

tal line where you will, as many horizontal lines as you please can be assigned at finite distances below it and below one another. For any such section is at some distance above the apex, otherwise it is not a line. Let this distance be a . Then there have been similar sections at the distances $\frac{1}{2}a$, $\frac{1}{3}a$, $\frac{1}{4}a$, $\frac{1}{5}a$, above the apex, and so on as far as you please. So that it is not true that there must be a first. Explicate the logical difficulties of this paradox (they are identical with those of the Achilles) in whatever way you may. I am content with the result, as long as your principles are fully applied to the particular case of cognitions determining one another. Deny

motion, if it seems proper to do so; only then deny the process of determination of one cognition by another. Say that instants and lines are fictions; only say, also, that states of cognition and judgments are fictions. The point here insisted on is not this or that logical solution of the difficulty, but merely that cognition arises by a process of beginning, as any other change comes to pass.

In a subsequent paper, I shall trace the consequences of these principles, in reference to the questions of reality, of individuality, and of the validity of the laws of logic.

LETTERS ON FAUST.

[By H. C. BROCKMEYER.]

VI.

DEAR H.—In following our theme through the sphere of manifestation, we arrived at the conclusion: "Although man cannot know truth—has no Reason—he does possess a stomach, a capacity for sensual enjoyment and an Understanding to minister to the same—to be its servant." With this conclusion, we have arrived at the world of Reality,—for we have attributed objective validity to the Understanding. It also determines our position in that world. The Understanding—Mephisto—is our guide and servant; the world of Reality a mere means for individual ends—for private gratification. Whatever higher pretensions this world might make, such pretensions are based upon the presupposition that man can know Truth, and are therefore without foundation. Hence, this world of Reality—the Family, Society, and the State—have no right and no authority as against the individual inclinations and desires of man. The latter are supreme and find their limitation not in Reason but in the power of the Understanding to supply them with means of gratification. It is true that these means are derived from without, and hence, that the individual under this view is limited and

determined from without, and that external determination is collision and conflict. Besides, whatever our conviction with reference to the world of Reality may be, that world, once for all, is extant with the bold claim of being on the one side the pledge and on the other the very embodiment of the rational existence of the race; and it wields moreover, in that existence, the power of the race. But this is our reflection, dear friend, which it may be well enough to keep in view, as a species of logical heat-lightning along the horizon, but which has no significance under the conclusion arrived at by Faust. Under it our individual desires and inclinations, however capricious, are the end, and whatever presents itself has value and validity in so far and only in so far as it is a means for this end.

These are the principles of the man before us, who,

"For idle dalliance too old,
Too young to be without desire,"

is still professor in a German University. His life falls in the historic period when a knowledge of the natural sciences is not as yet diffused, and many of the results remain *arcana* for individual profit. Pos-

P

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THE JOURNAL OF SPECULATIVE PHILOSOPHY.

Vol. II. 1868. No. 3.

SUN-CLEAR STATEMENT

To the Public at large concerning the true nature of the NEWEST PHILOSOPHY. An attempt to force the reader to an understanding.

(Translated from the German of J. G. FICHTE, by A. E. KRÖGER.)

FIFTH CONVERSATION.

A. That which the Science of Knowledge deduces is to be a faithful and complete picture of fundamental consciousness. Can its deductions then contain more or less or anything else than what occurs in actual consciousness?

R. By no means. Every deviation from actual consciousness would be a sure proof of the incorrectness of the deduction of that science.

A. Hence, according to all our previous results, the total consciousness of a finite rational being can involve only the following:

FIRSTLY—The primary and fundamental determinations of consciousness, or common consciousness, or immediate experience, or whatever else you choose to call it.

These determinations form in themselves a complete system, which is altogether the same—apart from its exclusively individual determinations—for all rational beings. We have called this system common consciousness, or the first degree of consciousness.

SECONDLY—The reflection and representation of this common consciousness, the free separating, composing, and infinite judging of it; which, being dependent upon freedom, varies according to the different use made of that freedom. This we have called the higher degrees of consciousness—the middle region of our mind, as it were. It is to be remembered that nothing can occur in these

higher degrees which has not occurred previously in common consciousness, at least in its elements. The freedom of the mind has the power infinitely to separate and compose that which is given in fundamental consciousness, but it cannot create anything anew.

THIRDLY AND FINALLY—A complete deduction of all that which occurs in common consciousness—without any relation to actual experience—from the mere necessary manner of acting of the Intelligence in general; precisely as if that common consciousness were the result of this manner of acting. This is the Science of Knowledge, as the absolute highest degree, which no consciousness can transcend. In this science, also, nothing can occur which has not occurred in actual consciousness, or in experience, in the highest significance of that word.

According to our principles, therefore, nothing can enter the consciousness of a rational being, in any manner, which does not in its elements occur in experience, and in the experience of all rational beings, without exception. All have received the same gifts, and the same freedom further to develop these gifts; and no one can create something of his own. Our philosophy is, therefore, most decidedly favorably disposed towards common sense, and secures its rights, as we asserted at the beginning: and

damaged if you, who have hitherto been the great leaders, suddenly become silent? You surely do not care for the opinion of the stupid! But sensible people will only think all the more of you.

Thus it is stated that Professor Jacob at Halle has utterly abandoned speculative philosophy, and devoted himself altogether to political economy, a branch of science wherein many excellent attainments may be expected from his praiseworthy accuracy and industry. He has shown himself a wise man by ceasing to be a philosopher; and I herewith publicly express my esteem for him on that account, and hope that every sensible man who knows what speculation is will share this esteem. Would that all the others would also abandon a science which they have abundantly tortured themselves to grasp, and for which they have discovered that they are not made. Let them turn to some other useful occupation—grinding glasses, making verses, writing novels, and studying agriculture or game-keeping; let them take service in the detective police, study medicine, raise cattle, or write devotional reflections on death for every day in the year,—and no one will refuse them his esteem.

But since, nevertheless, I cannot be sure that they and the like of them will follow good advice, I add the following in order that they can not plead that I did not tell them what would happen:

This is the third time that I make a report concerning the nature of the Science of Knowledge. I should not like to be compelled to do so a fourth time, and I am tired of seeing my words passing from mouth to mouth disfigured in such a terrible manner that I scarcely recognize them. Hence I shall presuppose that many of our modern literary men and philosophers will not even understand this third report. I also presuppose, because I know it, that absolutely every man can know whether he does or does not understand something, and that no one is forced to speak of a matter he is conscious of not understanding. Hence I shall no more leave this work to its fate than all my future scientific works, but shall strictly watch over the expressions it may excite, and comment upon them in a periodical. If it does not reform these gossips, it may at least teach the public what sort of people have undertaken, and still undertake, to direct its opinion.

Berlin, 1801.

SOME CONSEQUENCES OF FOUR INCAPACITIES.

[By C. S. PEIRCE.]

Descartes is the father of modern philosophy, and the spirit of Cartesianism—that which principally distinguishes it from the scholasticism which it displaced—may be compendiously stated as follows:

1. It teaches that philosophy must begin with universal doubt; whereas scholasticism had never questioned fundamentals.

2. It teaches that the ultimate test of certainty is to be found in the individual consciousness; whereas scholasticism had rested on the testimony of sages and of the Catholic Church.

3. The multifarious argumentation of the middle ages is replaced by a single thread of inference depending often upon inconspicuous premises.

4. Scholasticism had its mysteries of faith, but undertook to explain all created things. But there are many facts which Cartesianism

not only does not explain, but renders absolutely inexplicable, unless to say that "God makes them so" is to be regarded as an explanation.

