



THE Phenomenon of Life

TOWARD A PHILOSOPHICAL BIOLOGY

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are allowed the very dynamics they deny to the things in their portrayal of them, does not stand scrutiny.¹ Neither does Kant's alternative, replacing psychological with "transcendental" origin, since reason by itself no more yields the notion of action and influence than does the sense perception of Hume's description: even if it yields—a different matter altogether—the formal notion of "necessary rule" where the associative mechanism yielded the concrete feeling of constraint on the imagination.²

But whether felt constraint on imagination or conceived necessity for thought, whether psychological or rational rule—neither has much to do with the compelling thrust of things, in which we have a share outside the sanctuary of our minds. Both doctrines wish to substitute internal for external dynamics, spurious for genuine origin: both on the assumption, born of the silence of "perception" under the seclusion of the cognitive monopoly thrust upon it, that there is no firsthand knowledge of force,

1. A *post hoc* company-formation among the ideas, whatever its effect otherwise, cannot restore to the atomic and intrinsically static record the character their representation withheld from it to begin with. And although psychological compulsion or suggestion, such as their automatism may engender, can indeed mislead thought into making wrong connections, as well as accidentally prompt the right ones, the "original" of such connection must be available from its own source *before* either proper or improper use can be made of it under any prompting. Only on this condition is the misreading of mental for physical dynamics at least psychologically plausible—viz., as a *secondary* fact, the primary being the acquaintance with physical dynamics as such: then the confounding of one with the other becomes possible. Also we can distinguish, as belonging to different spheres, between even the strongest drift of imagination and the faintest testimony of things, and correct the former in the light of the latter: vividness of mental impress has no say in the matter—no more than rhetoric has in an argument, the efficacy of either notwithstanding. Finally, the "force of habit" acting in the association of ideas may well, for its own explanation, require to call on physical causes (e.g., brain mechanisms), that is, on the very reality of that which it merely seemed to fake.

2. A necessary, general rule of connection requires that of which it is to be the rule and which it cannot provide itself but must find originally exemplified in those actual instances of determinative connection where the "necessitating" *force* of the transition from A to B has been practically (i.e., with *myself* one of the relata) experienced—which is something entirely different from the "necessity" of the *rule* to which such instances "must" (a priori—else: are found to) universally conform. The rule merely says that *some* necessitating link or other (its original paradigm in direct experience being only one kind) operates in *every*

transitivity, and the dynamic bonds of things. Both burden their choice with an impossible task. Both, in short, forget the body.

Now, perhaps the real problem lies in the very fact which Hume and Kant accepted as ultimate: the causal muteness of percepts. If this itself is taken as a matter for wonder and explanation, as it should, an interesting inversion of Hume's problem suggests itself: Considering what is known about the causality involved in the genesis of sense perception itself, its indeed decausalized content presents its own riddle which sharpens Hume's more general riddle into the *paradox* that a *specific causal* nexus—affection of the senses—should terminate in its own presentational *suppression* as part of its specific performance. This disowning of its genesis by the perceptual mode, i.e., the terminal obliteration of its own causal character, forms an essential feature of what Whitehead calls "presentational immediacy," and is the condition of its objective function which is thus bought at a price.

The inversion of the problem here proposed implies an independent and

change, even where not experienced by either agent or percipient; that there is a uniform measure for all changes, or, all individual necessities are part of a general necessity; and that *this in turn is "necessary,"* but in a new sense: not from the nature of necessitation itself (let alone the kind experientially involving myself), but from the nature of nature "as a whole," viz., if it is to be an intelligible unity—of being or of "experience." The difference is obvious. Yet this transparent equivocation of the term "necessity" bedevils much of Kant's argument: when I tell of having been swept away, in a desperate struggle, by a torrent too strong for me to resist, I obviously speak of "necessity" of a different, uncategorical kind from the categorical "necessity" I predicate of the holding of a universal law of causality. In the second case I speak of a necessity of necessity—an abstract necessity of concrete necessities, i.e., of there obtaining some necessity=necessitation (transitive) in every case, and of all these necessitations together forming one homogeneous system. Kant's argument concerns exclusively this second-level (nontransitive) necessity and has no bearing whatsoever, not even by implication, on the question of our authentic experience of causation as such. His denial of the latter antecedes his argument on Humean premises, i.e., on the traditional (ultimately Cartesian) view of perception as a procession of neutral "ideas"=representations=images. But I don't think that this (erroneous) presupposition is vital to the essence of the Kantian argument. Its essence, I take it, is to ground, not the factuality and contingent (single) experience of causation, but the validity of a universal law of causality for experience as such: what must be examined then (but is none of our concern here) is whether it does *this* validly. Whatever the answer, a law of experience can never substitute for the primary experience itself.

legitimate source of causal knowledge whose deliverance is not affected by the negative findings of perception; on the contrary, it has to be drawn upon for the explanation of perception itself no less than for the supplementation of its findings.

Whitehead's distinction of "causal efficacy" and "presentational immediacy" as belonging to two modes of perception offers an important clue with respect to Hume's problem, but beyond its statement no sufficient explanation of itself (in fact, the term "immediacy" is apt to mislead). Following up this clue, we propose to show: (a) how it is that the several senses, in differing degrees, eliminate the imprint of their own causal constitution from the integration of their imagery; (b) why the sacrifice of the causal element extends from the self-presentation of the actual perceiving mode to its general object picture, coinciding with the range of "objectivity" as such, which is thus reality denatured (deactivated) but would not be possible otherwise; (c) why the objectifying modes so constituted have of necessity come to monopolize the concept of knowledge, and their object type that of reality, thereby creating problems peculiar to this self-curtailement (*inter alia* the problem of "necessary connection").

(a) How do the senses come to deliver a decausalized content? A complete answer involves an analysis of the senses at once genetic and phenomenological: to confine oneself to the latter alone would be to commit oneself from the outset to the face value of perceptual testimony and thus not to escape from the magic circle of Hume's argument. As this is not the time for a detailed analysis,³ a few remarks shall here indicate the line of reasoning.

