The importance of the sensory attribute of order / by H.J. Watt.

moment we turn our interest from a single solid object upon an object that until that moment was doubled in our vision and that our eyes respond so rapidly and correctly to this interest that they make it possible for us very rapidly to see the new object single and solid; so rapidly indeed that we remain unaware that it was ever doubled. Each eye moves correctly so as to catch its own particular image. And so we may infer that this image was there in its doubled psychical form although we did not know this. The psychical reality of double images is usually allowed by those who study this question. What is rarely, if ever, conceded, is that even in the single solid sights both contributory images are there psychically. But if the one point is admitted, so must be the other surely. When there is integration there is unity (single, solid); without integration there is duplication (double, flat). Where unity is patent, we cannot expect duplication (or disintegration) to be patent. But we may have good reason to believe that duplication may then occur in a latent form.

Similarly, space is a new system of orders that arises from the ordinal integration of the several senses. But these it does not obliterate or annul or diminish, as we are all perfectly well aware. And yet, it is so closely incorporated in the ordinal system of each sense, that we have been generally disposed to look upon these, not as merely enriched by the spatial integration, but as originally spatial. In this case we have reduced our concession of unity very greatly from that seemingly required in binocular vision. This change in our attitude can only be due to the clear differentiating effect of the qualitative distinctions of the systems that contribute towards the spatial integration. In the two eyes we usually find a very close parallelism of qualities, except in the case of lustre or of similar experiments in the binocular combination of different colours. And it is notorious how such different colours tend to break up the unity of vision and cause a rivalry of images. But it seems very clear that we must similarly admit that the ordinal fields of the various senses are not originally spatial, but merely ordinal in that limited sense in which the series of pitches is completely ordinal and yet not spatial. And the "stuff" of these different fields is originally different, however unitary the spatial field may finally appear to be to which they all become attached. In other words, the orders of the different sensory fields are conserved within their spatial integration.

2. A Possible Objection.

It is thus we must also approach the objection that may be raised to the admission of ordinal differences, namely, that these differences are perhaps always for the larger part latent or implicit, not explicit. A patch of colour can easily be so arranged that no points are separately visible in it at all. It will, of course, necessarily be distinct at the boundary of the patch, where it is surrounded by the rest of the field of vision, every part of which is always full of sensation. These boundaries are heightened in all cases by some form of contrast, whether of colour or of brightness. Within the patch lie all the orders of the many minimal points of colour that could be seen and differentiated under proper conditions, *e.g.*, when the patch is gradually reduced to disappearance at its various points. We may suppose, if we like, that every visual sensation, no matter how small, is still a mass or area of sensation, having some amount of extent, and that it is therefore rather a system of orders than a single order, even when minimal. But we must be careful not to allow mathematical notions to confuse the issue. It would doubtless be rash to speak of individual orders of the visual system in any absolute sense, as if their number could be counted. The number of just discriminable differences can be approximately estimated and in vision we might perhaps venture to put down the number of minimal particles of sight as the number of cones in the whole retina. It is doubtful whether such a procedure would serve any useful purpose. But it is important to observe the lowest limit in vision of a capacity to distinguish points from one another or to detect the displacement of a point under favourable circumstances. And there is no sense or sanction for conceiving of visual orders within or below the limits of this finest discrimination. Even if finer differences are implicit within the minimal mass, we cannot make these differences explicit, nor have we any indirect warrant for maintaining the existence of finer differences.

But within the larger patch of colour the contrary is true. We can make explicit all its latent differences and we have indirect sanctions besides. These are mainly of two kinds. In the first place the size of the patch is, in general and under similar conditions of convergence of the eyes, relative to the number of discriminable particles included in it. The greater the magnitudes that constitute the form of the patch, the larger the number of particles on which they are based. And the position of the patch in the field of vision depends upon the particular orders that make up the patch and their