In some, or all of these respects, most modern philosophers have been, in effect, Cartesians. Now without wishing to return to scholasticism, it seems to me that modern science and modern logic require us to stand upon a very different platform from this.

1. We cannot begin with complete doubt. We must begin with all the prejudices which we actually have when we enter upon the study of philosophy. These prejudices are not to be dispelled by a maxim, for they are things which it does not occur to us can be questioned. Hence this initial scepticism will be a mere self-deception, and not real

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1. We cannot begin with complete doubt. We must begin with all the prejudices which we actually have when we enter upon the study of philosophy. These prejudices are not to be dispelled by a maxim, for they are things which it does not occur to us *can* be questioned. Hence this initial scepticism will be a mere self-deception, and not real doubt; and no one who follows the Carte-

sian method will ever be satisfied until he has formally recovered all those beliefs which in form he has given up. It is, therefore, as useless a preliminary as going to the North Pole would be in order to get to Constantinople by coming down regularly upon a meridian. A person may, it is true, in the course of his studies, find reason to doubt what he began by believing; but in that case he doubts because he has a positive reason for it, and not on account of the Cartesian maxim. Let us not pretend to doubt in philosophy what we do not doubt in our hearts.

2. The same formalism appears in the Cartesian criterion, which amounts to this: "Whatever I am clearly convinced of, is true." If I were really convinced, I should have done with reasoning, and should require no test of certainty. But thus to make single individuals absolute judges of truth is most pernicious. The result is that metaphysicians will all agree that metaphysics has reached a pitch of certainty far beyond that of the physical sciences;—only they can agree upon nothing else. In sciences in which men come to agreement, when a theory has been broached, it is considered to be on probation until this agreement is reached. After it is reached, the question of certainty becomes an idle one, because there is no one left who doubts it. We individually cannot reasonably hope to attain the ultimate philosophy which we pursue; we can only seek it, therefore, for the community of philosophers. Hence, if disciplined and candid minds carefully examine a theory and refuse to accept it, this ought to create doubts in the mind of the author of the theory himself.

3. Philosophy ought to imitate the successful sciences in its methods, so far as to proceed only from tangible premises which can be subjected to careful scrutiny, and to trust rather to the multitude and variety of its arguments than to the conclusiveness of any one. Its reasoning should not form a chain which is no stronger than its weakest link, but a cable whose fibres may be ever so slender, provided they are sufficiently numerous and intimately connected.

4. Every unidealistic philosophy supposes some absolutely inexplicable, unanalyzable ultimate; in short, something resulting from mediation itself not susceptible of mediation. Now that anything is thus inexplicable can only be known by reasoning from signs. But the only justification of an inference

from signs is that the conclusion explains the fact. To suppose the fact absolutely inexplicable, is not to explain it, and hence this supposition is never allowable.

In the last number of this journal will be found a piece entitled "Questions concerning certain Faculties claimed for Man," which has been written in this spirit of opposition to Cartesianism. That criticism of certain faculties resulted in four denials, which for convenience may here be repeated:

1. We have no power of Introspection, but all knowledge of the internal world is derived by hypothetical reasoning from our knowledge of external facts.
2. We have no power of Intuition, but every cognition is determined logically by previous cognitions.
3. We have no power of thinking without signs.
4. We have no conception of the absolutely incognizable.

These propositions cannot be regarded as certain; and, in order to bring them to a further test, it is now proposed to trace them out to their consequences. We may first consider the first alone; then trace the consequences of the first and second; then see what else will result from assuming the third also; and, finally, add the fourth to our hypothetical premises.

In accepting the first proposition, we must put aside all prejudices derived from a philosophy which bases our knowledge of the external world on our self-consciousness. We can admit no statement concerning what passes within us except as a hypothesis necessary to explain what takes place in what we commonly call the external world. Moreover when we have upon such grounds assumed one faculty or mode of action of the mind, we cannot, of course, adopt any other hypothesis for the purpose of explaining any fact which can be explained by our first supposition, but must carry the latter as far as it will go. In other words, we must, as far as we can do so without additional hypotheses, reduce all kinds of mental action to one general type.

The class of modifications of consciousness with which we must commence our inquiry must be one whose existence is indubitable, and whose laws are best known, and, therefore (since this knowledge comes

from the outside), which most closely follows external facts; that is, it must be some kind of cognition. Here we may hypothetically admit the second proposition of the former paper, according to which there is no absolutely first cognition of any object, but cognition arises by a continuous process. We must begin, then, with a *process* of cognition, and with that process whose laws are best understood and most closely follow external facts. This is no other than the process of valid inference, which proceeds from its premise, A, to its conclusion, B, only if, as a matter of fact, such a proposition as B is always or usually true when such a proposition as A is true. It is a consequence, then, of the first two principles whose results we are to trace out, that we must, as far as we can, without any other supposition than that the mind reasons, reduce all mental action to the formula of valid reasoning.

But does the mind in fact go through the syllogistic process? It is certainly very doubtful whether a conclusion—as something existing in the mind independently, like an image—suddenly displaces two premises existing in the mind in a similar way. But it is a matter of constant experience, that if a man is made to believe in the premises, in the sense that he will act from them and will say that they are true, under favorable conditions he will also be ready to act from the conclusion and to say that that is true. Something, therefore, takes place within the organism which is equivalent to the syllogistic process.

A valid inference is either *complete* or *incomplete*. An incomplete inference is one whose validity depends upon some matter of fact not contained in the premises. This implied fact might have been stated as a premise, and its relation to the conclusion is the same whether it is explicitly posited or not, since it is at least virtually taken for granted; so that every valid incomplete argument is virtually complete. Complete arguments are divided into *simple* and *complex*. A complex argument is one which from three or more premises concludes what might have been concluded by successive steps in reasonings each of which is simple. Thus, a complex inference comes to the same thing in the end as a succession of simple inferences.

A complete, simple, and valid argument,

or syllogism, is either *apodictic* or *probable*. An apodictic or deductive syllogism is one whose validity depends unconditionally upon the relation of the fact inferred to the facts posited in the premises. A syllogism whose validity should depend not merely upon its premises, but upon the existence of some other knowledge, would be impossible: for either this other knowledge would be posited, in which case it would be a part of the premises, or it would be implicitly assumed, in which case the inference would be incomplete. But a syllogism whose validity depends partly upon the *non-existence* of some other knowledge, is a *probable* syllogism.

A few examples will render this plain. The two following arguments are apodictic or deductive:

1. No series of days of which the first and last are different days of the week exceeds by one a multiple of seven days; now the first and last days of any leap-year are different days of the week, and therefore no leap-year consists of a number of days one greater than a multiple of seven.

2. Among the vowels there are no double letters; but one of the double letters (*w*) is compounded of two vowels: hence, a letter compounded of two vowels is not necessarily itself a vowel.

In both these cases, it is plain that as long as the premises are true, however other facts may be, the conclusions will be true. On the other hand, suppose that we reason as follows:—"A certain man had the Asiatic cholera. He was in a state of collapse, livid, quite cold, and without perceptible pulse. He was bled copiously. During the process he came out of collapse, and the next morning was well enough to be about. Therefore, bleeding tends to cure the cholera." This is a fair probable inference, provided that the premises represent our whole knowledge of the matter. But if we knew, for example, that recoveries from cholera were apt to be sudden, and that the physician who had reported this case had known of a hundred other trials of the remedy without communicating the result, then the inference would lose all its validity.

