PRELIMINARY REMARKS

. PHYSICS AND METAPHYSICS

§ 1. There are two standpoints, and two only, from which we can investigate the nature of things: the empirical and the transcendental.

We are restricted to the empirical standpoint so long as we regard things in the form in which they appear to us, that is, as they are reflected in human consciousness; the result is **physics** (in its broader or ancient sense). From the transcendental standpoint we try to discover what things are in themselves, that is independent of, and apart from, our consciousness, in which they are represented; the result is **metaphysics**.

§ 2. All our knowledge begins with **perception**, which is partly external, partly internal.

Out of both these is built up that sum total of our representations of things which we call **experience**. The empirical and the transcendental methods

§
both proceed from experience, but they do so in different directions.

§ 3. The empirical or physical method takes the entire material of experience as given, and by investigating and systematically arranging it, arrives at a system of physics which embraces all sciences, whether they have their source in outer or inner experience.

All that we know through outer experience is body, that is, matter in time and space. The relations of time and space are investigated by mathematics, whilst the pursuit of matter in its transformations is the object of the natural sciences, which, as morphology (mineralogy, botany, zoology), deal with the forms of matter, as ætiology (physics, chemistry, physiology) with its changes and their causes. The science of inner experience is psychology (in the empirical sense). As it has for its subject the entire phenomena of inner perception, and accordingly embraces the whole domain of knowing, feeling, and willing, we may include under it logic (with grammar), æsthetics, and ethics, whilst side by side with these, as instances of the same, we may place the history of sciences, arts, and peoples.

§ 4. The transcendental or metaphysical method proceeds from the fact that the sum total
of experience and of the empirical knowledge derived from it which forms the system of physics, is in reality neither more nor less than a series of representations in our consciousness. Accordingly its fundamental question has at all times been, what are things in themselves (av̄tā kāth av̄tā, ātman), that is, apart from the form which they assume in our mind? To ascertain this, we have first to analyse the experience filling our intellect, and decide what part of it is a priori, that is, inherent in ourselves previous to all perception whether external or internal, and therefore belonging to the innate functions of the intellect itself; and what part we appropriate a posteriori, that is, by means of internal and external perception, and consequently have to regard as partaking of the nature of things in themselves. The results obtained by this method, together with their bearing on nature, art, and the action of man, form a system of metaphysics, which, supplementing the system of physics, gives us the utmost attainable interpretations of the nature of ourselves and the world.

Remark.—The term philosophy, the meaning of which has in course of time undergone considerable change and is even to-day disputed, denotes in its most limited sense metaphysics; in a wider sense metaphysics together with the sciences of inner experience, which are closely related to it; in its widest sense the general results of all sciences from the most universal point of view.
§ 5. Synopsis of all the General Sciences.

View of Things

Dependent on the intellect:
- Physics

Independent of the intellect:
- Metaphysics
  1. Theory of the understanding.
  3. Metaphysics of art.
  4. Metaphysics of morality.

Outer experience:
- Time and space:
  - Mathematics
  - Geometry, Arithmetic
- Material world:
  - Natural Sciences

Inner experience:
- Psychology
  - Logic (History of the Sciences)
  - Æsthetics (History of the Arts)
  - Ethics (History of Peoples)

Morphology
- Inorganic:
  - Mineralogy
  - Geology
- Organic:
  - Botany, Zoology
  - Anatomy

Ætiology
- Changes
  - Non-essential:
    - Physics
    - Astronomy
  - Essential:
    - Chemistry
    - Organic:
      - Physiology
        - of plants
        - of animals
§ 6. Historical.—Religion and Philosophy are the two forms in which from time immemorial metaphysics has manifested itself, bringing to light, especially in the Indian, Greek, and Christian world, an abundance of imperishable truths. Until, however, a century ago, there was no clear understanding of the difference between physical and metaphysical knowledge, and as metaphysics attempted to vindicate its truths from the empirical standpoint natural to man, these necessarily assumed a more or less allegorical form and fell into seeming contradiction with each other and with the physical sciences.

At last came Kant (1724-1804) and by his "Critique of Pure Reason" laid the foundations of thoroughly scientific metaphysics. On this basis Schopenhauer (1788-1860) has reared a metaphysical structure without equal, which, though it may in course of time be modified in details through the never-ending progress of the empirical sciences, will yet, as a whole, at no future time become antiquated, but must remain an inalienable possession of mankind.

If, guided by this doctrine, we seek to penetrate into the inner meaning of the various systems, religious and philosophical, we shall come to the
conviction that the essential differences between natural science, philosophy, and religion originate after all in a misunderstanding which can be removed, and which will give way to a mutual recognition of their right of existence.
A. THE EMPIRICAL STANDPOINT

SYSTEM OF PHYSICS

I. On Space

§ 7. Proposition. — Space is infinite in every direction.

Demonstration. — If it were not so, it would have a limit. This would be either a body or a void, therefore again in both cases space. (Compare the instance of the javelin in *Lucretius, de natura rerum*, i. 968-983.)

§ 8. Corollary. — Whatever exists, exists necessarily in space; otherwise it would be nowhere and consequently not at all.

II. On Time

§ 9. Proposition. — Time is infinite in both directions.

Demonstration. — If it were not so, it would have a beginning or an end. Both would be points
of time ("now"), would have as such a before and an after, and would consequently be within time and not outside of it.

§ 10. Corollary.—Whatever happens, happens necessarily in time; otherwise it would happen at no time, and consequently not at all.

III. On Matter

§ 11. Proposition.—In space and time exists nothing but matter alone.

Demonstration.—(1) That which operates in space and time we call matter. To exist is to operate in space and time. Consequently all that exists is material. (2) We call possible that which can be represented by us as existing. Only material objects can be represented by us as existing. Consequently there can be nothing but material objects.

§ 12. Proposition.—Matter is uncreatable and indestructible.

This is proved not so much from the experiments of scientists, for, even if it were possible to pursue matter, scale in hand, in its transformations, such experiments would only demonstrate that until now we have not succeeded either in augmenting or diminishing the quantity of matter. The proof of
our assertion lies rather, apart from all perception (a priori), in the fact that it is impossible to imagine the creation or the annihilation of matter. And that which is not possible, cannot, in fact, really be at all.

§ 13. The quantity of matter in the world is either unlimited and consequently infinitely great, corresponding to infinite space, or limited, and then, compared with infinite space, infinitely small.

IV. On Causality

§ 14. Substance persists, but it perpetually changes its qualities, forms, and conditions (πάντα ρεῖ). All these changes, without exception, are governed by the following law.

§ 15. The law of Causality.—Every change in matter is called effect and takes place only after another change, called cause, has preceded it, from which the effect regularly and inevitably, that is necessarily, follows.

§ 16. Inasmuch as an effect is only possible through some foregoing change (called cause) happening under a particular condition of things, which condition itself is but a result of changes, we include, in a wider sense, this condition, together with
the intervening change under the head of cause, and distinguish in it the different causal constituents or conditions. The sequence of these may in many cases vary.

§ 17. The same cause has always the same effect, while on the contrary the same effect may arise from different causes. Hence follows, that arguing from effect to cause is problematical, while arguing from cause to effect is certain. The former is the way of hypothesis, the latter that of experiment.

§ 18. Immediate corollaries of the law of causality are: (1) the law of inertia, for, where there is no cause, there can be no effect; (2) the law of the persistence of substance, for the law of causality applies only to conditions of matter but not to the substratum of all conditions, forms, and qualities.

§ 19. As space (§ 7) and time (§ 9) are without limits, so also the net of causality is necessarily without beginning or end.

Demonstration.—(a) If it were not without beginning, we should have to assume a first state of things. In order that this state might develop, a change would have to occur in it or to it, which change would itself again be the effect of a foregoing change, etc.
Remark.—This is the rock on which splits the cosmological argument, which confounds the metaphysical principle of salvation (God) with the physical principle of creation.

(b) The chain of causality is without end, inasmuch as no change can take place at any time without proceeding as an effect from its sufficient cause.

§ 20. There are three forms of causation, one general and two specific, since an effect may proceed from a cause in its narrower sense, from irritation or from motive.

1. All changes except the organic proceed from causes in the narrower sense. Increase of the cause here always produces increase of the effect. The causal agent undergoes a change equal to that which it communicates to the effect (equality of action and reaction).

2. Irritation (or stimulus) is the form of causation governing the changes in vegetable life (plants and the vegetable part of animal life). In order to operate, this form requires contact and duration, frequently intussusception. By augmentation of the cause here the effect often turns into its contrary (over-irritation).

3. Motives (determinants) produce all changes in the life of animals and men, so far as these changes belong to the domain of the animal functions, that is, all voluntary movements. The
cause in this form requires neither immediate contact nor a more than momentary duration. As the intellect of the brute is limited to perceptual representations, its action is throughout confined to perceptible and immediately present motives. The action of man, on the other hand, can proceed from abstract representations, acting as motives, in consequence of which his deeds are often enigmatical and inscrutable, but never free from that necessity with which the law of causality sways all that is finite (empirical determinism).

V. On Natural Forces

§ 21. The laws of space and time, the ascertainment of which belongs to the province of mathematics, and the law of causality are, as we shall show later, laws of nature a priori. On the other hand, there are natural laws gained from perception by induction and so a posteriori, which are nothing more than an expression reduced to rule for the invariable manifestation of the forces of nature.

§ 22. All that we learn and know by the study of nature are phenomena (that is states and changes of matter) in space and time, linked together by the chain of causality. All natural
phenomena are divided into groups, each of which is formed by a series of phenomena bearing a common character, and therefore declaring themselves as varied manifestations of an inner unity.