The smallness (in dimension, time rate, and energy) of the unit-actions and reactions involved in affection of the senses, i.e., their minute scale relative to the organism, permits their mass-integration into one continuous and homogeneous effect (impression) in which not only the single impulses are absorbed, but the character of impulse as such is largely canceled and replaced by that of detached image. Where qualities are perceived, the raw material is action: impacts, hustlings, clashes on a molecular scale. Organisms not far exceeding that scale can therefore have no perception, but the collision experience only. Theirs would be a world not of presences but of incidences, or, not of existences but of forces. To the large-scale organism, on the other hand, when it does have the force-experience in interaction on its own scale, this always comes already superimposed on the becalmed continuum made up of the per-

3. See, for parts of such an analysis, Sixth Essay and Seventh Essay, sect. III.

ceptual transcripts of the small-scale influences that all along engage sensitivity but in the transcription loose the character of influence: as continual and effortless presence of deactivated content, they seem to offer that neutral substratum of being to which the force-experience then happens to be added on particular occasions, and from which indeed it stands out as a particular phenomenon. This result: the apparent priority of enduring entity over occasional activity—the cognitive child of perception—is an inversion of the originative ontological order, and the root of a theoretical problem of causality later on.

The degree to which the dynamical relationship is, or is not, perceptible and represented in the perception itself, and the degree to which sequence of happening is translated into simultaneity of a statical presence, can serve to classify the senses with respect to their objectifying function.⁴ From a comparative analysis, sight emerges as the sense with the most complete neutralizing of dynamic content and the most unambiguous distancing of its object from the perceptive function. In degrees, the self-effacement of causal efficacy takes place in all sense perception: where violence of the stimulus forces the threshold and causality floods sensation, there sense perception is ousted by the experience of impact or by pain, i.e., it ceases to be perception proper. Especially in touch, the transition from apprehension of quality to experience of pressure and thence to exercise of power is a matter of traceable degrees. Or to exemplify from another sense: in the case of a detonation nearby, the force acting on our receptor may exceed the acoustic limits, and instead of just hearing a sound of particular quality and intensity we feel assaulted by power, to be endured and resisted by power. And as noise can deafen, so light can blind when it exceeds the limits of sensuous assimilation. Thus the world, instead of presenting itself, can intrude dynamically into its testimony, its causality overwhelming perception. The latter is therefore constitutionally bound to the former's exclusion from the record—at least in relation to itself—and fulfills its specific task by performing just this feat. In the case of vision, the feat is made possible to perfection by the dynamical properties of light and the relative orders of magnitude involved. The seeming inactivity and self-containedness of the seen object correspond to the seeming inactivity and self-containedness of the spectator; yet both characters are the purified result of a particular set of connecting activity. Its total elimination from the presentational result, which gains by losing but loses nevertheless, introduces an element of abstraction—the abstraction of image—into the very constitution of sense perception, hence into object knowledge as such.

(b) The suppression of object-subject causality in perception entails

4. See Sixth Essay on "The Nobility of Sight."

that of object-object causality there as well—or that of causality pure and simple within the “theoretical” domain when this is fashioned in the perceptual analogy alone. For then it does not admit into its evidence the testimony of the *acting* subject—that seemingly inalienable, “inside” knowledge of subject-object causality of which man *qua* agent is possessed in his practical intercourse with things: only after having itself been subjected to perceptual objectification, its contents transformed into serial data—i.e., after the active quality has been leached from it—is its testimony admitted into theory. By the rejection of this evidence in its pristine terms (a rejection with a long history in the growth of the theoretical ideal), understanding deprives itself of the one nonperceptual source, the force-experience of my own body in action, which could by analogy still supply the dynamical links in the sequence of observed events: these, having become objects by disconnection from the reality of the observer, stand thereby stripped of that character which would explain also their connectedness among themselves. The detachment of objectification left them detached from one another as well. The character generally suppressed is *force* which, being not a “datum” but an “actum,” cannot be “seen,” i.e., objectified, but only experienced from within when exerted or suffered. The primary neutralization of this character by perception, which changes actualities into data, is bequeathed to the concepts of the understanding, which rises from this very basis of objectification. Understanding by itself, when left to deal with the stripped percepts alone, cannot restore that character, nor compensate for it by its own means of connection (here Hume was right—and Kant wrong). But enjoying the advantages of disconnection in the subject-object relation, namely, the freedom of theory, it has to accept its disadvantages as regards object-object relation.

(c) Abscondence of causal efficacy is the price by which presentation of being in itself, and consequently objectivity, are gained. On the credit side, effacement of causality means disengagement from it. Perception as such, and vision particularly, secure that standing back from causal involvement which frees the experient for observation and opens a horizon for elective attention. The object, staying in its bounds, faces the subject across the gap which the evanescence of the force context has created. From the onrush and impact of reality, out of the insistent clamor of its proximity, the distance of appearance (*phenomenon*) is won: image, in the place of effect, can be looked at and compared, in memory retained and recalled, in imagination varied and freely composed. This separation of contained appearance from intrusive reality, the original feat of perception, gives rise to the separableness of essence from existence that underlies the higher freedoms of theory. It is but the basic

freedom of vision, and the element of abstraction inherent in image, which are carried further in conceptual thought; and from perception, concept and idea inherit that ontological pattern of objectivity it has primarily created. The stillness of object, aloof from the turmoil of forces, recurs enhanced in the stableness and permanent availability of "idea"; it is in the last analysis at the bottom of "theory" as such.

It follows that the dominance, in epistemology, of the cognitive modes derived from perception—a dominance pushed historically to the point of excluding other modes of acquaintance with reality—is intimately bound up with the possibility of knowledge as such: so is the corresponding dominance in ontology of their object pattern. The exclusiveness, however, has its penalty.

On the debit side, the same gap between subject and object which provides the dimension of freedom for theory, and which is found duplicated in the gap between object and object, provides in both respects also the breeding ground for a class of problems that beset the history of knowledge—unavoidable because rooted in its very conditions, and by the same token insolvable within those conditions. As regards object-object relation, an epistemological case in point is Hume's problem of necessary connection as a pale substitute for real causality (and in this devitalized form taken over by Kant). In its ontological version, the problem of *relation* revolves around the classical concept of self-contained, inactive substance—"that which requires nothing but itself in order to exist" (Descartes)—which is by no means an historical freak, but the conceptual framing of perceptual truth: "substance" conceived on that model admits of external relations only and by definition excludes all self-transi-tiveness. To release "being" from this imprisonment in "substance" is among the major preoccupations of contemporary ontology. Further, the homelessness of "force" in the system (just one aspect of that imprisonment) raises the issue of "anthropomorphism," whose banishment from exterior knowledge is far too much taken for granted as the proper thing in scientific epistemology (see Appendix 2).