The absence of knowledge which is essential to the validity of any probable argument relates to some question which is determined by the argument itself. This question, like every other, is whether certain objects have certain characters. Hence, the absence

of knowledge is either whether besides the objects which, according to the premises, possess certain characters, any other objects possess them; or, whether besides the characters which, according to the premises, belong to certain objects, any other characters not necessarily involved in these belong to the same objects. In the former case, the reasoning proceeds as though all the objects which have certain characters were known, and this is *induction*; in the latter case, the inference proceeds as though all the characters requisite to the determination of a certain object or class were known, and this is *hypothesis*. This distinction, also, may be made more plain by examples.

Suppose we count the number of occurrences of the different letters in a certain English book, which we may call A. Of course, every new letter which we add to our count will alter the relative number of occurrences of the different letters; but as we proceed with our counting, this change will be less and less. Suppose that we find that as we increase the number of letters counted, the relative number of e's approaches nearly 11½ per cent. of the whole, that of the t's 8½ per cent., that of the a's 8 per cent., that of the s's 7½ per cent., &c. Suppose we repeat the same observations with half a dozen other English writings (which we may designate as B, C, D, E, F, G) with the like result. Then we may infer that in every English writing of some length, the different letters occur with nearly those relative frequencies.

Now this argument depends for its validity upon our *not* knowing the proportion of letters in any English writing besides A, B, C, D, E, F and G. For if we know it in respect to H, and it is not nearly the same as in the others, our conclusion is destroyed at once; if it is the same, then the legitimate inference is from A, B, C, D, E, F, G, and H, and not from the first seven alone. This, therefore, is an *induction*.

Suppose, next, that a piece of writing in cypher is presented to us, without the key. Suppose we find that it contains something less than 26 characters, one of which occurs about 11 per cent. of all the times, another 8½ per cent., another 8 per cent., and another 7½ per cent. Suppose that when we substitute for these e, t, a and s, respectively, we are able to see how single letters may be substituted for each of the other characters so as to make sense in English, provided,

however, that we allow the spelling to be wrong in some cases. If the writing is of any considerable length, we may infer with great probability that this is the meaning of the cipher.

The validity of this argument depends upon there being no other known characters of the writing in cipher which would have any weight in the matter; for if there are—if we know, for example, whether or not there is any other solution of it—this must be allowed its effect in supporting or weakening the conclusion. This, then, is *hypothesis*.

All valid reasoning is either deductive, inductive, or hypothetic; or else it combines two or more of these characters. Deduction is pretty well treated in most logical textbooks; but it will be necessary to say a few words about induction and hypothesis in order to render what follows more intelligible.

Induction may be defined as an argument which proceeds upon the assumption that all the members of a class or aggregate have all the characters which are common to all those members of this class concerning which it is known, whether they have these characters or not; or, in other words, which assumes that that is true of a whole collection which is true of a number of instances taken from it at random. This might be called statistical argument. In the long run, it must generally afford pretty correct conclusions from true premises. If we have a bag of beans partly black and partly white, by counting the relative proportions of the two colors in several different handfuls, we can approximate more or less to the relative proportions in the whole bag, since a sufficient number of handfuls would constitute all the beans in the bag. The central characteristic and key to induction is, that by taking the conclusion so reached as a major premise of a syllogism, and the proposition stating that such and such objects are taken from the class in question as the minor premise, the other premise of the induction will follow from them deductively. Thus, in the above example we concluded that all books in English have about 11½ per cent. of their letters e's. From that as major premise, together with the proposition that A, B, C, D, E, F and G are books in English, it follows deductively that A, B, C, D, E, F and G have about 11½ per cent. of their letters e's. Accordingly, induction has been defined by Aristotle as the inference of the major premise of a syllogism from its minor premise and conclu-

sion. The function of an induction is to substitute for a series of many subjects, a single one which embraces them and an indefinite number of others. Thus it is a species of "reduction of the manifold to unity."

Hypothesis may be defined as an argument which proceeds upon the assumption that a character which is known necessarily to involve a certain number of others, may be probably predicated of any object which has all the characters which this character is known to involve. Just as induction may be regarded as the inference of the major premise of a syllogism, so hypothesis may be regarded as the inference of the minor premise, from the other two propositions. Thus, the example taken above consists of two such inferences of the minor premises of the following syllogisms:

1. Every English writing of some length in which such and such characters denote e, t, a, and s, has about 11½ per cent. of the first sort of marks, 8½ of the second, 8 of the third, and 7½ of the fourth;

This secret writing is an English writing of some length, in which such and such characters denote e, t, a, and s, respectively:

- ∴ This secret writing has about 11½ per cent. of its characters of the first kind, 8½ of the second, 8 of the third, and 7½ of the fourth.

2. A passage written with such an alphabet makes sense when such and such letters are severally substituted for such and such characters.

This secret writing is written with such an alphabet.

- ∴ This secret writing makes sense when such and such substitutions are made.

The function of hypothesis is to substitute for a great series of predicates forming no unity in themselves, a single one (or small number) which involves them all, together (perhaps) with an indefinite number of others. It is, therefore, also a reduction of a manifold to unity.* Every deductive syllogism may be put into the form

If A, then B;
But A;
∴ B.

* Several persons versed in logic have objected that I have here quite misapplied the term *hypothesis*, and that what I so designate is an argument from *analogy*. It is a sufficient reply to say that the example of the cipher has been given as an apt il-

And as the minor premise in this form appears as antecedent or reason of a hypothetical proposition, hypothetic inference may be called reasoning from consequent to antecedent.

The argument from analogy, which a popular writer upon logic calls reasoning from particulars to particulars, derives its validity from its combining the characters of induction and hypothesis, being analyzable either into a deduction or an induction, or a deduction and a hypothesis:

But though inference is thus of three essentially different species, it also belongs to one genus. We have seen that no conclusion can be legitimately derived which could not have been reached by successions of arguments having two premises each, and implying no fact not asserted.

Either of these premises is a proposition asserting that certain objects have certain characters. Every term of such a proposition stands either for certain objects or for certain characters. The conclusion may be regarded as a proposition substituted in place of either premise, the substitution being justified by the fact stated in the other premise. The conclusion is accordingly derived from either premise by substituting either a new subject for the subject of the premise, or a new predicate for the predicate of the premise, or by both substitutions. Now the substitution of one term for another can be justified only so far as the term substituted represents only what is represented in the term replaced. If, therefore, the conclusion be denoted by the formula,

S is *P*;

and this conclusion be derived, by a change of subject, from a premise which may on this account be expressed by the formula,

M is *P*,

then the other premise must assert that whatever thing is represented by *S* is represented by *M*, or that

Every *S* is an *M*;

while, if the conclusion, *S* is *P*, is derived from either premise by a change of predicate, that premise may be written

S is *M*;

illustration of hypothesis by Descartes (Rule 10 *Œuvres choisies*: Paris, 1865, page 334), by Leibniz (Nouv. Ess., lib. 4, ch. 12, § 13, Ed. Erdmann, p. 383 b), and (as I learn from D. Stewart; Works, vol. 3, pp. 305 et seqq.) by Graßmann, Boscovich, Hartley, and G.

and the other premise must assert that whatever characters are implied in *P* are implied in *M*, or that

Whatever is *M* is *P*.

In either case, therefore, the syllogism must be capable of expression in the form,

S is *M*; *M* is *P*;
∴ *S* is *P*.

Finally, if the conclusion differs from either of its premises, both in subject and

L. Le Sage. The term Hypothesis has been used in the following senses:—1. For the theme or proposition forming the subject of discourse. 2. For an assumption. Aristotle divides theses or propositions adopted without any reason into definitions and hypotheses. The latter are propositions stating the existence of something. Thus the geometer says, "Let there be a triangle." 3. For a condition in a general sense. We are said to seek other things than happiness *ἐξ ὑποθέσεως*, conditionally. The best republic is the ideally perfect, the second the best on earth, the third the best *ἐξ ὑποθέσεως*, under the circumstances. Freedom is the *ὑπόθεσις* or condition of democracy. 4. For the antecedent of a hypothetical proposition. 5. For an oratorical question which assumes facts. 6. In the Synopsis of Pselus, for the reference of a subject to the things it denotes. 7. Most commonly in modern times, for the conclusion of an argument from consequence and consequent to antecedent. This is my use of the term. 8. For such a conclusion when too weak to be a theory accepted into the body of a science.