This inner unity is termed force, natural force, an expression borrowed from the observation of our inner self (instances: Gravity, Impenetrability, Electricity, Crystallisation, and all Species of plants and animals). Every state in nature is a tension of conflicting forces, every change is a temporary subjugation of certain forces by others, which, by the aid of causality, have become the stronger (πόλεμος πάντων—instances: a building, a chemical union, the human body in the states of health, disease and death).

§ 23. To nature as a whole belong all manifestations of natural forces, but not the forces themselves. Empirically speaking they do not exist at all, and while the scientist cannot get rid of them, and yet will never be able to explain anything but their manifestations, he indicates the necessity of a method which supplements his own and belongs to the province of metaphysics.

§ 24. Thus every event, whether cause or effect, is the manifestation of a force, and the law
of causality merely declares that no manifestation of force can take place without another manifestation of force preceding it as cause.

It is therefore inaccurate and reprehensible to speak of a force itself as the cause of a particular effect (as for instance in speaking of gravity as the cause of falling).

§ 25. The object of the empirical sciences is therefore threefold:

1. The determining and describing of phenomena.
2. The ascertaining of their particular causes.
3. The determining of the forces manifested in them.

This is the task not only of the scientist but also of the historian, in so far as he has (1) to investigate and relate facts; (2) to find out the motive of each action; and (3) to portray the human characters which by motives are manifested in these actions.

VI. Materialism as the Consequence of the Empirical View of Things

§ 26. Since from the empirical standpoint nothing exists but matter in its various states (§§ 11. 14), all that exists must be conceived as modification of matter. To this the human intellect is no exception, the more so, as the study of it is in-
separable from that of the brute intellect. Now the intellect of the brute is an organ rendered extremely sensitive by the accumulation of nervous matter, which in consequence of the external irritation of its offshoots, the senses, produces a reaction, from which, as we shall see later, the perception of the outer world arises. The function of this organ is called Understanding. Now the human intellect is nothing more than an augmentation of that of the brute to such a degree of intellectual clearness, that we are able to decompose our perceptions into their elements, and to retain these in a changed order, whence arises, as we shall show hereafter, the apparatus of the Reason with its concepts and judgments.

§ 27. It is the object of anatomy and physiology not so much to demonstrate the materiality of all intellectual processes (which is a truth a priori) as to establish it in single cases. If these sciences, owing to the inaccessibility of the thinking organ, have hitherto only partially succeeded in doing this, they nevertheless have at command a series of facts which place beyond question the absolute dependence of thinking on the brain. Such facts are the symptoms observable in childhood and old age, in abnormal development or malformation of the brain (mikrocephali, cretins), in cerebral affections through external injuries or
internal morbid influences, causing insanity. In this last case the brain may occasionally have periods of release (*lucida intervalla*), and it may even happen that, in consequence of general exhaustion at the approach of death, the morbid tendencies disappear and the brain resumes for a short time its normal functions (Don Quijote).

§ 28. The philosophical spiritualism or doctrine of the dualism of man (established by Descartes, modified, transformed, combated by his successors and finally refuted by Kant, though even now prevalent as a popular opinion), according to which there are two substances, an extended and a thinking, blended in man as soul and body and separated by death, is a fundamental error, equally unsupported by experience, comprehensibility, and proof, and bars the way to any genuine philosophical view.

Remark.—Kant’s refutations are based chiefly on the fact that existence is only the general form of objects, under which, therefore, we cannot comprehend that which in all our representations is the subject only, without ever becoming the object.

**VII. Comfortlessness of the Empirical View of Nature**

§ 29. So surely as materialism scorns all that is highest and deepest in philosophy and religion,
so surely as its results in the sphere of art are flat and vulgar, in that of morality hopeless, desolate, and perverting, so sure is it that, from the empirical standpoint, it is the only true and consistent view of things, and so the "ideal" at which the empirical sciences aim, and to which in time they will more and more attain. It is therefore lost labour to endeavour to refute materialism. But we may well ask if it is not possible to supplement it by a higher view of things, which removes it without, however, contradicting it.

§ 30. Heavy lies on our heart the burden of a world in which for God, freedom, and immortality there is no place. Thanks therefore, in all future time, to those men who succeeded in unhinging this whole empirical world, after having found the δός μοι ποῦ στῶ in our own intellect.

However strictly the empirical sciences deal with matters of fact, they yet, according to their nature, overlook one fact which of all facts is the first and the most certain. Of this we have now to treat.
B. THE TRANSCENDENTAL STANDPOINT

SYSTEM OF METAPHYSICS

The System of Metaphysics

PART I

THE THEORY OF UNDERSTANDING

I. Preliminary Survey

§ 31. The theory of understanding is properly a part of psychology, and as such deals with the origin, essence, and connection of all our representations. These fall into two classes, as being partly primary, partly derivative. The first are called (by denominatio a potiori) "anschauliche," that is, perceptual, the latter abstract representations.

§ 32. The faculty of perceptual representations is Understanding (voüs, mens, Verstand, entendement); the science of which might be called noetica. It has to show how the mind, by means of its innate
functions, after external irritation acting on its offshoots, the senses, (1) produces perceptual representations, and (2) establishes the connection between them.

§ 33. The faculty of abstract representations is Reason (λόγος, ratio, Vernunft, raison). The science which teaches how reason manufactures the materials supplied to it by perception into concepts, and then combines these as judgments and conclusions, is logic. The operating with concepts is called thinking. The external vibrations of the air by which we communicate our thoughts to each other, are the words of language, heard also by the brute, but comprehended only by man (hence the German word Vernunft, from vernehmen, to comprehend).

§ 34. The faculty of Understanding is common to us with the brutes. No animal is without Understanding, although those (lowest in the scale) in which the nervous matter is not yet centralised into a brain, have only a very faint trace of it. Starting from these, the Understanding increases gradually with the development of the brain, till it reaches its perfection in man. At this its highest point, the functions of the Understanding attain a degree of penetration which not only suffices, as in the case of the brutes, to produce the perception of the outside.
world, but is at the same time capable of pursuing the spatial, temporal, and causal connection of the latter to its farthest ramifications.

The only faculty which distinguishes man from the brute, is Reason. Simple as are its functions, they are yet sufficient to explain all the grandeur and beauty which distinguishes human life from that of the lower animals.

§ 35. The same organ which, viewed from within or psychologically, appears as Understanding, manifests itself, when considered from without or physiologically, as brain (represented in the lowest animals by knots or rings of nerves). This stretches out, as it were, its feelers, terminating in the organs of sense, towards external objects.

Reason, on the other hand, as it seems, is not a separate physiological organ. We regard it rather (for reasons to be given later) merely as a particular application, peculiar to man, of that uniform faculty of reaction which we call Understanding or brain.

§ 36. Reason, as will be shown later, receives its entire content from perception, and its activity is restricted to giving to the materials supplied as perceptual knowledge such a form as shall make them easier of survey and so more convenient to handle. In reality, therefore, reason teaches us nothing new, and it is a condition of all true pro-
gress, whether in physics or metaphysics, that, before all, we go back from abstract representations to the perceptual world underlying them. And so metaphysics might indeed relegate the study of reason and its abstract contents to logic, and abstain from all inquiry in this sphere, had not the insufficient knowledge of this very faculty and its bearing been the source, both in times ancient and modern, of the most grievous errors in the province of metaphysics. To guard against these, we shall, by way of appendix, take into consideration reason and its abstract representations. At present, however, let us set aside this secondary faculty of knowledge and turn to the world of perceptual representations, which alone are original and embrace all that is real. In this sphere lies the difficult problem the solution of which will remain the starting-point and the basis of all scientific metaphysics.

II. The Problem of Perceptual Knowledge

§ 37. How is it possible to perceive by the senses objects of the external world?

The empirical explanation, according to which objects, either directly or indirectly, by means of rays of light, waves of sound, etc., affect the nerves and through them the brain, would perhaps suffice, if the fact to be explained were my having, whilst perceiving, certain specific sensations within my
organism. But in normal perception this is generally not the case. It is not subjective impressions which enter into my consciousness, for I perceive directly and without being aware of a medium, the objects and incidents lying outside of me themselves. In seeing, for instance, I do not perceive the inverted likeness of the object on the retina, but I see the thing itself and yet outside of me. It is not rays of light, not subjective reflections which enter into my consciousness, but the objects themselves directly, which yet are distant from me. This is the fact, and it involves a contradiction.—

No empirical explanation can remove it.

III. The World is my Representation

§ 38. If, to escape from this perplexity, I ask what part of all my knowledge is in reality absolutely and incontestably certain, it is best to begin, as did Descartes, by doubting everything. If now I not only doubt all theory and tradition, but even raise the question, if this world which visibly and palpably surrounds me, really exists, if it is not perhaps a mere dream of my imagination, an illusive phantom of my senses,—there is one truth which I cannot doubt; it is: The world is my representation.

Descartes went too far when he by his famous "Cogito, ergo sum" restricted (as it seems) that which is
indubitably certain to abstract representations. For, that the world, whatever it be in itself, is given me as a series of perceptual representations, is a primary fact of which I can never get rid, and which therefore also I cannot seriously doubt.

§ 39. To this fact alone however is restricted all indubitable certitude, and our ripeness for the philosophical view of things depends upon our being able to arrive by self-reflection at a real and sincere understanding of the great truth: this whole material world, extended in time and space, is, as such, known to me only through my intellect. Now my intellect, according to its nature, can never furnish me with anything but representations. Consequently this whole world and with it my own body, in so far as I regard it through my intellect, that is, as corporeal in time and space, is nothing more than my representation.