As regards subject-object relation, the gulf opened by perceptual objectification in sole command is partly responsible for those puzzles of the consciousness-external word dualism which parallelism, occasionalism, idealism, have in vain attempted to solve. For without the self-transcendence of the ego in *action*, i.e., in its physical dealings with the environment and in the attendant vulnerability of its being, the closure of the mental order is logically unassailable, and solipsism can appear as rational discretion instead of as madness.⁵ In fact one can say, with utter brevity,

5. Not that anyone but a madman has ever taken solipsism *seriously*: arguing for it, except in soliloquy, is to acknowledge the "other" whose

that denial of causality leads straight to solipsism—and is consequently never made in complete earnest.

This is but a bare catalogue of the problems originating in the perceptual situation and made over to the reflection of theory. In all of them, an original freedom of animal life, perception—itsself an offshoot of the more basic freedom of organic being as such—presents the bill for its privileges to the yet higher freedom of thought.

Conclusions. Reverting to Hume's issue we find: that his result, the nongivness of causation among percepts, is only what is to be expected from the nature and meaning of perception itself; that the result, in being confirmed, is at the same time limited to its proper field and thereby divested of its skeptical implications; that what calls for explanation in the first place is not how, from the causal vacuum of perception, we still come to the idea of causation, but how it is that perception, and just perception, does *not* exhibit it, i.e., contrives to conceal it—its absence there and not its presence among our ideas being the puzzling fact; that the primary aspect of causality is not regular connection, not even necessary connection, but force and influence; that these are themselves original contents of experience and not interpolations between contents of experience (= percepts) by a synthetic function, be it association or reason; that the source of this experience is, indeed, not sense perception, but our body exerting itself in action—the source which Hume summarily dismisses under the head of "animal nismus"; that, lastly, the right of extrapolation from this source beyond its immediate range of deliverance is a question to be studied, without fear of the blame of anthropomorphism, by an organic philosophy.

APPENDIX 2 (p. 23)

Note on Anthropomorphism

In any account of what the scientific attitude, as such, postulates in, and what it excludes from, its objects, foremost among the exclusions will stand that of teleology, i.e., of final causes. On this point the spokesmen of science from its inception in the seventeenth century have been particularly emphatic, and so much has it become an unquestioned article of the scientific creed that the blunt question "Why must final causes be excluded?" will nowadays find many scientists unprepared with a satisfactory answer. A restatement of the reasons will do away with the air of

consensus is sought. The argument is then frivolous, *qua* dialogue, while the absolute monologue is the madman's privilege. Neither can claim the virtue of critical austerity with which solipsism pleads its cause.

SIXTH ESSAY

The Nobility of Sight: A Study in the Phenomenology of the Senses

Since the days of Greek philosophy sight has been hailed as the most excellent of the senses. The noblest activity of the mind, *theoria*, is described in metaphors mostly taken from the visual sphere. Plato, and Western philosophy after him, speaks of the "eye of the soul" and of the "light of reason." Aristotle, in the first lines of the *Metaphysics*, relates the desire for knowledge inherent in the nature of all men to the common delight in perception, most of all in vision. Yet neither he nor any other of the Greek thinkers, in the brief treatments of sight itself which we have, seems to have really explained by what properties sight qualifies for these supreme philosophical honors.¹ Nor have the different virtues of the several senses been properly compared and assessed. Sight, in addition to furnishing the analogues for the intellectual upperstructure, has tended to serve as the model of perception in general and thus as the measure of the other senses. But it is in fact a very special sense. It is incomplete by itself; it requires the complement of other senses and functions for its cogni-

1. Aristotle in the same passage sums up the virtues of vision by stating that it is the sense yielding the most knowledge and excelling in differentiation (*Met.A*, 980 a 25); and he emphasizes that we enjoy vision for its own sake, apart from its utility. This evaluation merely hints at the qualities which elevate sight over the other senses.

tive office; its highest virtues are also its essential insufficiencies. Its very nobility calls for the support of more vulgar modes of commerce with the importunity of things. In this sense, in which all eminence pays for itself the price of increased dependence, the "nobility of sight" will be considered in the following discussion. As one of its results, we shall find the ancient claims for sight substantiated and at the same time qualified.

The unique distinction of sight consists in what we may provisionally call the image-performance, where "image" implies these three characteristics: (1) *simultaneity* in the presentation of a manifold, (2) *neutralization* of the causality of sense-affection, (3) *distance* in the spatial and mental senses. In considering these three characteristics we may hope to contribute not only to the phenomenology of the senses by themselves but also to the evaluation of their role in the higher mental performances based upon them in the case of man.

1. THE SIMULTANEITY OF IMAGE OR THE TIME-ASPECT OF SEEING

Sight is *par excellence* the sense of the simultaneous or the coordinated, and thereby of the extensive. A view comprehends many things juxtaposed, as co-existent parts of one field of vision. It does so in an instant: as in a flash one glance, an opening of the eyes, discloses a world of co-present qualities spread out in space, ranged in depth, continuing into indefinite distance, suggesting, if any direction in their static order, then by their perspective a direction away from the subject rather than toward it. The theme of depth will engage us later under the head of "distance." Sight is unique already in beholding a co-temporaneous manifold as such, which may be at rest. All other senses construct their perceptual "unities of a manifold" out of a temporal sequence of sensations which are in themselves time-bound and nonspatial. Their synthesis therefore, ever unfinished and depending on memory, must move along with the actual progress of the sensations, each of which fills the now of the sense from moment to moment with its own fugitive quality. Any present quality is just a point of passage in the transition from the preceding to the subsequent one, none is closed in itself, and only one is there at a time. Thus the content is never simultaneously present as a whole, but always in the making, always partial and incomplete. These more

temporal senses therefore never achieve for their object that detachment of its *modus essendi* from their own, e.g., of persistent existence from the transitory event of sense-affection, which sight at any moment offers in the presentation of a complete visual field. We may illustrate the difference by the cases of hearing and touch, the two senses which in certain respects deserve particular comparison with sight.