I give a few authorities to support the seventh use:

Chautin.—Lexicon Rationale, 1st Ed.—"Hypothesis est propositio, quæ assumitur ad probandum aliam veritatem incognitam. Requirunt multi, ut hæc hypothesis vera esse cognoscatur, etiam antequam appareat, an alia ex eâ deduci possint. Verum aiunt alii, hoc unum desiderari, ut hypothesis vera admittatur, quod nempe ex hæc talia deducitur, quæ respondent phenomenon, et satisfaciunt omnibus difficultatibus, quæ hæc parte in re, et in iis quæ de ea apparent, occurrebant."

Newton.—"Hactenus phenomena colorum et maris nostri per vim gravitatis exposui, sed causam gravitatis nondum assignavi..... Rationem vero harum gravitatis proprietatum ex phenomenon nondum potui deducere, et hypotheses non fingo. Quicquid enim ex phenomenon non deducitur, hypothesis vocanda est..... In hæc Philosophiæ Propositiones deducuntur ex phenomenon, et redduntur generales per inductionem." Principia. Ad fin.

Sir Wm. Hamilton.—"Hypotheses, that is, propositions which are assumed with probability, in order to explain or prove something else which cannot otherwise be explained or proved."—Lectures on Logic (Am. Ed.), p. 188.

"The name of hypothesis is more emphatic-

predicate, the form of statement of conclusion and premise may be so altered that they shall have a common term. This can always be done, for if *P* is the premise and *C* the conclusion, they may be stated thus:

The state of things represented in *P* is real,
and
The state of things represented in *C* is real.

In this case the other premise must in some form virtually assert that every state

cally given to provisory suppositions, which serve to explain the phenomena in so far as observed, but which are only asserted to be true, if ultimately confirmed by a complete induction."—Ibid., p. 361.

"When a phenomenon is presented which can be explained by no principle afforded through experience, we feel discontented and uneasy; and there arises an effort to discover some cause which may, at least provisionally, account for the outstanding phenomenon; and this cause is finally recognized as valid and true, if, through it, the given phenomenon is found to obtain a full and perfect explanation. The judgment in which a phenomenon is referred to such a problematic cause, is called a Hypothesis."—Ibid., pp. 449, 450. See also Lectures on Metaphysics, p. 117.

J. S. Mill.—"An hypothesis is any supposition which we make (either without actual evidence, or on evidence avowedly insufficient), in order to endeavor to deduce from it conclusions in accordance with facts which are known to be real; under the idea that if the conclusions to which the hypothesis leads are known truths, the hypothesis itself either must be, or at least is likely to be true."—Logic (6th Ed.), vol. 2, p. 8.

Kant.—"If all the consequents of a cognition are true, the cognition itself is true..... It is allowable, therefore, to conclude from consequent to a reason, but without being able to determine this reason. From the complexus of all consequents alone can we conclude the truth of a determinate reason..... The difficulty with this positive and direct mode of inference (*modus ponens*) is that the totality of the consequents cannot be apodictically recognized, and that we are therefore led by this mode of inference only to a probable and hypothetically true cognition (*Hypotheses*)."—Logik by Reiche Werke; Ed. Rosenk. and Sch., vol. 3, p. 221.

"A hypothesis is the judgment of the truth of a reason on account of the sufficiency of the consequents."—Ibid., p. 262.

Herbart.—"We can make hypotheses, thence deduce consequents, and afterwards see whether the latter accord with experience. Such suppositions are termed hypotheses."—Einleitung; Werke, vol. 1, p. 53.

Bencke.—"Affirmative inferences from consequent to antecedent, or hypotheses."—System der Logik, vol. 2, p. 103.

There would be no difficulty in greatly multiplying these citations.

of things such as is represented by *C* is the state of things represented in *P*.

All valid reasoning, therefore, is of one general form; and in seeking to reduce all mental action to the formulae of valid inference, we seek to reduce it to one single type.

An apparent obstacle to the reduction of all mental action to the type of valid inferences is the existence of fallacious reasoning. Every argument implies the truth of a general principle of inferential procedure (whether involving some matter of fact concerning the subject of argument, or merely a maxim relating to a system of signs), according to which it is a valid argument. If this principle is false, the argument is a fallacy; but neither a valid argument from false premises, nor an exceedingly weak, but not altogether illegitimate, induction or hypothesis, however its force may be overestimated, however false its conclusion, is a fallacy.

Now words, taken just as they stand, if in the form of an argument, thereby do imply whatever fact may be necessary to make the argument conclusive; so that to the formal logician, who has to do only with the meaning of the words according to the proper principles of interpretation, and not with the intention of the speaker as guessed at from other indications, the only fallacies should be such as are simply absurd and contradictory, either because their conclusions are absolutely inconsistent with their premises, or because they connect propositions by a species of illative conjunction, by which they cannot under any circumstances be validly connected.

But to the psychologist an argument is valid only if the premises from which the mental conclusion is derived would be sufficient, if true, to justify it, either by themselves, or by the aid of other propositions which had previously been held for true. But it is easy to show that all inferences made by man, which are not valid in this sense, belong to four classes, viz.: 1. Those whose premises are false; 2. Those which have some little force, though only a little; 3. Those which result from confusion of one proposition with another; 4. Those which result from the indistinct apprehension, wrong application, or falsity, of a rule of inference. For, if a man were to commit a fallacy not of either of these classes, he would, from true premises conceived with

perfect distinctness, without being led astray by any prejudice or other judgment serving as a rule of inference, draw a conclusion which had really not the least relevancy. If this could happen, calm consideration and care could be of little use in thinking, for caution only serves to insure our taking all the facts into account, and to make those which we do take account of, distinct; nor can coolness do anything more than to enable us to be cautious, and also to prevent our being affected by a passion in inferring that to be true which we wish were true, or which we fear may be true, or in following some other wrong rule of inference. But experience shows that the calm and careful consideration of the same distinctly conceived premises (including prejudices) will insure the pronouncement of the same judgment by all men. Now if a fallacy belongs to the first of these four classes and its premises are false, it is to be presumed that the procedure of the mind from these premises to the conclusion is either correct, or errs in one of the other three ways; for it cannot be supposed that the mere falsity of the premises should affect the procedure of reason when that falsity is not known to reason. If the fallacy belongs to the second class and has some force, however little, it is a legitimate probable argument, and belongs to the type of valid inference. If it is of the third class and results from the confusion of one proposition with another, this confusion must be owing to a resemblance between the two propositions; that is to say, the person reasoning, seeing that one proposition has some of the characters which belong to the other, concludes that it has all the essential characters of the other, and is equivalent to it. Now this is a hypothetic inference, which though it may be weak, and though its conclusion happens to be false, belongs to the type of valid inferences; and, therefore, as the *nodus* of the fallacy lies in this confusion, the procedure of the mind in these fallacies of the third class conforms to the formula of valid inference. If the fallacy belongs to the fourth class, if either results from wrongly applying or misapprehending a rule of inference, and so is a fallacy of confusion, or it results from adopting a wrong rule of inference. In this latter case, this rule is in fact taken as a premise, and therefore the false conclusion is owing merely to the falsity of a premise. In every fallacy, therefore, possible to the mind of man, the

procedure of the mind conforms to the formula of valid inference.