§ 40. Though this truth is irrefutable, we yet feel a strong repugnance to it. This repugnance will increase when we consider that even the most painful injuries to our own bodies are, for our intellect, nothing more than representations, just as much as are the pains and injuries with which we see others tormented. If our relation towards external objects were that of pure bodiless intelligences, the
above truth would not offend us in the least. The whole world would pass before us as a series of empty, meaningless phantoms, resembling the apparitions of a dream in which we are spectators only, not actors. But here the case is different. For our relation to the world is twofold, on the one hand mediate, so far as we perceive the world through the medium of our intellect, on the other hand immediate, so far as we are ourselves, in virtue of our corporal existence, a part of it. What we and the things of this world are in the latter sense, will be taken into consideration later on. At present this question does not concern us, as we have now to analyse the world as material in space and time; for in this form the world is known to us only through our intellect and is consequently only our representation.

IV. Whether Things in themselves are the same as I represent them?

§ 41. The world is my representation. As such it is, in the first place, only the form in which things appear to me. Now the question is, whether things in themselves are the same as I represent them, namely, material in space and time, or if they exist in this form merely for my intellect, which perhaps, by its nature, is not able to reveal the real and true essence of things?
The former is maintained by materialism, the latter is preached to us by certain mysterious voices of the past. Indian sages teach that the root, out of which springs the varied world, is ignorance (avidyā), nay, they conceive this whole world as an illusive phantom (māyā). Greek philosophers (Parmenides, Plato, etc.) accuse the senses of deceiving us, whilst Christianity teaches that from the moral depravity of mankind comes a darkening of the intellect (ἐσκοτισμένοι τῇ διανοϊκῇ ὦντες, Eph. iv. 18; one should read in particular 1 Cor. ii.). In all these fanciful sayings is expressed the conviction that things in themselves are other than they appear to us.

An analysis of our intellectual faculties can alone give us the means of deciding this question.

V. Elements of Representation a priori and a posteriori

§ 42. Every representation contains as such two supplementary halves, a representing subject and a represented object. These two make with the representation not three (as a sneering epigram of Schiller has it) but one. No representation is without a subject, none without an object. Now nothing exists for me but representations (§ 39), therefore also no subject without
an object, no object without a subject—a truth which Plato (Theaetet. p. 160 AB) has already expressed in his way.

§ 43. All objects of my subject are such either immediately or mediately. As immediate objects I can never have anything else but affections of my ego, that is, sensations within me (represented physiologically as certain specific irritations of the sensory nerves extended in the organs of sense). All other objects, the whole external world and even my own body, as far as I regard it from without, are known to me only as mediate objects: it is only through the medium of those nerve-irritations that I come in contact with them.

§ 44. Thus all data by which I attain to a knowledge of the external world, are restricted to these affections of the nerves which are given as immediate objects. They are the only thing which comes to my intellect from without, that is independent of itself. Consequently all else, all that distinguishes wide-spread nature with its immeasurable riches from those scanty affections of the nerves, must come from within, that is, must originate in my intellect itself.

§ 45. If we compare the perceptual world which is our representation; to a textile fabric in which
subjective and objective threads intersect as warp and woof, then all that is objective, independent of myself, given a posteriori, is limited to those affections of the nerves and may be compared to the thin, isolated threads of the shuttle. The warp, on the contrary, which is previously, that is a priori, stretched out to receive little by little these interweaving threads and work them into a fabric, is the natural, innate forms of the subject, the totality of which forms just that which we call Understanding or brain.

VI. Clues to the Discrimination of the a priori Elements in Representations

§ 46. The task of metaphysics consists in finding out what things are in themselves, that is, independent of our intellect (§ 4). We must, therefore, first of all, deduct from things that which our intellect contributes to them, namely those forms which inhere in it originally, that is a priori, and in which it ranges all materials furnished from without so as to weave them into experience. The following six criteria may serve to distinguish these a priori elements of knowledge or innate functions of the Understanding from those which come to it a posteriori or through perception. They are to us what reagents are to the chemist.
They may also be regarded as six magnets, by means of which we extract the iron of our *a priori* knowledge from the mixed ore of experience.

1. Whatever is necessary to transform perception, given as affection, into perceptual representation, and consequently precedes all experience as a condition of its possibility, cannot originate in experience but only within ourselves (*argumentum ex antecessione*).

2. Whatever comes to the intellect from without, has the character of contingency, it might be otherwise, or it might even not be at all; that is, I can imagine it as non-existent. Now, in my representations there are certain elements which cannot be thought away like everything else, from which it follows that they do not belong to that which exists independently of myself, but must adhere to the intellect itself (*argumentum ex adhaesione*).

3. For the same reason all data given from without merely suffice to state what is there, but not that something is necessarily so and not otherwise. Perception has no tongue for the word necessity, consequently all determinations of things, with which is associated the consciousness of necessity, must originate, not in perception, but within myself (*argumentum e necessitate*).

4. From this it follows that sciences the
doctrines of which have apodictic certainty, cannot have obtained it from perception, and that consequently that part of the perceptual world to which they refer must belong to the elements originally inherent in my intellect (argumentum e mathematicis).

5. Perception can only furnish me with sensations. These are, as such, isolated and fragmentary, for, difficult as it is to grasp at first, the materials of sensation given from without contain only the sensations themselves, but not any connection between them, for such a connection is merely the link between the different sensations and therefore not itself sensation. Consequently that faculty which makes of the variety of perception a unity and so creates coherence between my representations, must belong to me a priori. Therefore whatever serves to establish the continuity of nature, belongs to the innate functions of my intellect (argumentum e continuitate).

6. Perception can never embrace infinity. If, now, I find in my representations of things elements of which I am conscious as being infinite, it follows with certainty, that I have not taken them from perception, but must possess them as forms of my intellect, wherefore, however far I proceed in representing, I can never get beyond them, in which precisely consists their infinity (argumentum ex infinitate).
VII. The a priori Elements are: Time, Space, and Causality

§ 47. Three constituent elements of the surrounding perceptual world, neither more nor less, are proved by these six touchstones to be forms belonging originally to our intellect, in which we range the material of perception, to transform it into representations. These, therefore, must be withdrawn from nature in order to retain as remainder things in themselves. They are:

1. Space,
2. Time,
3. Causality.

That it is these three which distinguish the surrounding phenomenal world from that of being-in-itself (an-sich-Seicnd), is the fundamental truth of all metaphysics, therefore it appears again and again, pronounced at least indirectly and as inference, in all the various stages of metaphysical development, as the following instances will show.

In the Vedánta, the most profound metaphysical system of India, the thing-in-itself appears as the Brahman, of which it is said, that it is not split by time and space (deça-kåla-anavacchīna) and that it is free from all change (sarva-vikriyā-rahita). (Caṅkara ad Brīhad-āranyaka-upanishad, i. 3,1 p. 79n.)
—ad Brahma-sūtrāni, i. 1, p. 64.17. Now where there is no change, there is also no causality.

The exemption from causality of things-in-themselves is also the fundamental dogma of Plato's philosophy. Again and again he recurs to the distinction between the phenomenal world, ruled by causality, which he calls "the Becoming and Perishing, but never really Being" (γινομένον καὶ ἀπολλύμενον, ὅτως δὲ οὐδέποτε ὄν, Tim. 28 A), and Being-in-itself, to which he denies, in the strongest terms, all change (μονοειδὲς δὲ αὐτὸ καθ' αὐτὸ, ὡσαύτως κατὰ ταύτα ἕχει καὶ οὐδέποτε οὐδαμὴ οὐδαμῶς ἀλλοιωσὶν οὐδεμιὰν ἐνδέχεται, Phaedon, 78 D). Like causality, he also restricts to the phenomenal world, and expressly excludes from Being-in-itself, Space (πρὸς δὲ δὴ καὶ ὅνειροπολούμεν βλέποντες καὶ φαμεν ἀναγκαίον, εἶναι ποῦ τὸ δὲ ἄπαν ἐν τινὶ τόπῳ καὶ κατέχον χώραν τινά, Tim. 52 B) and Time (ταῦτα δὲ πάντα μέρη χρόνου, καὶ τὸ τ' ὅν τὸ τ' ἔσται χρόνον γεγονότα εἰδη, δὲ δὴ φέροντες λαμβάνομεν ἐπὶ τὴν ἀείδιον οὕσιαν οὐκ ὅρθως, Tim. 37 E).

Biblical metaphysics conceives Being-in-itself as a personality, but retracts the limitation implied in this idea, when it maintains as attributes of God (1) eternity, that is, timelessness (מֵּאָולָם 'ad-ʾolām attâh ēl, Psalm xc. 2); (2) omnipresence, that is, spacelessness (et-hashkhamajim v-et-hāarez 'nī mâlē' neʾum-jʾhōvāh, Jerem. xxiii. 24); (3) immutability, that is, exemption from causality (hēm-
māh [heaven and earth] jōbēdū vēattāh taʻamod, Psalm cii. 27).

As dreaming is opposed to waking, so these witnesses of the past are opposed to the arguments for the a-priority of Time, Space, and Causality, which Kant first established, and Schopenhauer has freed from false additions and completed. For both is reserved, as reward, the veneration of many future ages.

If, however, we try in the following to establish these proofs, in part more completely and systematically, in part more comprehensibly than has been done by these immortal teachers, we commit no act of impiety: for here as everywhere we have the right to look at things with our own eyes.

**VIII. Space is an a priori form of Perception**

§ 48. Space is that constituent element of the perceptual world by means of which all objects are determined in position towards each other. It is, as such, not something independent of myself, but an a priori form of perceiving.