a. Hearing

The case of hearing is obvious: according to the nature of sound as such it can "give" only dynamic and never static reality. The wholes which it achieves by the synthesis of its manifold are strictly temporal ones, and their objective time-measure is identical with the time of the sense-activation itself: the duration of the sound heard is just the duration of hearing it. Extension of object and extension of its perception thus coincide. What the sound immediately discloses is not an object but a dynamical event at the locus of the object, and thereby mediately the state the object is in at the moment of that occurrence. The rustling of an animal in the leaves, the footsteps of men, the noise of a passing car, betray the presence of those things by something they do. The immediate object of hearing is the sounds themselves, and then these indicate something else, viz., the actions producing those sounds; and only in the third place does the experience of hearing reveal the agent as an entity whose existence is independent of the noise it makes. I can say that I hear a dog, but what I hear is his bark, a sound recognized as the bark of a dog, and thereby I hear the dog barking, and thereby I perceive the dog himself in a certain way. But this way of perceiving him arises and ceases with his act of barking. By itself it does not reveal anything beyond it, and that there is an agent preceding and outlasting the acoustic act I know from information other than the acoustic one. The object-reference of sounds is not provided by the sounds as such, and it transcends the performance of mere hearing. All indications of existents, of enduring things beyond the sound-events themselves, are extraneous to their own nature.

On the other hand, precisely because of this looseness of external object reference and thus of representative function, sound is eminently suited to constitute its own, immanent "objectivity" of acoustic

values as such—and thus, free from other-representative duty, to represent just itself. In hearing music, our synthesis of a manifold to a unity of perception refers not to an object other than the sensory contents but to their own order and interconnection. Since this synthesis deals with succeeding data and is spread over the length of their procession, so that at the presence of any one element of the series all the others are either no more or not yet, and the present one must disappear for the next one to appear, the synthesis itself is a temporal process achieved with the help of memory. Through it and certain anticipations, the whole sequence, though at each moment only atomically realized in one of its elements, is bound together into one comprehensive unity of experience. The acoustic "object" thus created is a time-object that lasts just as long as the act of its synthesis lasts, that is, as the sequence of hearing itself does (or its recreation in fantasy), with whose progress the "object" part for part coincides. It has no other dimension than that of time.

It is true that hearing, though wholly governed by succession, knows also juxtaposition of simultaneous acoustic content—witness polyphony in music, or the separable voice strands in the vocal babel of a cocktail party. One may even speak of a kind of inner-acoustic "space" in which a manifold can coexist. But this is a metaphor. The "coexistence" is always one of common procession in time, i.e., of strands of movement and change; and their distinction requires qualitative difference (in pitch, timbre, etc.) whose continuation in the sequence lets "strands" be identified: two notes of identical quality sounded together simply reinforce each other and make one (except for the "stereo" effect from the spacing of their sources), whereas real space is a principle of co-temporaneous, discrete plurality irrespective of qualitative difference. Also the "identity" of the single strands in a polyphony, and thus the conservation of discrete simultaneity through time, is a function of certain figural coherences (such, e.g., as make a tune) which come under the "Gestalt" principle and thus make the juxtaposition of plurality not a primary datum of the *now* but a feat of ongoing organization—i.e., a product itself of process. Even so the limits for a simultaneous manifold allowing integrity to its members are narrow in the world of sounds: a strong sound drowns its weaker contemporaries; to relate more than a few at a time to different source-loci in space becomes difficult, and beyond a limited number

any multiplicity of sounds merges into a compound noise. There is no "keeping to one's place" in the community of acoustic individuals. The simple fact is that sounds are dynamic events, not just static qualities, and thus trespassers by nature.

This brings us to what is perhaps the most important feature to be considered in our comparison of hearing with seeing: sound, itself a dynamic fact, intrudes upon a passive subject. For the sensation of hearing to come about the percipient is entirely dependent on something happening outside his control, and in hearing he is exposed to its happening. All he can contribute to the situation is a state of attentive readiness for sounds to occur (except where he produces them himself). He cannot let his ears wander, as his eyes do, over a field of possible percepts, already present as a material for his attention, and focus them on the object chosen, but he has simply to wait for a sound to strike them: he has no choice in the matter. In hearing, the percipient is at the mercy of environmental action, which intrudes upon his sensibility without his asking and by mere intensity decides for him which of several qualities distinguishable at the moment is to be the dominant impression. The strongest sound may not be the vitally most important one in a situation, but it simply seizes the attention from among the competing ones. Against this the freedom of selective attention is extremely limited.

In view of these characteristics we understand why for our ears we have nothing corresponding to the lids of our eyes. One does not know when a sound may occur: when it occurs it gives notice of an event in the environment and not merely of its permanent existence: and since an event, i.e., a change in the environment, may always be of vital import, ears have to be open always for this contingency. To have them closed could be fatal, just as it would be useless to open them at arbitrarily chosen moments. With all the initiative left to the outer world, the contingency aspect of hearing is entirely one-sided and requires therefore continual readiness for perception. The deepest reason for this basic contingency in the sense of hearing is the fact that it is related to event and not to existence, to becoming and not to being. Thus hearing, bound to succession and not presenting a simultaneous coordinated manifold of objects, falls short of sight in respect of the freedom which it confers upon its possessor.

b. Touch

The case is different with touch, though it shares with hearing the successiveness of apprehension, while it shares with vision the synthesis of its data into a static presence of objects. A proper analysis of touch is probably the most difficult in the phenomenology of sense-perception, because it is the least specialized and in its physiology and achievements the most compound of the senses. In fact, "touch" serves as a blanket label for a very complex set of functions. The most elementary level in this complexity is the contact-sensation in which the presence of a contiguous body is felt at the point of incidence. I leave for later consideration the important fact that the contact-situation always involves pressure and therefore a modicum of force as part of the experience. Here we deal as far as possible with the mere qualities sensed. The first observation to be made then is that shape is not an original datum of touch, but a construct which emerges additively from a serial multiplicity of single or continuously blending touch sensations, and this in conjunction only with proprioceptive motor sensations. The single touch-sensation confined to the point of contact and without correlation to more of its own kind is rather barren of information. Already the simple tactile qualities, such as soft and hard, and even more so rough and smooth, are not really an instantaneous experience but require a series of changing sensations obtained by pressure and by friction, i.e., generally speaking by movement. Thus in their very constitution, a synthesis on the part of the percipient is involved, extending over the time-span of the series and, by a short-term retention, unifying its elements into one impression. Touch and hearing agree in this respect: that their primary objects, the qualities sensed, have process character and are thus essentially time-entities. (This observation, incidentally, disposes of the rather sterile question whether all sentient life is endowed with memory. In the form of immediate short-term retention, memory enters into the very constitution of sensibility, and is thus coeval with it.) But in hearing, the process is purely passive, while in touching it involves bodily activity.