The third principle whose consequences we have to deduce is, that, whenever we think, we have present to the consciousness some feeling, image, conception, or other representation, which serves as a sign. But it follows from our own existence (which is proved by the occurrence of ignorance and error) that everything which is present to us is a phenomenal manifestation of ourselves. This does not prevent its being a phenomenon of something without us, just as a rainbow is at once a manifestation both of the sun and of the rain. When we think, then, we ourselves, as we are at that moment, appear as a sign. Now a sign has, as such, three references: 1st, it is a sign to some thought which interprets it; 2d, it is a sign for some object to which in that thought it is equivalent; 3d, it is a sign, in some respect or quality, which brings it into connection with its object. Let us ask what the three correlates are to which a thought-sign refers.

1. When we think, to what thought does that thought-sign which is ourself address itself? It may, through the medium of outward expression, which it reaches perhaps only after considerable internal development, come to address itself to thought of another person. But whether this happens or not, it is always interpreted by a subsequent thought of our own. If, after any thought, the current of ideas flows on freely, it follows the law of mental association. In that case, each former thought suggests something to the thought which follows it, i. e. is the sign of something to this latter. Our train of thought may, it is true, be interrupted. But we must remember that, in addition to the principal element of thought at any moment, there are a hundred things in our mind to which but a small fraction of attention or consciousness is conceded. It does not, therefore, follow, because a new constituent of thought gets the uppermost, that the train of thought which it displaces is broken off altogether. On the contrary, from our second principle, that there is no intuition or cognition not determined by previous cognitions, it follows that the striking in of a new experience is never an instantaneous affair, but is an *event* occupying time, and coming to pass by a continuous process. Its prominence in consciousness, therefore, must probably be the con-

summation of a growing process; and if so, there is no sufficient cause for the thought which had been the leading one just before, to cease abruptly and instantaneously. But if a train of thought ceases by gradually dying out, it freely follows its own law of association as long as it lasts, and there is no moment at which there is a thought belonging to this series, subsequently to which there is not a thought which interprets or repeats it. There is no exception, therefore, to the law that every thought-sign is translated or interpreted in a subsequent one, unless it be that all thought comes to an abrupt and final end in death.

2. The next question is: For what does the thought-sign stand—what does it name—what is its *suppositum*? The outward thing, undoubtedly, when a real outward thing is thought of. But still, as the thought is determined by a previous thought of the same object, it only refers to the thing through denoting this previous thought. Let us suppose, for example, that Toussaint is thought of, and first thought of as a *negro*, but not distinctly as a man. If this distinctness is afterwards added, it is through the thought that a *negro* is a *man*; that is to say, the subsequent thought, *man*, refers to the outward thing by being predicated of that previous thought, *negro*, which has been had of that thing. If we afterwards think of Toussaint as a general, then we think that this *negro*, this man, was a general. And so in every case the subsequent thought denotes what was thought in the previous thought.

3. The thought-sign stands for its object in the respect which is thought; that is to say, this respect is the immediate object of consciousness in the thought, or, in other words, it is the thought itself, or at least what the thought is thought to be in the subsequent thought to which it is a sign.

We must now consider two other properties of signs which are of great importance in the theory of cognition. Since a sign is not identical with the thing signified, but differs from the latter in some respects, it must plainly have some characters which belong to it in itself, and have nothing to do with its representative function. These I call the *material* qualities of the sign. As examples of such qualities, take in the word "man" its consisting of three letters—in a picture, its being flat and without relief. In the second place, a sign must be capable of

being connected (not in the reason but really) with another sign of the same object, or with the object itself. Thus, words would be of no value at all unless they could be connected into sentences by means of a real copula which joins signs of the same thing. The usefulness of some signs—as a weather-cock, a tally, &c.—consists wholly in their being really connected with the very things they signify. In the case of a picture such a connection is not evident, but it exists in the power of association which connects the picture with the brain-sign which labels it. This real, physical connection of a sign with its object, either immediately or by its connection with another sign, I call the *pure demonstrative application* of the sign. Now the representative function of a sign lies neither in its material quality nor in its pure demonstrative application; because it is something which the sign is, not in itself or in a real relation to its object, but which it is to a *thought*, while both of the characters just defined belong to the sign independently of its addressing any thought. And yet if I take all the things which have certain qualities and physically connect them with another series of things, each to each, they become fit to be signs. If they are not regarded as such they are not actually signs, but they are so in the same sense, for example, in which an unseen flower can be said to be *red*, this being also a term relative to a mental affection.

Consider a state of mind which is a conception. It is a conception by virtue of having a meaning, a logical comprehension; and if it is applicable to any object, it is because that object has the characters contained in the comprehension of this conception. Now the logical comprehension of a thought is usually said to consist of the thoughts contained in it; but thoughts are events, acts of the mind. Two thoughts are two events separated in time, and one cannot literally be contained in the other. It may be said that all thoughts exactly similar are regarded as one; and that to say that one thought contains another, means that it contains one exactly similar to that other. But how can two thoughts be similar? Two objects can only be regarded as similar if they are compared and brought together in the mind. Thoughts have no existence except in the mind; only as they are regarded do they exist. Hence, two thoughts cannot be similar unless they are brought together

in the mind. But, as to their existence, two thoughts are separated by an interval of time. We are too apt to imagine that we can frame a thought similar to a past thought, by matching it with the latter, as though this past thought were still present to us. But it is plain that the knowledge that one thought is similar to or in any way truly representative of another, cannot be derived from immediate perception, but must be an hypothesis (unquestionably fully justifiable by facts), and that therefore the formation of such a representing thought must be dependent upon a real effective force behind consciousness, and not merely upon a mental comparison. What we must mean, therefore, by saying that one concept is contained in another, is that we normally represent one to be in the other; that is, that we form a particular kind of judgment,* of which the subject signifies one concept and the predicate the other.

No thought in itself, then, no feeling in itself, contains any others, but is absolutely simple and unanalyzable; and to say that it is composed of other thoughts and feelings, is like saying that a movement upon a straight line is composed of the two movements of which it is the resultant; that is to say, it is a metaphor, or fiction, parallel to the truth. Every thought, however artificial and complex, is, so far as it is immediately present, a mere sensation without parts, and therefore, in itself, without similarity to any other, but incomparable with any other and absolutely *sui generis*.† Whatever is wholly incomparable with anything else is wholly inexplicable, because explanation consists in bringing things under general laws or under natural classes. Hence every thought, in so far as it is a feeling of a peculiar sort, is simply an ultimate, inexplicable fact. Yet this does not conflict with my postulate that that fact should be allowed to stand as inexplicable; for, on the one hand, we never can think, "This is present to me," since, before

* A judgment concerning a minimum of information, for the theory of which see my paper on Comprehension and Extension, in the Proceedings of the American Academy of Arts and Sciences, vol. 7, p. 426.