**First Proof: ex antecessione**

§ 49. I have the representation of space. This representation must come either from experience or from myself. Now it cannot be drawn from ex-
perience, because every experience presupposes it, for what makes experience is my referring certain sensations to something outside of me and their diversity to different places outside of each other. This presupposes, in every experience, the representation of space. Consequently it must spring not from experience, but from my intellect itself.

Second Proof: *ex adhaesione*

§ 50. In my representation of the outer world I can think away everything except space. I cannot imagine that there is no space, whilst I can easily imagine that there are no objects in space. I can, for instance, think away everything in the universe but not the space which fills it, for to think away space is absolutely impossible. Hence follows that space belongs not to the represented objects, but to my representing faculty; *for from this and this alone I can make no abstraction when I am representing.*

Third Proof: *e necessitate*

§ 51. All particular determinations of space are necessary and whatever contradicts them is impossible. It is necessary, in order to reach a thing, to traverse all parts of space which separate me from it; it is impossible to be nowhere or in two places at the same time, etc. *Every one feels that the*
certainty of this and similar determinations is of quite a different kind from that which comes to us through often-repeated experience. For experience can only tell me that until now something has never been otherwise than so and so; but not that something is necessarily so and not otherwise. Hence space, the determinations of which are throughout necessary, cannot originate in experience, but must come from myself.

Fourth Proof: \textit{e mathematicis}

\S\ 52. \textit{Geometry} pronounces all its propositions apodictically, that is, with the consciousness of necessity. This is the reason why this science knows properly neither controversies nor hypotheses, with which the empirical sciences teem in all departments. Hence follows with certainty, that the dogmas of geometry cannot be gathered from perception, that consequently the subject of this science is not empirical. Now the subject of geometry is space, and it is only in order to investigate the laws of space that geometry imagines its points, lines, surfaces, and bodies. For in these the nature of space is manifested in the same way, as the nature of characters which the dramatist wishes to depict, is revealed in the actions which he invents for the purpose. Space therefore is an \textit{a priori} representation.
Fifth Proof: e continuitate

§ 53. Every external perception (whether of a body or of its image on the retina of the eye) consists of an infinite multitude of parts which, as mere affections of my ego, have no relation whatever to each other but only a relation to me. That, therefore, which links these into a connected perception, must lie not without, but within me. Now the tie which connects the infinite multitude of external affections (whether given by one sense or by several) into the unity of external perception, is space. Consequently space must lie within, not without me.

Sixth Proof: ex infinitate

§ 54. Space is (as shown, § 7) infinite. I know with the utmost certainty, that beyond all solar systems, in regions where no telescope can penetrate, no experience reach, space still continues. From experience I cannot know this. It follows, therefore, that I know it a priori.

IX. Time is an a priori form of Perception

§ 55. Time is that constituent element of the perceptual world by means of which all conditions and changes, whether belonging to outer or inner experience, are determined in their sequence to each
other. As such, it does not exist independently of me but is a representation *a priori*.

"First Proof: *ex antecessione*

§ 56. The representation of time cannot be obtained from experience, because every experience, in order to be made, presupposes time. For to make an experience, it is necessary to have certain sensations either simultaneously or successively. Now this simultaneity, this succession, does not belong to the sensations as such; consequently it belongs to me and is just that which constitutes the nature of time.

Second Proof: *ex adhaesione*

§ 57. Let us suppose the world were to stand still, all motion being checked, all change suspended. There would indeed, in consequence of the stoppage of all clocks, as well as that of the great world clock (the earth revolving round the sun), be no means of measuring time. But time itself would continue its course undisturbed, and one moment follow ceaselessly on another as before. If in this way I were to extinguish all inner and outer perception (which is nothing but a kind of change), there would still remain to me the representation of (absolutely empty) time, and this would be extinguished only
with my intellect itself; from which follows with certainty, that time does not belong to the things existing independently of me, but to my own intellectual faculties, to which it adheres as their indispensable form.

Third Proof: *e necessitate*

§ 58. All particular determinations of time are necessary, and whatever contradicts them is impossible. It is necessary, for instance, in order to reach any period of the future, to live through exactly the amount of time which separates it from the present, neither more nor less. It is impossible to recall any single moment of the past; the certainty of this and similar determinations can never be attained through experience, however universal and invariable it may be. One may doubt, for example, whether Plato's birth took place according to Apollodorus in B.C. 427, or according to Athenæus in B.C. 429; but if any one were to maintain that both authors were right, and that Plato was born twice successively, we should not be likely to observe that such a case had never occurred and was therefore extremely improbable, but we should simply declare such a person deranged, an expression signifying that something in the mechanism of his head must have become displaced, which would, in the present case, be the cerebral function of time.
Fourth Proof: \textit{e mathematicis}

§ 59. The axioms of arithmetic (the generalised form of which is algebra) have, like those of geometry, apodictic certainty. The subject of this science cannot therefore spring from experience. Now as geometry is the science of space, so is arithmetic the science of time, as will be clear from the following. All arithmetic, with its most complicated formulæ and operations, may be regarded as a methodically abridged counting (hence the name \textit{ἀριθμητική}, that is, art of counting). In counting, I abstract from everything except from time. For counting consists in the repeated marking of unity, for which I employ each time a different conventional term (one, two, three, etc.), merely to know how often I have marked unity. Now all repetition depends on succession, and in succession alone consists the nature of time. So all counting, and consequently arithmetic is the science of time; and from the apodicticity of arithmetical propositions follows the a-priority of time.

Fifth Proof: \textit{e continuitate}

§ 60. Every perception is only possible through my being affected either outwardly or inwardly for a certain period of time. This period, however short it may be, consists of an infinite number of parts
which are filled by an infinite multitude of corresponding affections in the subject (whether the object affecting me is at rest or in motion). All these affections of my ego have, as such, no relation to each other, but only a relation to me. The thread, therefore, on which they are strung together to the unity of perception, is not in the affections themselves, that is outside of me, but only within me. This thread, on which I string all affections coming to me from without as from within, is time. It must consequently be given a priori as a condition of the synthesis of perceptions.

Sixth Proof: ex infinitate

§ 61. Time is (according to § 9) infinite in both directions. I know with certainty that in the most hoary past, to which no knowledge reaches, in the most distant future, which no prophet's eye can pierce, time was and will be. From experience I cannot know it; it follows therefore, without contradiction, that I know it independently of experience, that is, a priori.

X. Causality is an a priori form of Perception

§ 62. As space is the order of things according to their position, time the order of things according to their sequence, so causality is the order of
things according to their action. Now as every single place and every single period of time is empirically determined, while, on the other hand, space and time themselves, as the general possibility of the empirical occupation of time and space, are a priori representations, so also is each single effect empirically determined, but causality, as the general possibility of action, precedes them a priori. It is the net which binds together, in the way laid down by the law of causality (§ 15), all effects, that is, all force manifestations (§ 24), and connects them, in various ways, as effects of preceding and causes of succeeding force manifestations.

As such, causality is in no way an abstract concept, but, like space and time, a constituent element of the totality of empirical reality; though we are not able to isolate it (for the purpose of considering it separately) so completely from effects, as we may isolate space from bodies and time from events. That causality, however, is an integral part of the perceptual world, becomes clear if we represent it as filling space and persisting in time, for then it appears as that which remains after all manifestations of force have been separated from things, and which, in contrast to force, is called matter or substance. This, however, can only be explained later on (Chap. XVI.). Here we have merely to prove that causality, like time and space, is an a priori faculty of our understanding.
First Proof: \textit{ex antecessione}

§ 63. The relation in the perceptual world of every effect to its preceding cause, which we call causality (that is, the being-caused), cannot be learned from experience but must belong \textit{a priori} to our understanding as an innate faculty, compelling us to regard each manifestation of force as an effect and to refer it immediately and unreflectingly to its cause. This surprising and important truth of the \textit{a priori} priority of causality follows with perfect certainty from the fact that every experience, in order to be made, presupposes an application of causality. All namely, that can come to me from without, is (as has been shown in § 44) affections of my sensory nerves, and I should never get beyond these, never attain to a perception of the outside world, if I did not bear within me \textit{a priori} the means of conceiving these affections as effects and of passing from them to something else, namely to their causes, which I project as bodies in space (likewise given \textit{a priori}). This impossibility of explaining, without the aid of causality, the genesis of the perception of the external world, shows clearly and incontestably that causality itself can not be gathered from the impressions of the external world, but must belong \textit{a priori} to the intellect.
Corollary.—It is exactly the same, as will become clear hereafter, whether I say: no sensation can be conceived as body without the help of causality; or, no force can affect me except through the medium of matter.

Second Proof: *ex adhaesione*

§ 64. Causality in itself is not representable (§ 62); it becomes so, when, after its union with space and time, it is called matter. Now, since the proof *ex adhaesione* is based on the inextinguishable nature of certain elements of knowledge (§ 46ₙₙ), it is applicable only to objectively perceived causality, that is, to matter. It can only, therefore, like everything in the present chapter which presupposes the identity of causality and matter, be fully understood after studying the theory of matter (Chap. XVI.). Matter has the peculiarity of being at the same time contingent and necessary. I can certainly think away matter (which with space and time is impossible), but I cannot imagine existing matter as non-existent. On this depends its uncreatibility and indestructibility which (as already remarked in § 12) is a truth *a priori*, previous to all experience. The impossibility, namely, of imagining either the creation or annihilation of matter proves that I cannot sever my intellectual faculties from its existence, from which follows, that it has not, like the
forces borne by it, an existence independent of my intellect, but inheres in the latter as an original form of perception.

