite scale the continuous and the discrete, the dimension and its content are immediately one. Doubtless our human experience contains no indication of a consciousness which could subsist in the everlasting uneventful lapse of infinitesimal differences. But if the limiting notion of infinitesimals does not itself contain an *a priori* contradiction, there seems no reason in the nature of experience as empirically revealed why the limiting experience should not be conceived as realisable. The actual variability of sense discrimination, taken in conjunction with the actual variation in time discrimination suggests the

mutual bearing of the various dimensions and the possibility that a complete experience within any one would be a complete experience within all. And if the mind shrinks from the idea of an infinitesimal time experience (bringing with it an infinitesimal sense experience) we must consider that time is really an element in experience and that we cannot *think* it as other than infinite.

If there is anything in the dimensional idea, such questions must not be thought merely curious; for in terms of our characterisation it is fundamental that dimension should be conceived as infinite in both directions.

The application of the idea to infinity in the opposite direction brings its own peculiar difficulties. These arise from the decided limits to the range of specific dimensional characters within the various senses. How is it possible, for example, to conceive the dimension of pitch as infinitely extended in the outward direction, in view of the fact that beyond a certain point sound vanishes altogether—either into silence or a specifically different sensation? We must here again guard against making illegitimate use of the continuity of the physical concomitant. What we are considering is the continuity of the sensational dimension and not of the stimulus. But there is a certain suggestiveness in the continuity of the physical factor, especially when taken in conjunction with the view here expressed as to the absolute nature of all difference. The differences which fall within the continuity of a single dimension are as discrete and absolute as the others. While subjecting themselves to serial arrangement they are specifically distinct. And if this fact does not exclude them from the dimensional arrangement, we are hardly justified in condemning the dimensional idea right away on the ground that its necessary infinity is negated by the acknowledged outer limits of *specific* sense experience. We have here certainly a change in kind, but whenever we have difference we have such change. Moreover the change in kind to a certain extent falls into line with the continuous process which leads through the one specific range of variations into the other or out into unconsciousness. It is not an abrupt transition, definitely assignable to some one point in experience. These considerations are reinforced by the continuity, with distinct lacunæ, in the physical concomitant of sensation, the apparent susceptibility of the different sense organs to vibrations of a specific range of rapidity, and the suggestion of further possible modification in the organism to meet the intercepted ranges. The conclusion suggested is that in sense experience taken in all its

forms we have merely fragments of a single dimension emerging into and receding from consciousness at intervals which are determined by the special facts of physiological development.

Such considerations however are as yet perhaps too problematical to be made the basis of a definite theory. In any case, supposing we could assure ourselves of the genuine, though potential, continuity of the various senses, of sight with hearing and hearing with touch, might not our difficulty re-emerge at the outer limits of sensibility in general? In this case we should be obliged to resort to a similar argument and suppose infinite undeveloped ranges of potential sensibility.

A more immediate difficulty arises when we consider exactly what we mean by dimension in sense experience. We do not regard sight, hearing and touch, or sensibility in general, as distinct dimensions. Rather it is to certain fundamental characters within these different senses that we attach the dimensional idea—to tone and saturation in colour, to pitch and loudness in sound. It would thus seem that the dimension presupposes the specific form of sense experience, of which it is an ultimate expression. The only alternative to this conclusion would be to regard the dimension as a general character entirely independent of the specific sense which happened for the time being to give it articulate expression. Now that dimension is a general and objective character not fully expressible as any subjective fluctuation of mere sensibility the previous account ought to have made clear. It must be remembered too that space is an objective character indifferently apprehensible by various senses, and that its three dimensions must therefore partake of this fundamental generality. On the other hand the attempt to detach dimension from the specific modes of sensibility brings with it insuperable difficulties. Space itself, however we may generalise its characters, becomes contentless and ultimately a mere quantitative formula, in no way distinct from quantity in other forms, if we divest it of its specific sense references. Even time itself, which has no *specific* sense content, is something more than mere quantity in general. If it is quantity at all it is quantity in a peculiar and determinate kind. And this is what we miss when we over-emphasise the general schematic character of these forms. Space and time may possibly be quantities, but quantity is not necessarily either space or time. And as regards the distinct senses, we have seen in what difficulties we are involved if we try to conceive their differences of