† Observe that I say *in itself*. I am not so wild as to deny that my sensation of red to-day is like my sensation of red yesterday. I only say that the similarity can consist only in the physiological force behind consciousness, which leads me to say, I recognize this feeling the same as the former one, and so does not consist in a community of sensation.

we have time to make the reflection, the sensation is past, and, on the other hand, when once past, we can never bring back the quality of the feeling as it was *in and for itself*, or know what it was like *in itself*, or even discover the existence of this quality except by a corollary from our general theory of ourselves, and then, not in its idiosyncrasy, but only as something present. But, as something present, feelings are all alike and require no explanation, since they contain only what is universal. So that nothing which we can truly predicate of feelings is left inexplicable, but only something which we cannot reflectively know. So that we do not fall into the contradiction of making the Mediate immediate. Finally, no present actual thought (which is a mere feeling) has any meaning, any intellectual value; for this lies not in what is actually thought, but in what this thought may be connected with in representation by subsequent thoughts; so that the meaning of a thought is altogether something virtual. It may be objected, that if no thought has any meaning, all thought is without meaning. But this is a fallacy similar to saying, that, if in no one of the successive spaces which a body fills there is room for motion, there is no room for motion throughout the whole. At no one instant in my state of mind is there cognition or representation, but in the relation of my states of mind at different instants there is.* In short, the Immediate (and therefore in itself unsusceptible of mediation—the Unanalyzable, the Inexplicable, the Unintelligible) runs in a continuous stream through our lives; it is the sum total of consciousness, whose mediation, which is the continuity of it, is brought about by a real effective force behind consciousness.

Thus, we have in thought three elements: 1st, the representative function which makes it a *representation*; 2d, the pure denotative application, or real connection, which brings one thought into relation with another; and 3d, the material quality, or how it feels, which gives thought its *quality*.†

That a sensation is not necessarily an intuition, or first impression of sense, is very

evident in the case of the sense of beauty; and has been shown, upon page 105 of this volume, in the case of sound. When the sensation beautiful is determined by previous cognitions, it always arises as a predicate: that is, we think that something is beautiful. Whenever a sensation thus arises in consequence of others, induction shows that those others are more or less complicated. Thus, the sensation of a particular kind of sound arises in consequence of impressions upon the various nerves of the ear being combined in a particular way, and following one another with a certain rapidity. A sensation of color depends upon impressions upon the eye following one another in a regular manner, and with a certain rapidity. The sensation of beauty arises upon a manifold of other impressions. And this will be found to hold good in all cases. Secondly, all these sensations are in themselves simple, or more so than the sensations which give rise to them. Accordingly, a sensation is a simple predicate taken in place of a complex predicate; in other words, it fulfils the function of an hypothesis. But the general principle that every thing to which such and such a sensation belongs, has such and such a complicated series of predicates, is not one determined by reason (as we have seen), but is of an arbitrary nature. Hence, the class of hypothetic inferences which the arising of a sensation resembles, is that of reasoning from definition to definitum, in which the major premise is of an arbitrary nature. Only in this mode of reasoning, this premise is determined by the conventions of language, and expresses the occasion upon which a word is to be used; and in the formation of a sensation, it is determined by the constitution of our nature, and expresses the occasions upon which sensation, or a natural mental sign, arises. Thus, the sensation, so far as it represents something, is determined, according to a logical law, by previous cognitions; that is to say, these cognitions determine that there shall be a sensation. But so far as the sensation is a mere feeling of a particular sort, it is determined only by an inexplicable, occult power; and so far, it is not a representation, but only the material quality of a representation. For just as in reasoning from definition to definitum, it is indifferent to the logician how the defined word shall sound, or how many letters it shall contain, so in the case of this constitu-

tional word, it is not determined by an inward law how it shall feel in itself. A feeling, therefore, as a feeling, is merely the *material quality* of a mental sign.

But there is no feeling which is not also a representation, a predicate of something determined logically by the feelings which precede it. For if there are any such feelings not predicates, they are the emotions. Now every emotion has a subject. If a man is angry, he is saying to himself that this or that is vile and outrageous. If he is in joy, he is saying "this is delicious." If he is wondering, he is saying "this is strange." In short, whenever a man feels, he is thinking of *something*. Even those passions which have no definite object—as melancholy—only come to consciousness through tinging the *objects of thought*. That which makes us look upon the emotions more as affections of self than other cognitions, is that we have found them more dependent upon our accidental situation at the moment than other cognitions; but that is only to say that they are cognitions too narrow to be useful. The emotions, as a little observation will show, arise when our attention is strongly drawn to complex and inconceivable circumstances. Fear arises when we cannot predict our fate; joy, in the case of certain indescribable and peculiarly complex sensations. If there are some indications that something greatly for my interest, and which I have anticipated would happen, may not happen; and if, after weighing probabilities, and inventing safeguards, and straining for further information, I find myself unable to come to any fixed conclusion in reference to the future, in the place of that intellectual hypothetic inference which I seek, the feeling of *anxiety* arises. When something happens for which I cannot account, I *wonder*. When I endeavor to realize to myself what I never can do, a pleasure in the future, I *hope*. "I do not understand you," is the phrase of an angry man. The indescribable, the ineffable, the incomprehensible, commonly excite emotion; but nothing is so chilling as a scientific explanation. Thus an emotion is always a simple predicate substituted by an operation of the mind for a highly complicated predicate. Now if we consider that a very complex predicate demands explanation by means of an hypothesis, that that hypothesis must be a simpler predicate substituted for that complex one; and that when we have an emotion, an hypothesis, strictly

speaking, is hardly possible—the analogy of the parts played by emotion and hypothesis is very striking. There is, it is true, this difference between an emotion and an intellectual hypothesis, that we have reason to say in the case of the latter, that to whatever the simple hypothetic predicate can be applied, of that the complex predicate is true; whereas, in the case of an emotion this is a proposition for which no reason can be given, but which is determined merely by our emotional constitution. But this corresponds precisely to the difference between hypothesis and reasoning from definition to definitum, and thus it would appear that emotion is nothing but sensation. There appears to be a difference, however, between emotion and sensation, and I would state it as follows:

There is some reason to think that, corresponding to every feeling within us, some motion takes place in our bodies. This property of the thought-sign, since it has no rational dependence upon the meaning of the sign, may be compared with what I have called the material quality of the sign; but it differs from the latter inasmuch as it is not essentially necessary that it should be felt in order that there should be any thought-sign. In the case of a sensation, the manifold of impressions which precede and determine it are not of a kind, the bodily motion corresponding to which comes from any large ganglion or from the brain, and probably for this reason the sensation produces no great commotion in the bodily organism; and the sensation itself is not a thought which has a very strong influence upon the current of thought except by virtue of the information it may serve to afford. An emotion, on the other hand, comes much later in the development of thought—I mean, further from the first beginning of the cognition of its object—and the thoughts which determine it already have motions corresponding to them in the brain, or the chief ganglia; consequently, it produces large movements in the body, and, independently of its representative value, strongly affects the current of thought. The animal motions to which I allude, are, in the first place and obviously, blushing, blenching, staring, smiling, scowling, pouting, laughing, weeping, sobbing, wriggling, flinching, trembling, being petrified, sighing, sniffing, shrugging, groaning, heartsinking, trepidation, swelling of the heart, etc. etc. To

* Accordingly, just as we say that a body is in motion, and not that motion is in a body we ought to say that we are in thought, and not that thoughts are in us.

† On quality, relation, and representation, see Proceedings of the American Academy of Arts and Sciences, vol. 7, p. 293.

these may, perhaps, be added, in the second place, other more complicated actions, which nevertheless spring from a direct impulse and not from deliberation.