Third Proof: \textit{a necessitate}

§ 65. All determinations of causality (enumerated §§ 14-20) have the character of necessity; whatever contradicts these determinations is impossible. We may often, for instance, doubt, to what cause a particular effect is to be referred, but, that it must have some cause, we are all firmly convinced. As little, therefore, as a judge would believe an accused, who, called upon to prove an alibi, should maintain that, at the moment in question, he had been nowhere, just as little would he, when a crime has been committed, allow the possibility of this effect being without a cause. If the law of causality were an \textit{a posteriori} law of nature (§ 21), our experience, however general, could not guarantee that it might not occasionally admit of an exception.

That experience carries with it no necessity was a truth of which \textit{David Hume} was as much convinced as \textit{Kant}. But compare the conclusions which the two drew from the same premisses.

\textit{Hume} argued:—

\begin{itemize}
  \item Experience has no necessity.
  \item The law of causality springs from experience.
  \item Therefore it has no necessity.
\end{itemize}
Kant argued:—

Experience has no necessity.

The law of causality has necessity.

Therefore it does not spring from experience.

**Fourth Proof: e mathematicis**

§ 66. Besides geometry and arithmetic, there is still a third science the propositions of which have apodictic certainty. It forms that element of the natural sciences which remains, when we eliminate all *a posteriori* laws of nature, these being merely the expression for the invariable operating of the forces of nature (§ 21), and which Kant, in his “Metaphysische Anfangsgründe der Naturwissenschaft,” subjected to a separate inquiry. If we take away from our knowledge whatever has been gained empirically by induction, there remains no real action, but only the general possibility of action (that is, causality), which, viewed as filling space and persisting in time, constitutes matter (as will be proved further on). The science of matter at rest and in motion has apodictic certainty; consequently its subject is given to us not empirically, but *a priori*.

**Fifth Proof: e continuitate**

§ 67. If the affections, to which all perception is restricted, are not even capable of giving me any
coherence in time and space, still less are they capable of communicating the connection often so remote between cause and effect. If therefore this connection cannot be drawn from perception, it follows, that it is furnished by my mind, which, in the same way as it projects bodies in space and events in time, arranges all perceived force manifestations as causes and effects in its a priori form of causality. This, of course, does not exclude the fact that, in making this arrangement, it is guided in all particulars by former experience.

Sixth Proof: ex infinitate

§ 68. The net of causality is (as shown, § 19) without beginning or end, that is, it is infinite in time. Whether it is also infinite in space, we do not know, because we are ignorant as to whether the store of matter, to which all effects and consequently all applications of causality are confined (§ 13), is limited or unlimited. So much, however, we know positively, that in the most distant star, in the earliest past as in the latest future, there can never be an effect without a cause. No experience reaches to these times and regions; it follows, therefore, that we know it independently of experience, that is, a priori.

Corollary.—From this proof also (as from § 64)
may be deduced the axiom, that matter, which is causality objectively perceived, can never be created and never annihilated.

XI. The Empirical and the Transcendental Standpoint.

§ 69. Recapitulation.—The result of our inquiries so far may be summed up as follows:—

1. The world is a purely material structure, which, interwoven by causality, exists in infinite space, through infinite time (§§ 7-30).

2. This same material world is through and through merely a representation of my intellect, and its materiality is only the form in which things appear to me (§§ 38-40).

3. In itself, that is, independently of my intellect, there exists nothing but that which we have called sensations or affections of the ego (§§ 42-45). These are, as regards their real nature, absolutely unknown to us; for though physiology, in which the intellect appears as brain, recognises its affections as irritations of the sensory nerves, in so doing, it already regards these as they appear to us, but not as they are in themselves.

4. Three constituent elements of the external world, forming the very framework of nature,
namely, time, space, and the causal nexus, are, as we have shown by three times six proofs, the innate forms the totality of which constitutes the essence of the intellect. They are, physiologically speaking, cerebral functions, and consequently not something existing independently of my mind (appearing as brain).

No one can think of evading the conclusions which we shall presently draw from these facts, so long as he has not succeeded in refuting the whole series of proofs brought forward by us. That this should ever happen, that any one should succeed in undermining singly each of the six proofs adduced for the a priority of time, space, and causality, and thereby overthrow the whole structure resting on them, is, in our estimation, for ever impossible. That there will be, however, hereafter as before, those who fancy they have refuted what they have never really understood, is not only possible but highly probable.

§ 70. Regarding the facts established by us, three standpoints are possible: the empirical, which ignores them; the transcendent, which defies them; and the transcendental, which utilises them.

§ 71. The empirical standpoint is that on which all men stand by nature, and on which most stand
all their life long. It is that which is alone valid for all sciences save metaphysics, and for all practical life, with the exception of purely moral, that is, self-denying deeds, which for that very reason, as will be shown later, bear a supernatural character and are opposed to all actions natural to man. From this standpoint no notice is taken of the facts resulting from the analysis of intellect, for it has to deal only with things as they exist for us, and not as they may be in themselves. Whether the wonderful consistency we meet everywhere in nature, and on which we confidently build our plans, rests on an objective order of things or on subjective laws of the intellect, is of no consequence to practical life and to the empirical sciences serving it. For, though time, space, and causality are only innate forms of the intellect, they yet govern all that is earthly with inexorable necessity, as if they were eternal determinations of things themselves, because (1) the intellect is everywhere identical, and (2) is inseparable from existence. (1) On the one hand, namely, the intellectual faculties in all living beings differ only in energy, that is, in degree, but, as regards their real nature, they are everywhere the same, so that all minds must produce from the same affections essentially the same representations, just as the digestive organs in all men draw from the same food essentially the same materials for the building up of the body.
(2) On the other hand, the intellect is the ever-present pre-requisite of existence; it is, as the Indians call it, "the witness" (sākshin), which accompanies the whole changeful drama of life from birth to death as its indispensable condition, and there is (as follows from § 42) as little a world without intellect as an intellect without world. Let it not be objected that many revolutions of our planet must have taken place, before living and intelligent beings could come into existence, for all these preceding world periods of which geology tells, are neither more nor less than the most immediate present, merely the form in which things appear to our space-and-time-bound mind; in reality there is no time, and so no past, present, or future.

§ 72. The transcendent standpoint transcends, as its name implies, the limits of knowledge attainable by experience. For, whatever we have learned through the accumulated experience of ages, and whatever may yet be added to it, is like a small island on the immeasurable ocean. Unsatisfied in its longings and conscious of a higher origin, the human mind has at all times sought to pass the boundaries of knowledge, which have been fixed once for all by the nature of our intellectual faculties, and, for the sake of purity of moral action, have been fixed wisely. But already a thoroughgoing
empirical view of nature, the outlines of which have been sketched in the "System of Physics," cuts off the way to all such attempts to fly beyond the atmosphere of experience. For, however far on all sides we would penetrate infinity, we remain for ever in the desolate cage of empirical reality. Kant, in his "Critique of Pure Reason," undertook on a large scale such a relegation and confinement of transcending reason to the limits of experience. Yet in so doing he appears to us like Saul, the son of Kish, who, being sent out by his father (David Hume) to seek the asses, found a royal crown. For Kant, in analysing the intellectual faculties, to 'discover their bearing;' came through this inquiry, directed against transcending reason and therefore transcendental, to the greatest discovery ever made in any department of science, the discovery of the a priori forms of the intellect, which is and will be for ever the basis of all scientific metaphysics.

§ 73. The transcendental standpoint, the name of which we owe to the memory of Kant, does not presume, as does the transcendent, to pass beyond the limits of experience, but contents itself with understanding thoroughly the world as it is given to us. For this purpose it investigates it, in taking away from things everywhere that which is imposed on them only by the forms of our intellect. To
Kant's unexampled acumen is due the discovery of these forms; Schopenhauer's immeasurably wide and profound genius was called to make this discovery fruitful by spreading its light from the centre of the inner self to the periphery of the world, thus gaining scientifically what for ages past the prophetic voices of the wisest among men were able to express only by images.

To both these men posterity will raise one monument, representing the first, as he sits, self-absorbed and sunk in profound thought, the other, leaning on him, with upraised open glance, as if to embrace the world.

We and many after us tread the path which these mighty heroes have cleared for all after ages, but we must tread it ourselves and independently. Not words, not individual opinions of the immortal masters must guide us, but nature itself, whose inner being they have disclosed to us. Our standpoint is neither empirical nor transcendent, but transcendental, we touch the boundaries and we do not transcend them.

XII. Transcendental Analysis of Empirical Reality

§ 74. The first fruit of the transcendental standpoint is the solution of the problem of perceptual knowledge (raised in § 37), which, being from the
empirical standpoint impossible, pointed, for that very reason, beyond it.

The organ of Understanding, on which, as we know, the world depends, appears in physiology as the brain. This, in sending to the sense organs five differently formed offshoots, stretches itself, as it were, towards the five states of aggregation of things (which in the main are the bhūtāni, στοιχεῖα, elementa of the ancients), the solid, fluid, gaseous, permanently elastic, and the imponderable, and adapts itself, so to say, to them; a thought which permeates all Indian philosophy, while amongst the Greeks we find only uncertain traces of it (compare Aristotle de sensu 2). In what way, however, the brain manufactures its sensations into representations, physiology is unable to read in the furrows and convolutions of this curiously constructed organ. Here psychology comes to its aid. To its inner view, the brain appears as the Understanding, which it conceives as a structure, framed of time, space, and causality—that is, as a power of reacting upon the incoming affection in a threefold direction, whereby the perception of the external world arises as follows.