For the tactile situation moves to a higher level when the sentient body itself becomes the voluntary agent of that movement which is required for the acquisition of this serial sequence of impressions.

Then touch passes over from suffering to acting: its progress comes under the control of the percipient, and it may be continued and varied with a view to fuller information. Thus mere touch-impression changes into the act of feeling. There is a basic difference between simply having a tactile encounter and *feeling* another body. The former may be said to be the atomic element in the more complex totality of the latter, but this totality is more than the mere additive result of such atomic touch-sensations. The *motor* element introduces an essentially new quality into the picture: its active employment discloses spatial characteristics in the touch-object which were no inherent part of the elementary tactile qualities. Through the kinaesthetic accompaniment of voluntary motion the whole perception is raised to a higher order: the touch-qualities become arranged in a spatial scheme, they fall into the pattern of *surface*, and become elements of *form*. This is a synthesis of a higher order, superimposed on that already operative in the constitution of the simple sense-qualities, which integrate their own time-series of atomic contact-sensations but now enter as material into the larger unit of spatial order. In this order the manifold concretes into a shape. The higher order of synthesis means also a larger time-span for its performance, and thus involves more of the memory inherent in all perception. But what in hearing results in a time-object, in touch results in the copresence of a space-object: the data successively registered are entered into a matrix of static simultaneity.

An organ for real shape-feeling exists probably only in the human hand, and there is more than mere coincidence in the fact that in his hand man possesses a tactile organ which can take over some of the distinctive achievements of his eye. There is a mental side to the highest performance of the tactile sense, or rather to the use which is made of its information, that transcends all mere sentience, and it is this mental use which brings touch within the dimension of the achievements of sight. Briefly, it is the image-faculty, in classical terms: *imaginatio*, *phantasia*, which makes that use of the data of touch. Only a creature that has the visual faculty characteristic of man can also vicariously "see" by touch. The level of form-perception at the command of a creature will be essentially the same for both senses, incommensurable as they are in terms of their proper sensible qualities. Blind men can "see" by means of their hands, not

because they are devoid of eyes but because they are beings endowed with the general faculty of "vision" and only happen to be deprived of the primary organ of sight.

c. Comparison with sight

We are engaged in showing the unique position of sight with respect to simultaneity of presentation, the thesis being that all the other senses operate on the basis of time-series in the presentation of their qualities. Hearing, so we found, stays entirely within this dimension in that the results of its synthesis, the extensive acoustic objects (such as a tune), retain the successiveness of elements which the succession of experience itself originally possessed. Melody not only is generated by sequence, it is a sequence. The time-measure is an essential aspect in the content of the sound-experience. A visual value, the presence of a color, may have a long or short duration: this may make a difference to the percipient for reasons of his own, but it does not make any difference to the experience-content itself. This color-quality has no intrinsic reference to time. With touch we found that already the single "atomic" sensation includes a time-element as part of the sense-content itself, the time without which such a quality as rough cannot be "generated" for experience and in which alone it presents itself; and moreover we found the composite tactile objectivity to emerge from a successive synthesis of such sensations. But the result of the synthesis itself, in the case of surface- and shape-perception, represents a spatial and not a temporal entity, and we have here presentation of simultaneity through successiveness.

In this presentation the original time-order of the atomic sensations becomes irrelevant and has no voice in the synthesized content now "present." It was merely the accidental order of the acquisition of data, which could be *ad libitum* changed and still procure the same result, whereas in hearing the order of the acquisition of data is the order of the object itself.

Thus it would seem that the three cases can be distinguished in this formula: Hearing—presentation of sequence through sequence; touch—presentation of simultaneity through sequence; sight—presentation of simultaneity through simultaneity.

According to this formula sight retains its unique position even in relation to the most developed case of tactile performance. We may

take it that the achievement is at its best in the case of blind people who have learned to glean full information about shape and spatial situation of objects from the tactile data which they collect through their own activity. Yet even the densest distribution of the point-determinants collected and correlated in the course of extensive scanning by touch still leaves areas to be supplied by imagination. Knowledge of the complete form emerges progressively in this series of partial delimitations, and from a certain stage onward it is for all practical purposes "complete." How complete it can be is testified by the work of blind portrait sculptors. But this completeness is the product of an elaborate synthesis of many single perceptions, integrated into the one simultaneous form in whose presentness to the imagination the time sequence of its building-up is forgotten.² Thus we have here to distinguish what in the case of sight is identical, namely, the feat of the sense itself and the feat of the image-presentation *on the basis* of this sense-performance. The second is strictly speaking no longer a matter of touch but a kind of seeing by means of the heterogeneous material of touch. But however many data may be registered in succession and entered into the plane of simultaneous presentation, they can never fill a horizon such as is disclosed to one glance of the eyes. There are bound to remain blank spaces in between and an unrealized horizon in depth beyond the proximity of the actually contacted resistant objects.

d. Seeing and time

With sight, all I have to do is open my eyes, and the world is there, as it was all the time. We have shown that the case is different with hearing; and touch has to go out and seek the objects in bodily motion and through bodily contact, and this narrows down the actual object-relation to one particular instance: the realized relation is committed by the previous choice in which it originated, whereas in sight selection by focusing proceeds noncommittally within the field which the total vision presents and in which all the elements are simultaneously available. The particular focus impairs nothing of this simultaneous presentness. It has not committed freedom to this one choice at

2. Cf. the excellent analysis, by Pierre Villey, a blind author, in *The World of the Blind: A Psychological Study*, trans. by Alys Hallard (London: Duckworth, 1930), pp. 187 f.

the expense of all the other possible ones, which remain at its instantaneous disposal without involving the kind of action that would change the situation obtaining between the subject and its vis-à-vis, the environment. Only the simultaneity of image allows the beholder to compare and interrelate: it not only offers many things at once, but offers them in their mutual proportion, and thus objectivity emerges pre-eminently from sight.