intensity as mere differences of quantity. We must therefore conclude that general as is the dimensional idea, it is at the same time inseparable from some specific mode of realisation of which we can give no account that will convey anything apart from the definite experience. The dimension is a general scheme of differentiation in some determinate material; and the material is plastic to differentiation only on certain specific lines. Of course this applies quite generally, to dimensions, for example, where the principle of differentiation is the degree of goodness, of utility or of beauty. Only we must be careful to consider our data accurately according as the same object falls into different dimensions from different points of view. A colour-tone or a note of music has its determinate place and value in the dimension of saturation or of pitch; it has also its place in the dimension of æsthetic value and that again according to its context. It represents, so to speak, the intersection of various dimensions; but the fact that the different dimensions find a point of momentary coincidence in a single object does not in the least interfere with their complete mutual irrelevance.<sup>1</sup> I revert therefore to the statement that the scheme of differentiation which constitutes a dimension is a determination along some specific line.

A provisional solution to the difficulty as to the ultra-sensational ranges of the specific senses now begins to appear. Since an irreducibly specific character enters into each dimensional scheme, it is essential that we regard any dimension as *infinitely extensible in kind*. This infinite extensibility we must conceive as an objective character and quite independent of the uncertain range of sense susceptibility. Since dimension is a scheme of arrangement it is a mental construct, and in constructing the dimensional idea we must and *can* invest it with an objective range of application beyond what any actually realised experience is likely to give us. And if this is so the *possible* range of a *potential* experience need not trouble us. Nor does this conclusion reduce the dimensional idea to a mere mental abstraction devoid of the determinate sense reference. The dimension is quite unrealisable apart from a *certain amount* of experience; but given this amount, we are able to realise it for ranges beyond our actual or (under present organic conditions) possible experience. I do not mean of course that we can actually

<sup>1</sup> A certain objection might be taken to this. The note G e.g. (a certain point in the dimension of pitch) has a specific value in the dimension of beauty, because it is the note G. In spite of this, if the point were fully worked out, I think my statement might stand.

*imagine*, say, the note G raised to a degree of loudness enormously beyond anything with which experience has acquainted us. But no stress can be laid upon the presence or absence of this capacity to imagine. It differs enormously with the individual even within the ranges of actual experience; and surely no exception can be taken to the dimensional idea on the ground that many individuals, let us say, are devoid of a visual or an auditory memory. Hence I venture to assert that from experience of certain differences in the loudness of sounds we are able to construct the complete and objective dimension of loudness ranging from infinity to infinity. What we construct is indeed a mental form, but it is a form distinct and inalienable. It is not the bare idea of quantity or degree in any sense in which these ideas could be applied to an experience other than the loudness of sound. Space, time, pitch, colour-tone, warmth and cold, goodness and badness, beauty and the reverse are all alike in this respect. Objectively we must conceive them (this *necessity* is the mark of their objective character) as infinite gradations of some uniform differentiation within experience. Apart from experience they are nothing. We have no pure idea of them. And yet experience cannot realise any one of them for us in its actual *de facto* completeness. Again if there are apparent contradictions in the idea of a sense infinite, there are apparent contradictions in the infinities of space and time; and the infinities of goodness and badness, beauty and ugliness (the ideal standards on which the whole conception of moral and æsthetic differences depends) are apparently self-contradictory poles. The solution of the antinomies and of ultimate moral contradictions is not our problem here; but on this much we must insist. Wherever experience reveals a gradation of differences it reveals a line of process which we must conceive as infinite unless we are prohibited from so doing either on *a priori* grounds or by experience itself. Now experience in this case cannot so prohibit us; for the most it does is to fail to realise itself factually beyond a certain point; and such actual failure is no proof of real impossibility. On the other hand *a priori* reasons are of avail only in the case of possible contradictions; and it is not at all clear that the "bad" infinite (with which, quite frankly, we are here dealing) is self-contradictory. It becomes so of course if interpreted in terms of some other infinite—a self-complete and finished infinite, for example, which the "bad" infinite never is. The idea of complete goodness may be self-contradictory; but the dimensional idea of goodness as infinite is rather