§ 75. It is the Understanding which first ranges on its innate thread of time all sense affections it receives, into a coherent series. Secondly, it takes, by means of its inherent causality, each
external affection as an effect, which it refers (not intentionally nor reflectingly, but through the immediate impulse of its own nature) to its conditioning cause. This cause, in the third place, it projects in space (likewise inherent in it by nature), where it appears as the material object.

§ 76. The product, arising from the continually exerted reaction of the intellectual forms upon the thronging affections, is actually (κατ' ἐνέργειαν) in each moment a limited and narrow circle of ideas; but potentially (κατὰ δύναμιν) it constitutes the whole aggregate of empirical reality, this itself being nothing more than the consciousness (accompanying all my representations) of that which can be represented, beside that which actually is represented.

Remark.—To exist or to be real, accordingly, means nothing else than to be able to be represented by the senses; while, on the contrary, possible is that the reality of which (that is, its representability by the senses) can be represented.

§ 77. Clearly and incontestably appears, as the result of our inquiries so far, the great doctrine of Idealism, this very root of all religion and philosophy: The whole of nature, immeasurably extended in space and time, exists only under the presupposition of the forms of our intellect and has, apart from them, that is in a metaphysical sense, no reality; for it is nothing more than the un-
ceasingly generated product of the sensuous affections and the mental forms.—The repugnance to this truth, arising from the physical cast of our intellect, will be lessened, when we consider that the material world in space and time is only the form in which the nature of things-in-themselves appears to us; it will disappear, when (in the second part) we penetrate, by the only possible way, to the knowledge of Being-in-itself, and then pursue in detail how this Being, distorted through the medium of time, space, and causality, appears as that which we call nature.

§ 78. Never would the senses accomplish the wonderful work of perception, if the action exerted by external objects on the thin nerve threads, expanded in our sense organs, were not met from within by the reaction of the nervous matter of the massive and so ingeniously constructed brain; and that, as the Indians have already justly understood: “cakshur-ādīnāṁ manah-samyogam vind vyāpāra-akshamatvād, because the eye, etc., without union with the mind, is unable to perform its function” (Wilson, Sāṅkhya-K., p. 100 n.). It is not the senses, therefore, which see, hear, feel, smell, and taste, but the Understanding (represented as brain); as even Epicharmos (B.C. 500) saw and admirably expressed in the verse (Plut. mor. p. 961 A):—
§ 79. Nobody should deny himself the pleasure of examining by the light of this truth,—so simple and yet so important (in which Physics and Metaphysics join hands), sensuous perception in detail, and convincing himself how, for instance, the phenomena of vision (physically inexplicable, see § 37) become clear, if only we keep to the fact, that for the Understanding the image on the retina serves as a mere datum from which as effect it passes to its external cause, which, by the aid of touch and of previous experience, it construes in size, position, and distance, accurately in space. A whole series of the most difficult optical phenomena are hereby easily explained; such are: the upright appearance of the inverted image in the eye; the single vision with two eyes; the double vision when the optical angle is not closed; the appearance as body of the flat image in the eye; the perception of the nearness and smallness of the distance and largeness of an object at equal visual angle; the increasing and diminishing of the physiological colour spectrum according as one looks at a distant or a near plane; the illusion of the microscope and the telescope, etc.
XIII. Of the Immediate and Mediate Application of the Understanding

§ 80. The passing from the effect within me to its external cause is the immediate application of the Understanding. But the objects of the external world stand (empirically speaking) not only to me, but also to each other in various relations of space, time, and causality. Now the same organ which builds a bridge between the immediate objects (appearing, § 43, as nerve irritations) and the mediate objects, serves further to trace out the spatial, temporal, and causal relations of the mediate objects to each other, that is, from the metaphysical standpoint, to create them. (The strangeness of this expression will disappear later.) This is the mediate application of the Understanding. Its higher degrees are called in practical life quick-wittedness, in science acumen; the want of it is stupidity, at times associated with great scholarship.

Remark.—Every great discovery depends on the passing from a well-known effect to its hidden cause (discovery of America, of oxygen, of Neptune); each invention is the establishing of a cause which produces as effect some intended result (invention of the alphabet, of printing, of the steam engine, of a manageable balloon, etc.). Accordingly the Understanding is the instrument on the energy of which
depends intellectual superiority; far more than Reason, which (apart from the faculty of judgment) is closely allied to memory and scarcely more than a repository.

§ 81. In the immediate application of the Understanding the intellect remains in that state which has been called receptivity, in the mediate it passes into spontaneity. It is of great importance to understand that both depend on that same reaction on the sensuous affections which we recognised as the nature of the Understanding, and that both differ from each other only in degree. In perceiving, the reacting Understanding is, so to say, on the defensive. It contents itself with repelling the attacks of the affections by projecting them in time, space, and causality. As a result of the increase of the brain and its power of reaction in the higher animals and man, the Understanding passes, as it were, from the defensive to the offensive. It not only repels the attacks of the affections, but pursues the aggressor to its farthest retreats, that is, it apprehends things not merely in relation to itself, but in the most distant relations of their spatial, temporal, and causal connection with each other. On a similar reaction of the Understanding, raised to the offensive, depends, as we shall see later, that function of the latter, peculiar to man alone, which is called Reason. For it is, in the main, as will appear, one and the same faculty which, as Understanding-
ing, establishes the connection between cause and effect, and as Reason, that between the perceptual world and the predicates abstracted from it.

Remark.—An act of the Understanding can, of course, appear in the form of a logical conclusion (of which later). In itself, however, it is by no means such, but only the intuitive and, so to say, instinctive passing from one relation of the perceptual world to another connected with it. Therefore it belongs, in a certain degree, to the brutes also, which by means of their innate functions of time, space, and causality, practise quite correctly the immediate, and in part even the mediate application of the Understanding.

XIV. Whether there are Innate Ideas?

§ 82. Here is cleared up the old controversy about innate ideas, the existence of which was maintained by Descartes and his school, while Locke disputed it. In the words “no innate ideas” lies the real pith of his philosophy. We saw already (§ 65) how this tenet in Hume’s hands culminated in a conclusion the untenability of which was obvious. It was this conclusion which roused Kant from “dogmatic slumber” and drove him to his great discoveries.

§ 83. All abstract representations, as we shall show farther on, spring from concrete perception. There are therefore, indeed, no innate ideas, but there are three innate functions of the brain,—space, time, and causality, which constitute the very nature
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of intellect. They are as innate in the brain as walking in the leg or grasping in the hand. The child brings them ready made with it into the world, though it has not from the beginning the representation of space, etc. For it is only upon the stimulus of external affection that the understanding awakes and its functions become active. Through constant use these are hereafter exerted so spontaneously, that we are not at all conscious of them, so much so, that mankind had to seek some thousands of years before it became aware of that which lay nearest it, and which for that very reason was so difficult to discover. But if children could tell us what goes on in their minds during the first months of their existence, they would lisp Kantian philosophy.

XV. The Theory of Dreaming

§ 84. The nature of sleep might be defined as a periodical separation of will and intellect, which causes a temporary suspension of the conscious will (of which more in the second part). The system of this conscious will in our organism (the eleven indriya) of Indian psychology) embraces three parts:

1 The indriya (originally "the powerful") are therefore frequently not our senses, but the organs of relation, and vijita-indriya, sanyata-indriya, etc., is not so much "whose senses are tamed," as "whose will is tamed," or as Manu (2, 98) paraphrases it: "Whose will is not excited by the perceptions of the senses."
1. The sensory nerves of the organs of sense 
(*buddhi-indriyāṇi*), which transmit the affec-
tions to the brain.

2. The brain, which moulds these affections 
into percepts and stamps them to resolutions 
(in this double function corresponding to the 
Indian *manas*).

3. The motor nerves, which, starting from the 
brain, terminate in the organs of action 
(*karma-indriyāṇi*, tongue, hand, foot, etc.) in 
order to regulate through these the execution 
of the resolutions.

In a waking state these three parts are held 
in close unity by the conscious will. In sleep the 
conscious will becomes latent, and its organs are 
isolated from each other; therefore Homer gives 
sleep the unequalled epithet of “the limb-loosening” 
(*λυσιμελής*). This isolation of the brain from the 
motor and sensory nerves is the cause of our 
having in sleep neither voluntary movement nor 
perception. With the ceasing of the external 
affection is extinguished also the reaction of the 
Understanding, after the representations still occu-
pying it, being no longer fed from without, come 
to a standstill, in which falling asleep consists. 
Because this cessation of the conscious will is an 
indispensable condition of sleep, it is impossible 
to obtain sleep, like so much else, by force of 
will.
§ 85. But when external affection and the thoughts and fancies dependent on it are silenced, whence come dreams — these dramas with such plastic scener’y, such lifelike characters, of which we are the spectators and creators in sleep?

Nothing happens without cause. There is no perception without affection: so also in dreaming. The affection during sleep cannot come from without, for in that case the isolation would be broken and a half-waking state be the result. It follows consequently, that the affections by which dreams are caused, arise from the interior of our organism. We can with great probability assume the following. As nature uses (or rather causes) the stoppage of the machine, in order to repair it, so it may happen that, through her busy working to and fro, certain gentle shocks penetrate to those parts of the brain which, when affected in a waking state, would produce the perception of the external world. Now when these (like the strings of a piano when dusted) are during sleep affected from within to and fro irregularly and without connection, the Understanding at once performs its accustomed functions (the strings sound) and creates out of these sporadic affections, always of course aided by the memory of previous experience, the perceptions of the dream, so disordered and yet so distinct, so strangely confused and yet so consistently connected.
XVI. Transcendental Analysis of Matter

§ 86. The perception of the material world, and so the material world itself (§§ 38-40), arises, as we have seen, through the Understanding projecting its affections; by means of causality, in space and time (§ 75). Thus bodies are through and through nothing more than affection, that is, force, represented as filling space. Material objects are, according to Kant's excellent expression, force-filled spaces.