As regards the time-aspect as such, the simultaneity of sight is not only of practical advantage, in that it saves the time needed to collect the manifold data successively, but it introduces the beholder to a whole time-dimension otherwise not disclosed to him, namely, the present as something more than the point-experience of the passing now. In the case of every other sense, no instant is closed in itself, and no instantaneous datum tells its story. Sensation has to go on, to follow up the beginnings made in the evanescent antecedent, datum has to follow upon datum to let the larger units of experience in process emerge. Sound exists in sequence, every *now* of it vanishing into the past while it goes on: to arrest this flow and "view" a momentary "slice" of it would mean to have not a snapshot but an atomic fragment of it, and strictly speaking nothing at all. Transience is thus of the very essence of the now of hearing, and "present" is here a mere following in the stream of onmoving process. The situation is similar with touch, only that here the sequence is one more of active performance than of mere incoming data. In neither case is there a static present; to put it in Platonic terms, they are senses not of being but of becoming. Only the simultaneous representation of the visual field gives us co-existence as such, i.e., the co-presence of things in one being which embraces them all as their common present. The present, instead of being a pointlike experience, becomes a dimension within which things can be beheld at once and can be related to each other by the wandering glance of attention. This scanning, though proceeding *in* time, articulates only what was present to the first glance and what stays unchanged while being scanned. The time thus taken in taking-in the view is not experienced as the passing away of contents before new ones in the flux of event, but as a lasting of the same, an identity which is the extension of the instantaneous now and therefore unmoved, continued present—so long as no change occurs in the objects themselves. When it does, then time starts rolling visually. Indeed only the simultaneity of sight,

with its extended "present" of enduring objects, allows the distinction between change and the unchanging and therefore between becoming and being. All the other senses operate by registering change and cannot make that distinction. Only sight therefore provides the sensual basis on which the mind may conceive the idea of the eternal, that which never changes and is always present. The very contrast between eternity and temporality rests upon an idealization of "present" experienced visually as the holder of stable contents as against the fleeting succession of nonvisual sensation. In the visual presence of objects the beholder may come to rest and possess an extended *now*.

Over these wider issues we must not forget the immense advantage which an instantaneous survey of the whole field of possible encounters represents in the biological situation. In the simultaneous field of vision a coordinated manifold, as yet outside active communication with me, offers itself to my selection for *possible* action. In this connection simultaneity means selectivity, and is thus a major factor in the higher freedom of the self-moving animal.

2. DYNAMIC NEUTRALIZATION

The freedom of choice just mentioned is dependent not only on the simultaneity of presence but at the same time on the fact that in seeing I am not yet engaged by the seen object. I may choose to enter into intercourse with it, but it can appear without the fact of its appearance already involving intercourse. By my seeing it, no issue of my possible relations with it is prejudged. Neither I nor the object has so far done anything to determine the mutual situation. It lets me be as I let it be. In this respect sight differs decisively from touch and hearing. The obtaining of the touch-experience itself is nothing but the entering into actual intercourse with the object: i.e., the very coming into play of this sense already changes the situation obtaining between me and the object. A fuller information then involves further such changes, each of which affects the object and my body at once and so is itself already a phase in my practical commerce with the object, for which on the other hand my sense-information is meant to prepare me. We therefore do not have in touch that clear separation between the theoretical function of information and the practical conduct, freely based on it, that we have in vision. Here again we

have in the very constitution of a sense and its physical conditions the organic root of a highly spiritual distinction on the human level: that between theory and practice. While in touch subject and object are already doing something to each other in the very act in which the object becomes a phenomenal presence, the presence of the visual manifold leaves me still entirely free as to actual commerce, as I see without doing and without the object's doing anything.

In hearing, it is true, there is also no doing on my part, but all the more on the part of the object. Things are not by their own nature audible as they are visible; it does not belong to their mere being to emit sound as it belongs to them to reflect light. I can therefore not choose to hear something, but have to wait till something happens to a part of my environment to make it sound, and this sound will strike me whether I choose or not. And since it is an event of which sound informs me and not merely the existence of things in their total configuration, my choice of action is determined for me by the acoustic information. Something is going on in my surroundings, so hearing informs me, and I have to respond to that change, which affects me as an interested party not free to contemplate: I have to strain myself toward what may come next from that quarter, to which I am now bound in a dynamical situation.³

Now, it is the complete absence of such a dynamical situation, of any intrusion of causality into the relation, which distinguishes sight. I have to do nothing but to look, and the object is not affected by that: and once there is light, the object has only to be there to be visible, and I am not affected by that: and yet it is apprehended in its self-containment from out of my own self-containment, it is present to me without drawing me into its presence. Whatever dynamic commerce there is in physical fact between source of light, illuminated object, and perceiving eye, this context forms no part of the phenomenal result. This complete neutralization of dynamic content in the visual object, the expurgation of all traces of causal activity from its presentation, is one of the major accomplishments of what we call the

3. This is not even considering the fact that sound may be specifically *addressed* to me—that its uttering, in outcry, growl, or speech, is meant for my heeding: in this case, communicative intent reinforces the dynamical claim peculiar to the acoustic situation as such. (Visual signs have not this intrinsic, or natural, power to enforce attention, but only acquire some of it through symbolic convention.)

image-function of sight, and it results in a subtle balance of gain and loss in the cognitive economy of man, the pre-eminently seeing creature.

The gain is the concept of objectivity, of the thing as it is in itself as distinct from the thing as it affects me, and from this distinction arises the whole idea of *theoria* and theoretical truth. Furthermore, the image is handed over to imagination, which can deal with it in complete detachment from the actual presence of the original object: this detachability of the image, i.e., of "form" from its "matter," of "essence" from "existence," is at the bottom of abstraction and therefore of all free thought. In imagination the image can be varied at will. This is also the case with sound, it is true, of which "imagination" can compose a freely created world of its own: but this has no reference to the world of things and therefore no cognitive function, whereas even the freest exercise of visual imagination retains this reference and may reveal properties or possibilities of the external world, as the case of geometry shows. Only the peculiar causal "indifference" of visual presence provides the material and engenders the attitude for these mental feats.