that of goodness which is never complete; and the contradiction which attaches to that which transcends degree where degree is a constitutive notion, cannot possibly attach to that which from its very nature can never transcend degree. It is not in the *a*<sup>th</sup> nor the *b*<sup>th</sup> nor the *c*<sup>th</sup> degree of goodness that the idea of contradiction can find a lodgment, but *a* followed by *b* followed by *c* followed by *d ad infinitum* is the dimensional conception of infinity.

The final conclusion to which we are forced is that we must take up the specific senses as we know them in experience—i.e. as distinct modes and contents of consciousness and assuming the dimensional character which experience reveals within them, we must go on to construct the dimensional idea as an infinite continuation of such experience along identical lines. Of course the necessity of construction does not interfere with the ultimate constitutive nature of dimension—any more than the fact that its specific character must be *discovered* interferes with its genuine originality. The idea, however, to which so many and so significant physiological and biological facts seem to point, that the various senses are really only particular ranges of a sensational continuum, part of which has either not yet emerged or has been submerged in the process of differentiation, here becomes a difficulty in its turn. But the difficulty need not be final. We may still begin with the specific senses as we know them, and fearlessly postulate an infinitely extensible dimension for the fundamental characters of each. The point to remember is that our *actual* range of experience is limited, and that beyond the limits of specific sense experience, although we must conceive, we are hardly able to imagine, the sensations we should have, were our senses gifted with a capacity for these ultra-human ranges. For all we know to the contrary the line of dimensional process which leads through the ranges of colour-tone may be the identical line which elsewhere leads through pitch. There is no *a priori* reason against it, for *a priori* reasons have nothing to do with determining a question of identity in the specific character of sense experience. Experience cannot at present offer any objection; for the clue of experiential continuity is just the link of evidence that is wanting. In this case we are entitled practically to ignore the possibility of the various senses lying on one line of advance, and to consider each separately as falling within an infinitely extended dimension of its own. Should further knowledge render certain the suspected continuity, the only change in our position would be that whereas before we were left in an imaginative obscurity

as to the actual *tang* in sense of the ultra-experiential ranges, now we should be able piece by piece to tap the latter. It is to be questioned however whether the supposed contingency will ever be possible (certainly it will be hard to establish its results) without the restoration (however that may be effected) of the intercepted ranges in their definite sensuous particularity and in all the fullness of an actually experienced continuity.

This account of dimension is of course highly tentative, and there are many points which it is quite impossible within the present limits to make perfectly clear. There are questions enough too arising everywhere to which I should be unprepared to give a definite or decided answer. If I were asked to specify the exact number of dimensions which exist and to give reasons for this number, I confess I should be baffled in each instance. And although I consider such questions unfair and based upon misapprehension, I am not sure that I have made this plain. The question of dimension in the senses of taste and smell and in the organic and kinæsthetic senses, as well as the dimensional arrangement of timbre, would certainly bring difficulties. The difference between an absolute and an experiential continuum, or between one which *seems* and one which actually *is* complete, has been assumed, and the assumption has not been fully justified, although the distinction has important bearings on the very notion of dimension. A problem lies behind the questions whether and in what sense position in a dimension is to be regarded as relative or absolute, and in what way the answer to these questions would affect the asserted absolute nature of difference. A further point which calls for elaboration, as bearing upon the relation of the two dimensional infinities is the fact that both in the sphere of consciousness and of physical and biological fact, a development in the direction of infinitesimal differences, what we mean by differentiation, is usually combined with a shrinkage on the outer limits. Differentiation and range tend to vary inversely. As regards the problem of qualitative difference as such, I have merely touched its fringe, where the problem seemed identical with that of degree or dimension. The possibility that all differences of quality may be ultimately reducible to differences of degree within some dimension or other was suggested in the foregoing argument, but nothing has been done to work it out. The designation of differences of degree as themselves qualitative brings with it difficulties when we consider that in this case all differences will be qualitative, and ask on what grounds some qualitative differences are arranged

together in a dimensional scheme while others are not. The only answer possible at present is a general and unsatisfactory reference to experience and experienced continuity.