That which distinguishes both sensations proper and emotions from the feeling of a thought, is that in the case of the two former the material quality is made prominent, because the thought has no relation of reason to the thoughts which determine it, which exists in the last case and detracts from the attention given to the mere feeling. By there being no relation of reason to the determining thoughts, I mean that there is nothing in the content of the thought which explains why it should arise only on occasion of these determining thoughts. If there is such a relation of reason, if the thought is essentially limited in its application to these objects, then the thought comprehends a thought other than itself; in other words, it is then a complex thought. An incomplex thought can, therefore, be nothing but a sensation or emotion, having no rational character. This is very different from the ordinary doctrine, according to which the very highest and most metaphysical conceptions are absolutely simple. I shall be asked how such a conception of a *being* is to be analyzed, or whether I can ever define *one*, *two*, and *three*, without a diallele. Now I shall admit at once that neither of these conceptions can be separated into two others higher than itself; and in that sense, therefore, I fully admit that certain very metaphysical and eminently intellectual notions are absolutely simple. But though these concepts cannot be defined by genus and difference, there is another way in which they can be defined. All determination is by negation; we can first recognize any character only by putting an object which possesses it into comparison with an object which possesses it not. A conception, therefore, which was quite universal in every respect would be unrecognizable and impossible. We do not obtain the conception of *Being*, in the sense implied in the copula, by observing that all the things which we can think of have something in common, for there is no such thing to be observed. We get it by reflecting upon signs—words or thoughts;—we observe that different predicates may be attached to the same subject, and that each makes some conception applicable to the subject; then we imagine that a

subject has something true of it merely because a predicate (no matter what) is attached to it,—and that we call *Being*. The conception of being is, therefore, a conception about a sign—a thought, or word;—and since it is not applicable to every sign, it is not primarily universal, although it is so in its mediate application to things. *Being*, therefore, may be defined; it may be defined, for example, as that which is common to the objects included in any class, and to the objects not included in the same class. But it is nothing new to say that metaphysical conceptions are primarily and at bottom thoughts about words, or thoughts about thoughts; it is the doctrine both of Aristotle (whose categories are parts of speech) and of Kant (whose categories are the characters of different kinds of propositions).

Sensation and the power of abstraction or attention may be regarded as, in one sense, the sole constituents of all thought. Having considered the former, let us now attempt some analysis of the latter. By the force of attention, an emphasis is put upon one of the objective elements of consciousness. This emphasis is, therefore, not itself an object of immediate consciousness; and in this respect it differs entirely from a feeling. Therefore, since the emphasis, nevertheless, consists in some effect upon consciousness, and so can exist only so far as it affects our knowledge; and since an act cannot be supposed to determine that which precedes it in time, this act can consist only in the capacity which the cognition emphasized has for producing an effect upon memory, or otherwise influencing subsequent thought. This is confirmed by the fact that attention is a matter of continuous quantity; for continuous quantity, so far as we know it, reduces itself in the last analysis to time. Accordingly, we find that attention does, in fact, produce a very great effect upon subsequent thought. In the first place, it strongly affects memory, a thought being remembered for a longer time the greater the attention originally paid to it. In the second place, the greater the attention, the closer the connection and the more accurate the logical sequence of thought. In the third place, by attention a thought may be recovered which has been forgotten. From these facts, we gather that attention is the power by which thought at one time is connected with and made to relate to thought at another time;

or, to apply the conception of thought as a sign, that it is the *pure demonstrative application* of a thought-sign.

Attention is roused when the same phenomenon presents itself repeatedly on different occasions, or the same predicate in different subjects. We see that *A* has a certain character, that *B* has the same, *C* has the same; and this excites our attention, so that we say, "*These* have this character." Thus attention is an act of induction; but it is an induction which does not increase our knowledge, because our "*these*" covers nothing but the instances experienced. It is, in short, an argument from enumeration.

Attention produces effects upon the nervous system. These effects are habits, or nervous associations. A habit arises, when, having had the sensation of performing a certain act, *m*, on several occasions *a*, *b*, *c*, we come to do it upon every occurrence of the general event, *l*, of which *a*, *b* and *c* are special cases. That is to say, by the cognition that

Every case of *a*, *b*, or *c*, is a case of *m*,
is determined the cognition that

Every case of *l* is a case of *m*.

Thus the formation of a habit is an induction, and is therefore necessarily connected with attention or abstraction. Voluntary actions result from the sensations produced by habits, as instinctive actions result from our original nature.

We have thus seen that every sort of modification of consciousness—Attention, Sensation, and Understanding—is an inference. But the objection may be made that inference deals only with general terms, and that an image, or absolutely singular representation, cannot therefore be inferred.

"Singular" and "individual" are equivocal terms. A singular may mean that which can be but in one place at one time. In this sense it is not opposed to general. *The sun* is a singular in this sense, but, as is explained in every good treatise on logic, it is a general term. I may have a very general conception of *Hermolaus Barbarus*, but still I conceive him only as able to be in one place at one time. When an image is said to be singular, it is meant that it is absolutely determinate in all respects. Every possible character, or the negative thereof, must be true of such an image. In the words of the most eminent expounder of the doctrine, the image of a man "must be either

of a white, or a black, or a tawny; a straight, or a crooked; a tall, or a low, or a middle-sized man." It must be of a man with his mouth open or his mouth shut, whose hair is precisely of such and such a shade, and whose figure has precisely such and such proportions. No statement of Locke has been so scouted by all friends of images as his denial that the "idea" of a triangle must be either of an obtuse-angled, right-angled, or acute-angled triangle. In fact, the image of a triangle must be of one, each of whose angles is of a certain number of degrees, minutes, and seconds.

This being so, it is apparent that no man has a *true* image of the road to his office, or of any other real thing. Indeed he has no image of it at all unless he can not only recognize it, but imagines it (truly or falsely) in all its infinite details. This being the case, it becomes very doubtful whether we ever have any such thing as an image in our imagination. Please, reader, to look at a bright red book, or other brightly colored object, and then to shut your eyes and say whether you see that color, whether brightly or faintly—whether, indeed, there is anything like sight there. Hume and the other followers of Berkeley maintain that there is no difference between the sight and the memory of the red book except in "their different degrees of force and vivacity." "The colors which the memory employs," says Hume, "are faint and dull compared with those in which our original perceptions are clothed." If this were a correct statement of the difference, we should remember the book as being less red than it is; whereas, in fact, we remember the color with very great precision for a few moments [please to test this point, reader], although we do not see any thing like it. We carry away absolutely nothing of the color except the consciousness that we could recognize it. As a further proof of this, I will request the reader to try a little experiment. Let him call up, if he can, the image of a horse—not of one which he has ever seen, but of an imaginary one,—and before reading further let him by contemplation* fix the image in his memory. . . .

*No person whose native tongue is English will need to be informed that contemplation is essentially (1) protracted (2) voluntary, and (3) an action, and that it is never used for that which is set forth to the mind in this act. A foreigner can convince himself of this by the proper study of English writers. Thus, Locke (*Essay* concerning Human Understanding,

Has the reader done as requested? for I protest that it is not fair play to read further without doing so. — Now, the reader can say in general of what color that horse was, whether grey, bay, or black. But he probably cannot say *precisely* of what shade it was. He cannot state this as exactly as he could just after having *seen* such a horse. But why, if he had an image in his mind which no more had the general color than it had the particular shade, has the latter vanished so instantaneously from his memory while the former still remains? It may be replied, that we always forget the details before we do the more general characters; but that this answer is insufficient is, I think, shown by the extreme disproportion between the length of time that the exact shade of something looked at is remembered as compared with that instantaneous oblivion to the exact shade of the thing imagined, and the but slightly superior vividness of the memory of the thing seen as compared with the memory of the thing imagined.

The nominalists, I suspect, confound together thinking a triangle without thinking that it is either equilateral, isosceles, or scalene, and thinking a triangle without thinking whether it is equilateral, isosceles, or scalene.