The loss, on the other hand, consists in the very feature which makes these higher developments possible, namely, the elimination of the causal connection from the visual account. The pure form-presentation which vision affords does not betray its own causal genesis, and it suppresses with it every causal aspect in its objects, since their self-containedness vis-à-vis the observer becomes at the same time a mutual self-containedness among themselves. No force-experience, no character of impulse and transitive causality, enters into the nature of image, and thus any edifice of concepts built on that evidence alone must show the gap in the interconnection of objects which Hume has noted. This means only that we have to integrate the evidence of sight with evidence of another kind which in the exclusiveness of "*theoria*" is all too often forgotten.

Let us consider more closely this causal detachment by which sight is the freest and at the same time the least "realistic" of the senses. Reality is primarily evidenced in resistance which is an ingredient in touch-experience. For physical contact is more than geometrical contiguity: it involves impact. In other words, touch is the sense, and the only sense, in which the perception of quality is normally blended with the experience of force, which being reciprocal does not let the

subject be passive; thus touch is the sense in which the original encounter with reality as reality takes place. Touch brings the reality of its object within the experience of sense in virtue of that by which it exceeds mere sense, viz., the force-component in its original make-up. The percipient on his part can magnify this component by his voluntary counteraction against the affecting object. For this reason touch is the true test of reality: I can dispel every suspicion of illusion by grasping the doubtful object and trying its reality in terms of the resistance it offers to my efforts to displace it. Differently expressed, external reality is disclosed in the same act and as one with the disclosure of my own reality—which occurs in self-action: in feeling my own reality by some sort of effort I make, I feel the reality of the world. And I make an effort in the encounter with something other than myself.

The effortlessness of sight is a privilege which, with the toil, foregoes also the reward of the lower sense. Seeing requires no perceptible activity either on the part of the object or on that of the subject. Neither invades the sphere of the other: they let each other be what they are and as they are, and thus emerge the self-contained object and the self-contained subject. The nonactivity of the seen object in relation to the seeing subject is not impaired by the fact that, physically speaking, action on its part (emission of light) is involved as a condition of its being seen. The singular properties of light⁴ permit the whole dynamic genesis to disappear in the perceptual result, so that in seeing, the percipient remains entirely free from causal involvement in the things to be perceived. Thus vision secures that standing back from the aggressiveness of the world which frees for observation and opens a horizon for elective attention. But it does so at the price of offering a becalmed abstract of reality denuded of its raw power. To quote from our own earlier account (see above p. 31): The object, staying in its bounds, faces the subject across the gap which the evanescence of the force context has created. Distance

4. The smallness of the disturbances in which light consists affords all the major advantages of sight over the other senses: the distance of reach, the detachment from the cause-effect situation, its replacement by a quiescent image, the simultaneous representation of a manifold, and the extreme minuteness and precision of point-to-point "mapping" in this representation.

of appearance yields neutral "image" which, unlike "effect," can be looked at and compared, in memory retained and recalled, in imagination varied and freely composed. Thus becomes essence separable from existence and therewith theory possible. It is but the basic freedom of vision, and the element of abstraction inherent in it, which are carried further in conceptual thought; and from visual perception, concept and idea inherit that ontological pattern of objectivity which vision has first created.

Thus in speaking of the advantage of the causal detachment of sight, it must be borne in mind that this results also in the causal muteness of its objects. Sight, more than any other sense, indeed withholds the experience of causality: causality is not a visual datum. And as long as percepts ("impressions" and "ideas") are taken as just more or less perfect instances of the model case of visual images, Hume's denial of causal information to them must stand. Vision, however, is not the primary but the most sublime case of sense perception and rests on the understructure of more elementary functions in which the commerce with the world is maintained on far more elementary terms. A king with no subjects to rule over ceases to be a king. The evidence of sight does not falsify reality when supplemented by that of the underlying strata of experience, notably of motility and touch: when arrogantly rejecting it sight becomes barren of truth. (For a more detailed discussion, compare the whole Appendix "Causality and Perception" to the First Essay.)

3. SPATIAL DISTANCE

Neither simultaneity of presentation nor dynamic neutrality would be possible without the element of distance. A manifold can be presented simultaneously only if it does not crowd my immediate proximity where each item observed would block out the rest. And causality could not be neutralized if the object invaded my private bodysphere or its closest vicinity. Now sight is the ideal distance-sense. Light travels farther than sound and smell and does not suffer distortion on its way over any distance. Indeed, sight is the only sense in which the advantage lies not in proximity but in distance: the best view is by no means the closest view; to get the proper view we take the proper distance, which may vary for different objects and different

purposes, but which is always realized as a positive and not a defective feature in the phenomenal presence of the object. By distance up to a point sight gains in distinctness of detail, and beyond that point in comprehensiveness of survey, in accuracy of proportions—generally speaking, in integration. We consciously stand back and create distance in order to look at the world, i.e., at objects as parts of the world: and also in order to be unembarrassed by the closeness of that which we wish *only* to see; to have the full liberty of our scanning attention. It is different with the other two distance senses, hearing and smell. Smell never gains, always loses by distance. And as to hearing, though within a narrow range of local vicinity it also may have optimal distance and suffer by overcloseness (e.g., with large volumes of sound sources such as an orchestra), further withdrawal will not disclose new “vistas” to it, as to sight, which would compensate it for the loss of distinctness. Its case then becomes similar to that of smell. Both may bridge distance effectively, i.e., overcome what is in itself a disadvantage, but can only lose from its increase and will always tend to gain better information by closing the range.

Besides this quantitative aspect, the most telling characteristic is the *manner* in which distance is experienced in vision. Sound or smell may report an object as merely distant, without reporting the state of the intervening space: in sight the object *faces* me *across* the intervening distance, which in all its potential “steps” is included in the perception. In viewing an object there is the situation of a “vis-à-vis,” which discloses the object as the terminal of a dimension leading from me toward it, and this dimension lies open before me. The facing across a distance thus discloses the distance itself as something I am free to traverse; it is an invitation to forward motion, putting the intervening space at my disposal. The dynamics of perspective depth connects me with the projected terminus.