If now I take away force, if I deduct from bodies all that by which they affect me, there remains nothing but empty space. Some minds will be perfectly satisfied with this decomposition of matter into force and space. It will be those in whom abstract has a decided preponderance over perceptual knowledge.

§ 87. Others again, with whom the contrary is the case, will, even after thinking away all force, imagine that they still retain something besides space, namely the representation of a dark, confused mass, which, indeed, owing to the total absence of force and consequently of all affection, is neither visible nor tangible nor in any way perceptible, and yet persists as a certain something before their intellect. It is properly this something which, as it
remains after the removal of all force from bodies, is opposed to force as matter or substance devoid of all quality. Now, since with the removal of force all reality, that is, all that exists independently of my intellect, falls away, the remaining matter can only be a subjective phenomenon, springing from the forms of our intellect. This phenomenon arises as follows.

§ 88. In perceiving, the Understanding is unceasingly occupied in projecting the most diverse effects, given it as affections, in space and time (§ 75). Now, if I try to efface from my consciousness (what, strictly speaking is, of course, impossible) every single real effect, there remains to me nothing but the general form of effecting, that is causality. Now just as the Understanding continually projects all concrete effects (all effecting ἐνέργειᾳ ὑπὸ) as causes in space, so it continues, even when I set these aside, to perceive the general possibility of effecting (the effect δυνάμει ὑπὸ), that is, causality itself (§ 62), as filling space and persisting in time, where it then appears as that dark phantom of matter or substance. Matter therefore has no proper reality, as even Aristotle recognised, when he defined it as merely ὑπὸ ὑπὸ. It is only the possibility of corporeity conceived as corporeal, that is causality, perceived in space and time. Consequently it is the combined totality of causality, space, and time perceived objectively,
whereas the same totality perceived subjectively (as we saw, § 74) constitutes the Understanding. Matter is therefore the objective reflex of the Understanding itself, and is to it what space is to the space-function, time to the time-function. It is therefore in the main the same, only viewed on the one side from the empirical, on the other from the transcendental standpoint.

Remark.—Thus matter originates in the abstraction from all concrete effect, just as each concept originates in abstraction from the individual representations underlying it. Curiously enough, however, matter is not an abstract concept but an element of the perceptual world. This, I believe, must have been in Plato's mind when he defined matter as μεταλαμβάνον ἀπορώτατα πτυ τοῦ νοητοῦ and as ἀπὸν λογιμότων των νόθον (Tim. 51 Α, 52 Β). Abstracting is an act of the reason, which, however, in this case leads exceptionally not to a concept but to a perceptual representation, for which cause Plato pronounced it spurious, νόθος. (Compare on this obscure passage and the various unsatisfactory attempts to explain it my Commentatio de Platonis Sophista, Bonn, 1869, pp. 32-34.)

XVII. The Double World of the Half-Philosophers

§ 89. Kant had proved that the three main pillars of nature,—time, space, and causality, are nothing but the subjective forms of our intellect: whence follows inevitably, that the material world, presented in them, is merely the form in which things appear to me; but not what they are in themselves.
§ 90. Admitting the irrefutability of the Kantian arguments, without however adopting their inevitable conclusions, a series of thinkers since Kant have sought refuge in a certain Ideal-Realism, as they call it. According to them, space, time, and causality are on the one hand subjective functions of the intellect, in which we conceive and manufacture into representations the affections coming from things, and on the other hand they are the objective forms of existence of things themselves, so that between the being of things and our representing of them there would be a complete parallelism.

§ 91. The absurdity of this assertion is obvious, since it is nothing but the assumption that everything which is, exists doubly, so that we should have before us not one, but two worlds, resembling each other to a hair's breadth, without however having the least contact with, or relation to, each other. The first of these two worlds is this real, perceptual world which I see with my eyes and touch with my hands. This world is, as we have seen, the product of a priori consciousness and a posteriori sensations. Behind this world, according to the above assumption, lies another, of which we can never obtain the slightest knowledge, and which therefore probably exists nowhere,—unless perhaps in the imagination of those thinkers, whose names we omit.
XVIII. Kant and the Philosophy after him.

§ 92. The distinction between phenomena and things-in-themselves is as old as philosophy itself, nay, all philosophy (so far as empirical science is not concealed under the name) expresses the consciousness of this great contrast. It was Kant, however, who first gave it a scientific basis, by showing that it is the forms of the Understanding, inherent in our intellect, by means of which Being-in-itself becomes visible to us as the material world extended in space and time. The appearance of Kant therefore will remain for all time the turning-point in the history of philosophy, and whoever in the future means to philosophise, must first of all come to an understanding with his teaching. The pith of Kant’s doctrine is the transcendental dogma of the a priority of time, space, and causality; each must decide whether to accept or reject it. There are but two grounds on which it can be rejected; there are but two ways open to those who accept it. Accordingly the philosophers after Kant fall into four classes, which include all thinkers, present and future.

§ 93. Those who reject Kant’s teaching can have only two reasons for doing so: either, they are unable to convince themselves of the validity of his arguments,—in this case our exposition of these
invites to a renewed examination of them; or they go their own way, ignoring Kant’s discovery,—they will allow us to do the same with them.

§ 94. Amongst those who admit Kant’s doctrine, we distinguish such as accept it, but evade its consequences,—of these we spoke in the foregoing chapter; and such as have the courage to adopt not only the transcendental dogma but also the conclusions which necessarily follow from it.

This was the way taken by Schopenhauer. He stands in many remarkable respects to Kant as Plato to Sokrates. All the rest are at best like the so-called “imperfect Sokratists.”

For an Aristotle wait not! Thousands of busy hands are stirring in all corners of the empirical sciences. But a little while, and the whole world—śāpīḥkṛśāhyas—will perceive the day that has dawned. Let us hope that under the impending salutary revolution which Schopenhauer’s doctrine will cause in the domain of empirical science, the depth of Schopenhauer’s thought may not be so overwhelmed as was that of Plato by Aristotle.
APPENDIX TO THE FIRST PART OF METAPHYSICS

REASON AND ITS CONTENT

XIX. Survey

§ 95. Reason is an intellectual faculty, peculiar to man, of forming from perceptual representations (by dropping what is different in them and retaining what is identical) "abstract" representations or concepts, further, of combining concepts into judgments and judgments into syllogisms. In contradistinction to perceptual knowledge the operating with concepts is called thinking.

§ 96. Since concepts, as vibrations of the brain cells or whatever they may be, are not perceptible, we need for their communication an external vehicle. This we have in the words of language, which consist of certain specific vibrations of the air, produced by the sound of the voice and variously modified by the organs of the mouth (throat, palate, tongue, teeth, lips). Thus language, by the manifold com-
bination of a few primary elements, produces an astonishing wealth of material, sufficient to portray in a perceptible form and to communicate to others not only concepts but also the relations of these to each other even to the finest shades of distinction.

§ 97. Speaking is therefore so to say the visibility of thinking. Now thinking among all nations is essentially the same, whereas language shows with different peoples the greatest variety—a fact which is surprising and not easily explained. Logic exhibits everywhere the same problems; the question how these are to be solved in different languages, led necessarily to comparative grammar. This has started by going back from the corrupted forms of the historical languages to the primitive languages preceding them, whereby the problem is not solved but only clearly stated.

§ 98. A thorough discussion of these topics belongs to Logic and Grammar. We shall confine ourselves in the following, (1) to showing how concepts, upon which the whole content of logic depends, spring from perception; (2) to explaining how the functions of Reason have their root in the one and simple reactive faculty of the Understanding; (3) to deriving the difference between man and brute from the faculty of concepts which alone distinguishes them; (4) to hazarding a few conjectures as to the origin of language.
XX. Origin and Nature of Concepts

§ 99. It is very remarkable that nature is neither thoroughly alike nor yet in all parts thoroughly unlike, but shows a variegated blending of identical and non-identical elements. Here I see a red, there a blue flower; I meet the same blue again in the sky, in the bird's wing, or in the stone, which yet have nothing whatever to do with the flower, while again all these objects have much in common with others from which, for the rest, they are quite different. Thus I often notice identical phenomena in different places and at different times. Must these not have some secret affinity to each other, for how else come they to be identical? This thought is the gate by which Plato entered the realm of metaphysics. But of this later. At present we are concerned with nature as an aggregate of identical and non-identical elements only in so far, as it is on this peculiarity that the formation of concepts depends.

§ 100. The brutes also perceive the similarity and dissimilarity of things, often even more perfectly than man. The dog which rambles with the hunter through the woods, distinguishes more sharply than does his master the deer from its like-hued shelter-
ing surroundings. There can be no doubt also, that a dog distinguishes perfectly between an oak and a fir-tree. But its less developed brain does not react powerfully enough, its understanding is not sufficiently independent of things, to see in them anything more than those relations in which, for the moment, its will is interested. Not so man. When in an oak forest he notices how the trees around, in spite of all difference in detail, have yet something identical in them, he proceeds to decompose this perception into its identical and non-identical elements; and in abstracting from what is non-identical and retaining what is identical in the representation, he passes from the various individual perceptions of oak-trees to the concept of oak.

§ 101. Such is the process in the formation of a concept. But this destruction of perception which must take place to obtain a concept (similar to our destruction of the marvellous organisms of animals, for the purpose of eating their flesh), is in reality due to the fact, that it is the natural destiny of the intellect to be an instrument of the will. For what is of interest to the will is not things, but the relations of things to itself. From this standpoint the wonderful continuity of the perceptual world is dissolved into a number of possible relations, which in logic are called predicates, or more characteristically marks (notae). They
are the provisions which the will lays up in the storehouse of reason for future use. If our intellect were not a servant of the will, in all probability we should form no concepts.