In spite of all these deficiencies, the idea of dimension may not be without its truth and value—especially as a practical method of defining and arranging the differences which form the material of knowledge. Paradoxical as it may seem to say so, the conception, while bringing order and system into the world of differences, only strengthens our view that differences, as such, are absolute; for it renders definite the *respect of difference*. And that dimension is not an inappropriate method of interpreting difference (at least on the present view) is clear if we consider that the nature of difference and the nature of dimension are fundamentally alike. Difference can be conceived only as an ultimate and irreducible character in the nature of the real. It is no thought universal abstracted from particular differences. It is too general for that. Surely it would be a hopeless task to generalise a notion of difference from the infinite variations which experience reveals. To the content of the general idea moreover no number of specific instances can add anything: no number of instances can cause a shrinkage of connotation or contribute the slightest modification. When we know what distinguishes the most similar of phenomena we have as clear a notion of difference as when we know what distinguishes the most unlike—just as, in the case of space, we get as clear a general notion from a square foot as from a million acres. Difference then must be presupposed, and presupposing it, we find it here and there marked out into certain paths of systematic function or process, like itself ultimate and irreducible, but well-worn in experience. Surely these may be used as indications of something fundamental in the all-inclusive notion of difference.

I may be allowed in conclusion to anticipate an objection which may be taken to my argument throughout. It will be said, perhaps, that while I have been insisting on the fundamental and irreducible nature of differences, the conception of dimension would be much more appropriate to an attempt to prove the *unity* of experience. For what are space and time, the idea of a uniform gradation of intensity, of a moral and æsthetic order, but forms whereby we seek to introduce unity and system into the manifold of things? That dimension is also this I cannot deny. My point is that differences in all their fundamental disparateness must not be interfered with in any unitary system. The tendency is to merge the differences of experience in their relativity. Relativity is

constantly employed to remove the sting from difference; for it is difficult to divest the mind of the thought that what is purely relative is not completely real. Or else relativity is made the exclusive nature of the real; and it is forgotten that if everything is only relative, then, if the relative is maintained to be the real, it has itself become an absolute. Now that differences are relative I have already admitted. They involve in every instance a reference to differing terms which cannot be considered independently. But the difference which involves the mutual reference of terms is still, *qua* difference, perfectly absolute, and implies in each case a unique and irresolvable character in the relationship of the terms in question. And if difference is relative to unity, of course it is equally true that unity is relative to difference. We are too apt to consider a problem closed if we can bring its varying elements together under a single head, and to resort to the general notion of unity as the solvent of all difficulties. We forget that unity as a general notion is quite valueless unless by way of a regulative principle, and that every genuine unity must have some specific character, due to the specific character of the elements which it unifies—in other words that it is itself a difference. In resolving difference therefore we do not resolve it into anything more fundamental or absolute than itself.

I shall close with an illustration which will indicate more or less proximately where I should look if I wanted to raise the question of how unity and difference come together as coequal ultimates in experience and in reality. I draw the illustration from Kant's argument against the Identity of Indiscernibles, which I may be allowed to recall.