This terminus itself is arbitrary in each given case, and my glance even if focused on it includes as a background the open field of other presences behind it, just as it includes, as a corona fading toward the edges, the manifold co-present in the plane. This indefinite “and so on” with which the visual perception is imbued, an ever-ready potential for realization, and especially the “and so on” in depth, is the birthplace of the idea of *infinity*, to which no other sense could supply the experiential basis. Touch conjoined with locomotion certainly

also includes awareness of the potentiality of going on to the next point, and thence to the next, and so on. But touch does not already adumbrate these imminent realizations in its perceptual content, as a marginal part into which the core continuously blends. In the visual field it is this continuous blending of the focused area into more and more distant background-planes, and its shading off toward the fringes, which make the “and so on” more than an empty potentiality: there is the co-represented readiness of the field to be penetrated, a positive pull which draws the glance on as the given content passes as it were of itself over into further contents. No such blending of actual and potential content is given in touch; there is merely the abstract possibility of replacing the present by a subsequent content, and the whole results only from the progressive addition of discrete parts. Sight includes at any given instant an *infinite* manifold at once, and its own qualitative conditions open the way into what lies beyond. The unfolding of space before the eye, under the magic of light, bears in itself the germ of infinity—as a perceptual aspect. Its conceptual framing in the idea of infinity is a step beyond perception, but one that was taken from this base. The fact that we can look into the unbounded depth of the universe has surely been of immense importance in the formation of our ideas.

To revert to the straight phenomenon of distance, it goes without saying that sight by this mere widening of the horizon of information confers a tremendous biological advantage. Knowledge at a distance is tantamount to foreknowledge. The uncommitted reach into space is gain of time for adaptive behavior: I know in good time what I have to reckon with. The apprehension of distant objects therefore means an immediate increase in freedom by the mere increase which remoteness allows in the time-margin for action; just as we found simultaneity of presentation to mean an increase in freedom by the opportunity of choice it offers in the presented manifold. It has been said before that these two aspects of the freedom of sight are closely interrelated. Their union in one performance is the crowning achievement of freedom in the sphere of sentience.

It would not be correct to say that in sight the distant is brought near. Rather it is left in its distance, and if this is great enough it can put the observed object outside the sphere of possible intercourse and of environmental relevance. In that case, perceptual distance may

turn into mental distance, and the phenomenon of disinterested beholding may emerge, this essential ingredient in what we call "objectivity," of which we have found another condition in causal neutrality.

We turn back to the beginning, the partiality of classical philosophy for one of the bodily senses. Our investigation has shown some grounds for this partiality in the virtues inherent in sight. We even found, in each of the three aspects under which we treated vision, the ground for some basic concept of philosophy. *Simultaneity of presentation* furnishes the idea of enduring present, the contrast between change and the unchanging, between time and eternity. *Dynamic neutralization* furnishes form as distinct from matter, essence as distinct from existence, and the difference of theory and practice. *Distance* furnishes the idea of infinity.

Thus the mind has gone where vision pointed.

APPENDIX

Sight and Movement

The "Nobility of Sight" has dwelt on the nondynamic quality of the visual world and the "quietive" transmutation by which this distillate of reality is obtained; and reference was made to its need for cognitive complementation from other senses and from the sphere of action. We must add that the latter, or the *motility of our body* generally, is not called in *post hoc* only but is already a factor in the very constitution of seeing and the seen world themselves, much as this genesis is forgotten in the conscious result. Lest our preoccupation with the finished product in its contemplative "nobility" be taken as a similar forgetting on our part, some remarks on the role of *movement* in the production of it are in order. They naturally involve the more general question of the share of *praxis* in the bringing about of so seemingly "theoretical" a thing as the perceived world, or more generally still, the question of our active part in the organization of our *sensa*. Our particular concern here is with the visual province; but though we do *not* regard vision as a *model* of the other senses, its extreme of aloofness challenges the thesis of a practical dependence of perception more than any other sense, and so what is found of such dependence to inhere even there should hold *a fortiori* for the less privileged rest.

Kant posed the question of the cognitive organization of our percepts as the question of the relative shares of "receptivity" and "spontaneity," of the passive and active components of our being. But by "activity" in this context he understood mental activity alone (the formal articulation of the sense material through the categories of the understanding), not

bodily action of the psychophysical person in his practical dealings with the world. It is strange how little the command of our limbs entered into the long history of the problem. To Kant, the "theoretical" subject is self-sufficient for the cognitive task of constructing from primitive data a meaningful perceptual whole called "world;" and the "practical" subject—becoming this under the spur of need or the moral will—acts in and on a world already constituted by the theoretical faculties of sense and reason. Kant only exemplifies a long-dominant trend: the idea of the theoretical subject separable from *praxis*, and more particularly of the passive or receptive nature of "mere" sense and sense knowledge, is deeply ingrained in the philosophical tradition and has decisively determined the course of epistemology. The corrective reactions to this partisanship (they started with Hegel's *Phenomenology of the Spirit* and include Pragmatism as a determined and vocal cause) are in the natural danger of being provoked into opposite partisanship. The following limited observations take "action" in its primary sense of moving, i.e., moving one's body and through it other things; and since the "passive" in this context is represented by sense-affection, they can also be said to deal with the interrelation of sentience and motility.

Since Berkeley's classical *Essay towards a New Theory of Vision* (1709) it has become almost a commonplace in the theory of perception that visual data acquire their spatial (three-dimensional) meaning only by correlation with parallel tactual data; or more generally, that our object-perception and its spatial framework are the result of a mental integration of the deliverance of these two senses: sight and touch. The account is incomplete, however, so long as "touch" in this combination is taken as just another *sense*, only qualitatively different from sight, hearing, and smell. No mere superimposition of one set of qualities over another, no correlation of them as such, could conceivably yield the new property of space-in-depth. But when we include in "touch" the fact of its being an activity involving *motion*, then we go beyond "mere sensation" (an abstraction of analysis) and add to its "receptivity" that complement of action without which it would be barren of information. Note that the motion, to have this effect, must be my performance, i.e., "intentional" or "directed" motion: only as purposive act does movement vitally contribute to the organization of the perceptual world. Self-movement indeed may be called the spatial organizer in each sense-species, and the synthesizer of the several senses toward one common objectivity.

For the case of touch, the point has been made in the *Essay*: how, in exploring an object by feeling alone (e.g., in darkness), it is the direction of my own voluntary movements of limb, with my body as reference-system, that furnishes the framework of dimensional coordinates into