§ 102. The sum of the predicates of a concrete object is infinite. The predicates, however, which are common to it with other objects, are generally, at least for our apprehension, very limited in number. Since the space which every object fills, is always different, and perceptibility depends on space-occupation, all concepts, being abstractions from all that is different, must lose their individual form. They are not to be confounded with images of fancy, which are in fact individual, and for that very reason only single representatives of concepts, containing much which is not common to all objects of the same kind.

§ 103. The concepts of the oak, the beech, the fir, each consist of a number of marks or predicates which are partly different, partly in all three the same. If now, again, of these predicates we drop the non-identical and retain the identical, we obtain the concept of tree, richer in extent but poorer in content of predicates, which comprehends oak, fir, and beech, just as each of these includes the single objects of its kind. By the same process I pass from the concept of tree to that of plant, from
this to that of organism, from this to that of body, and so at last to the concept of Substance or Being. This concept has an extremely wide extent, for it comprehends under it all that is; the poorer, however, is its content, for it is restricted to a single predicate. But for that very reason it can have no more general concept above it. In a similar way I can rise from the perceptions of red, round, cold, bitter, fragrant, etc. to the general concepts of colour, form, taste, etc., and from these to the most general concept of quality, which as such is restricted to a single predicate.

§ 104. These concepts of highest generality are, according to Aristotle, called Categories, of which he enumerates ten: ὄνσια, ποσόν, ποιόν, πρός τι, ποι, ποτέ, κεισθαι, ἔχειν, ποιεῖν, πάσχειν (Substance, Quantity, Quality, Relation, Space, Time, Position, Possession, Action, Passion), while in India Kan̄da undertook a classification of things under six Categories, which he called pada-arthās (word-things, essences or concepts corresponding to words). They are: dravya, guṇa, karman, sāmāṇya, viśesha, samavāya (Substance, Quality, Action, Community, Difference, Inherency). It might be possible to do with three Categories: (1) Substance (ὄνσια—dravya); (2) Quality (ποσόν, ποιόν—guṇa); (3) Relation (πρός τι—sāmāṇya, viśesha, samavāya);
for ποῦ and ποτε, as Kant observed, are not conceptual but perceptual, and the verbal Categories (κεισθαι, ἐχειν, ποιεῖν, πάσχειν — karman) can be reduced to the others by separating the copula, which is not a concept but the linguistic sign of a combination of concepts.

§ 105. The whole system of concepts up to the Categories is accordingly abstracted from the perceptual world, and may be likened to a number of interlocked pyramids with a common and very broad base, namely perception. From this, by the continued comprehension of several specific concepts under a generic concept, we ascend from peak to peak to those few highest summits formed by the Categories. If now, again, we look with a bird’s-eye view down on these category peaks and through them to the base, the summits of all special and general concepts will appear projected upon the base. And there they lie in reality; for if on the one hand general concepts comprehend specific under them, so on the other hand specific concepts contain the general concepts, up to the Categories, as predicates in them (Extent and Content of Concepts).

XXI. On Combinations of Concepts

§ 106. Every judgment is the combination of two (more or less complicated) concepts, in such
a way, that one (the predicate) is predicated (κατηγο-

peρίδι, praedicatur) of the other (the subject) or (in
negative judgments) excluded from it.

§ 107. A judgment is analytical, when the
subject-concept contains the predicate-concept in
it as a characteristic, so that we need only ex-
tract the latter from the former (ex. the rose is a
flower); a judgment is synthetic, when we denote
by the combination of concepts a union of two
elements of the perceptual world which are not
already contained in our concept of the subject
(ex. the rose is red). For forming analytical judg-
ments, therefore, we need only the knowledge stored
up by previous experience in the system of our
concepts and no new experience. In this respect
one may say that all analytical judgments are a
priori, that is, independent of experience (excepting
of course the previous experience from which the
concept was originally formed). Synthetic judg-
ments, on the other hand, always show a com-
bination of characteristics not involved in the
concepts themselves, but contained only in the
perceptual world. They would therefore be al-
together a posteriori, were it not that, as we have
seen (§§ 42-68), certain elements of perception
are a priori. On these elements are based the
synthetic judgments a priori of the mathematical
sciences (§§ 52, 59, 66). This observation is im-
important for metaphysics, because it was Kant's starting-point in the "Critique of Pure Reason."

§ 108. Whatever we think, whatever (by means of words) we speak and hear, write and read, are concepts, for the most part combined as judgments. It is a good exercise to take any book and analyse a passage of it into nothing but concepts, modified by various accessory determinations and connected by the copula (usually contained in the verb).

Remark.—It is the merit of the Greeks to have created a syntax which hides by the cunning of language the monotinous combination of subject and predicate of which the nature of the judgment consists. On Greek syntax depends in the main that of all the civilised languages of Europe. The Indians, on the other hand, led away by the wealth of their case-forms and the extraordinary facility for composition which distinguishes their language, express subject and predicate with their accessory determinations, particularly in scientific prose, by long compounds. As a result, their style generally is in a high degree logical, but at the same time for the reader extremely wearisome.

§ 109. The predicate of a subject-concept is of course valid for all concepts comprehended under the subject-concept (ex. if all Being is created by God, so also is evil, since its concept is comprehended under that of Being). On this depends the possibility of drawing particular judgments from general: a practice we constantly follow in thinking. Its methodical form is the syllogism (νυάς, συλλο-
\( \gammaι\sigma\mu\omicron\omicron\omicron \), of which there are three, or if one likes, four figures and nineteen modes, which we may here omit.

§ 110. Since all concepts whatever are abstracted from perception, every correct judgment is based finally upon a relation in the perceptual world, whether the judgment springs immediately from perception, or whether it is derived by deduction from a more general judgment (§ 109) which itself is in turn obtained from perception by induction. The methodical process of going back from one proposition to another, and by means of this to perception, is called Proof. But perception itself is the base on which all judgments and proofs, whether immediate or mediate, are founded. What we perceive cannot therefore be demonstrated further, that is, reduced to anything else more certain, nor does it require it. This does not, however, preclude our making use of proofs, when the question is to derive from the accessible data of the perceptual world other facts which belong also to perception, but escape our observation, whether through being too far from us in space and time, or because their relations are too subtle and floating to be grasped and retained with exactitude by mere perceiving. On this we may base the justification of Euclid's proofs in mathematics, which Schopenhauer would not admit.
§ 111. From what has been said, it is clear that all concepts and all judgments spring from perception. (The sole exception are the so-called Laws of Thought, together with the nearly related abstract Categories of Kant, in all of which, however, no content is expressed, but only the general form of abstract knowledge.) Accordingly abstract representations both in physics and metaphysics are only to be regarded as an instrument by means of which we grasp the concrete world. This world itself with its content is the sole subject of all sciences (excepting logic), and only the data given by it can guide us to physical and metaphysical truth.

§ 112. The neglect of this principle has caused the gravest errors in metaphysics, whether, like Zeno and others, men, arguing from the mosaic-like and abrupt nature of abstract knowledge, have assumed "contradictions" in the perceptual world, which neither asserts nor contradicts, or whether, obeying the impulse given by Aristotle and Kant, they have regarded concepts (because through them we retain the essence of perception) as the genetic principles of Reality. Both errors have in post-Kantian philosophy given birth to systems which, for a time, succeeded in attracting the attention and the approval of their age.
XXII. Whether Reason is a Particular Physiological Organ?

§ 113. Whatever exists is material (§ 11); so also the intellect (§s 26. 27) Brain and intellect are two names for the same thing. Their difference arises from the fact that in this case the organ and its functions are accessible by different ways. Psychology knows only the function, physiology, until now, almost only the organ. Both methods supplement, and do not contradict, each other.

§ 114. Now psychology has taught us two functions of the human intellect, that of perceiving and that of thinking. The question is, whether these are to be regarded as manifestations of one and the same faculty or of different faculties,—whether Understanding and Reason are two distinct physiological organs or only two specific functions of the same organ.

§ 115. The following reasons determine us in favour of the latter view, by means of which the unity of the human mind is maintained,—a fact of importance for our later inquiries.

1 Primum animum dico, mentem quam saepe vocamus, In quo consilium vitae regimenque locatum est, Esse hominis partem nilo minus ac manus et pes Atque oculei partes animantis totius extant. Lucretius III. 94-97.
1. The structure of the human brain corresponds in all essentials to that of the higher animals, although its single parts appear in different proportions and in much higher development. From this certain ignorant physiologists would fain draw the conclusion that brutes also to a certain degree "think" (!). We, however, infer from this, that thinking is nothing but a distinct operation, peculiar to man, of the perceiving faculty, that is, of the brain.

2. Knowledge is very likely the product of a single organ in our head, the brain so far as it consists of the cerebral hemispheres. In its place we should find two organs, if Understanding and Reason were two separate faculties.

3. Our intellect is continually occupied in subsuming perceptions under concepts. We pass from perceiving to thinking, from thinking to perceiving, with the greatest ease and without any feeling of interruption. This would scarcely be possible if these functions were assigned to two different organs.

4. In the scale of beings we see the development of the intellect keeping pace with that of the nervous system centralised in the brain. The more perfectly formed the brain, the more energetically does the Understanding fulfil its office, the more powerful is its reaction upon the affections coming from without (§ 74). In consequence, the products of this reaction, that is, represented things, are more distinctly