"Leibniz," says Kant, "compared the objects of the senses with each other as things in general and in the understanding only. He did this—

"*First*, so far as they are judged by the understanding to be either identical or different. As he considers their concepts only and not their place in intuition, in which alone objects can be given, and takes no account of the transcendental place of these concepts (whether the object is to be counted among phenomena or among things by themselves), it could not happen otherwise than that he should extend his principle of indiscernibility, which is valid with regard to concepts of things in general only, to objects of the senses also (*mundus phænomenon*), and imagine that he thus added no inconsiderable extension to our knowledge of nature. No doubt, if I know a drop of water as a thing by itself in all its internal determinations, I cannot allow that one is

different from the other, when their whole concepts are identical. But if the drop of water is a phænomenon in space, it has its place not only in the understanding (among concepts), but in the sensuous external intuition (in space), and in this case the physical place is quite indifferent with regard to the inner determinations of things, so that a place B can receive a thing which is perfectly similar or identical with another in place A, quite as well as if it were totally different from it in its internal determinations. Difference of place by itself and without any further conditions renders the plurality and distinction of objects as phænomena not only possible, but also necessary."<sup>1</sup>

I suppose modern idealism, as a whole, would accept, with Mr. Bradley, the principle of the Identity of Indiscernibles,<sup>2</sup> but it would insist that the principle be rightly interpreted. It would reject the illustration in question as quite beside the point, and would put both Kant and Leibniz right by a process of argument somewhat as follows. A spatial difference in two objects otherwise apparently identical is a much more serious matter than it appears; and, when fully unfolded with all that it involves, would reveal the similar objects as very far from indiscernible. Thus suppose two drops of water to be spatially distinct. This really involves in each case a vast complex of relations, differences of attraction and repulsion, of susceptibility to constantly varying influences, and so on. These, when taken into consideration, involve a vast sum of difference, which in the end would completely remove the illustration from the field as a relevant instance of the principle. The argument is plausible, but in the form in which I have expressed it, I do not think it will stand. Of course its real point lies in the implicit denial that two objects can differ in only one particular.

We are supposing two objects exactly similar in every respect except in this of spatial diversity; and, ignoring our presupposition, we go on to show that this one difference involves innumerable others. But if the only difference were spatial diversity, then this would not be so. For example, the water-drop placed at A has its own distinct "internal determinations," say its particular and constitutive attraction and repulsions; the water-drop at B has its. But the first drop being in every other respect identical with the second, must be interchangeable with it. Thus the two

<sup>1</sup> *Critique of Pure Reason*, Max Müller's translation, pp. 221-222.

<sup>2</sup> *Logic*, bk. ii., pt. i., ch. vi.



could be transposed without effecting the slightest alteration in the system of relationships which each is indifferently capable of assuming. It would thus seem that the two objects at A and B are identical transcripts of the same fact or system of facts. No. 1 is just No. 2 placed at A; No. 2 is No. 1 placed at B. This would compel us to concede to Leibniz the identity of objects whose one difference is their spatial diversity.

On the other hand this diversity itself now becomes unaccountable. Why should we have, how is it possible that we should have, a duplicate transcript of the same fact? Kant's way of referring it to difference of position in space, though fundamentally right and quite in accordance with the dimensional interpretation of difference, is not sufficient for our present purpose, unless we interpret it in the light of his doctrine of space as completed in the *Analytic*. That is, we must think not of mere spatial diversity as an abstract character, but of spatial diversity as the concrete product of actual synthesis. What constitutes the difference in this limiting and problematical instance is the distinct acts of synthesis required to give even two objects with an indiscernible content. Two waterdrops may be so alike as to be indistinguishable if viewed one after the other. But under certain conditions consciousness has a way of refusing to allow us to view them thus independently; and in compelling us to view them together it forces us to hold them apart. They stand at arm's length and refuse to devour each other. And the distinct jar in consciousness, itself a difference, becomes symbolic of further differences, which amount in the end to a genuine difference of content. For example, the double shock in experience indicates that we have here a divergency capable of generating still further divergencies—as when the two drops run together and become a larger drop distinct from each.

Thus synthesis is the fountain-head of all difference. Of course the statement is circular, for synthesis from the first implies difference. But this is of no account where the factor involved is the living activity of mind into which all differences fall and out of which they arise. The significant point is that this activity which generates absolute difference is the same activity which is the source of all unity. We need not therefore fear to implement the truth that all things are one with the truth that all things are different, and that difference is in its very nature, and cannot rightly be thought of as other than, absolute.