It is important to remember that we have no intuitive power of distinguishing between one subjective mode of cognition and another; and hence often think that something is presented to us as a picture, while it is really constructed from slight data by the understanding. This is the case with dreams, as is shown by the frequent impossibility of giving an intelligible account of one without adding something which we feel was not in the dream itself. Many dreams, of which the waking memory

Book II., chap. 19, § 1) says, "If it [an idea] be held there [in view] long under attentive consideration, 'tis Contemplation'; and again, (*Ibid.*, Book II., chap. 10, § 1) "Keeping the Idea, which is brought into it [the mind] for some time actually in view, which is called Contemplation." This term is therefore unfitted to translate *Anschauung*; for this latter does not imply an act which is necessarily protracted, or voluntary, and denotes most usually a mental presentation, sometimes a faculty, less often the reception of an impression in the mind, and seldom, if ever, an action. To the translation of *Anschauung* by intuition, there is, at least, no such insufferable objection. Etymologically the two words precisely correspond. The original philosophical meaning of intuition

makes elaborate and consistent stories, must probably have been in fact mere jumbles of these feelings of the ability to recognize this and that which I have just alluded to.

I will now go so far as to say that we have no images even in actual perception. It will be sufficient to prove this in the case of vision; for if no picture is seen when we look at an object, it will not be claimed that hearing, touch, and the other senses, are superior to sight in this respect. That the picture is not painted on the nerves of the retina is absolutely certain, if, as physiologists inform us, these nerves are needle-points pointing to the light and at distances considerably greater than the *minimum visibile*. The same thing is shown by our not being able to perceive that there is a large blind spot near the middle of the retina. If, then, we have a picture before us when we see, it is one constructed by the mind at the suggestion of previous sensations. Supposing these sensations to be signs, the understanding by reasoning from them could attain all the knowledge of outward things which we derive from sight, while the sensations are quite inadequate to forming an image or representation absolutely determinate. If we have such an image or picture, we must have in our minds a representation of a surface which is only a part of every surface we see, and we must see that each part, however small, has such and such a color. If we look from some distance at a speckled surface, it seems as if we did not see whether it were speckled or not; but if we have an image before us, it must appear to us either as speckled, or as not speckled. Again, the eye, by education comes to distinguish minute differences of color; but if we see only absolutely determinate images, we must, no less before our eyes are trained than after-

was a cognition of the present manifold in that character; and it is now commonly used, as a modern writer says, "to include all the products of the perceptive (external or internal) and imaginative faculties; every act of consciousness, in short, of which the immediate object is an individual, thing, act, or state of mind, presented under the condition of distinct existence in space and time." Finally, we have the authority of Kant's own example for translating his *Anschauung* by *Intuitus*; and, indeed, this is the common usage of Germans writing Latin. Moreover, *intuitus* frequently replaces *anschauend* or *anschaulich*. If this constitutes a misunderstanding of Kant, it is one which is shared by himself and nearly all his countrymen.

wards, see each color as particularly such and such a shade. Thus to suppose that we have an image before us when we see, is not only a hypothesis which explains nothing whatever, but is one which actually creates difficulties which require new hypotheses in order to explain them away.

One of these difficulties arises from the fact that the details are less easily distinguished than, and forgotten before, the general circumstances. Upon this theory, the general features exist in the details: the details are, in fact, the whole picture. It seems, then, very strange that that which exists only secondarily in the picture should make more impression than the picture itself. It is true that in an old painting the details are not easily made out; but this is because we know that the blackness is the result of time, and is no part of the picture itself. There is no difficulty in making out the details of the picture as it looks at present; the only difficulty is in guessing what it used to be. But if we have a picture on the retina, the minutest details are there as much as, nay, more than, the general outline and significance of it. Yet that which must actually be seen, it is extremely difficult to recognize; while that which is only abstracted from what is seen is, very obvious.

But the conclusive argument against our having any images, or absolutely determinate representations in perception, is that in that case we have the materials in each such representation for an infinite amount of conscious cognition, which we yet never become aware of. Now there is no meaning in saying that we have something in our minds which never has the least effect on what we are conscious of knowing. The most that can be said is, that when we see we are put in a condition in which we are able to get a very large and perhaps indefinitely great amount of knowledge of the visible qualities of objects.

Moreover, that perceptions are not absolutely determinate and singular is obvious from the fact that each sense is an abstracting mechanism. Sight by itself informs us only of colors and forms. No one can pretend that the images of sight are determinate in reference to taste. They are, therefore, so far general that they are neither sweet nor non-sweet, bitter nor non-bitter, having savor or insipid.

The next question is whether we have

any general conceptions except in judgments. In perception, where we know a thing as existing, it is plain that there is a judgment that the thing exists, since a mere general concept of a thing is in no case a cognition of it as existing. It has usually been said, however, that we can call up any concept without making any judgment; but it seems that in this case we only arbitrarily suppose ourselves to have an experience. In order to conceive the number 7, I suppose, that is, I arbitrarily make the hypothesis or judgment, that there are certain points before my eyes, and I judge that these are seven. This seems to be the most simple and rational view of the matter, and I may add that it is the one which has been adopted by the best logicians. If this be the case, what goes by the name of the association of images is in reality an association of judgments. The association of ideas is said to proceed according to three principles—those of resemblance, of contiguity, and of causality. But it would be equally true to say that signs denote what they do on the three principles of resemblance, contiguity, and causality. There can be no question that anything is a sign of whatever is associated with it by resemblance, by contiguity, or by causality: nor can there be any doubt that any sign recalls the thing signified. So, then, the association of ideas consists in this, that a judgment occasions another judgment, of which it is the sign. Now this is nothing less nor more than inference.

Everything in which we take the least interest creates in us its own particular emotion, however slight this may be. This emotion is a sign and a predicate of the thing. Now, when a thing resembling this thing is presented to us, a similar emotion arises; hence, we immediately infer that the latter is like the former. A formal logician of the old school may say, that in logic no term can enter into the conclusion which had not been contained in the premises, and that therefore the suggestion of something new must be essentially different from inference. But I reply that that rule of logic applies only to those arguments which are technically called completed. We can and do reason—

Elias was a man;
∴ He was mortal.

And this argument is just as valid as the full syllogism, although it is so only because the

major premise of the latter happens to be true. If to pass from the judgment "Elias was a man" to the judgment "Elias was mortal," without actually saying to one's self that "All men are mortal," is not inference, then the term "inference" is used in so restricted a sense that inferences hardly occur outside of a logic-book.

What is here said of association by resemblance is true of all association. All association is by signs. Everything has its subjective or emotional qualities, which are attributed either absolutely or relatively, or by conventional imputation to anything which is a sign of it. And so we reason,

The sign is such and such;
∴ The sign is that thing.

This conclusion receiving, however, a modification, owing to other considerations, so as to become—

The sign is almost (is representative of) that thing.

We come now to the consideration of the last of the four principles whose consequences we were to trace; namely, that the absolutely incognizable is absolutely inconceivable. That upon Cartesian principles the very realities of things can never be known in the least, most competent persons must long ago have been convinced. Hence the breaking forth of idealism, which is essentially anti-Cartesian, in every direction, whether among empiricists (Berkeley, Hume), or among no-ologists (Hegel, Fichte). The principle now brought under discussion is directly idealistic; for, since the meaning of a word is the conception it conveys, the absolutely incognizable has no meaning because no conception attaches to it. It is, therefore, a meaningless word; and, consequently, whatever is meant by any term as "the real" is cognizable in some degree, and so is of the nature of a cognition, in the objective sense of that term.

At any moment we are in possession of certain information, that is, of cognitions which have been logically derived by induction and hypothesis from previous cognitions which are less general, less distinct, and of which we have a less lively consciousness. These in their turn have been derived from others still less general, less distinct, and less vivid; and so on back to the

ideal* first, which is quite singular, and quite out of consciousness. This ideal first is the particular thing-in-itself. It does not exist *as such*. That is, there is no thing which is in-itself in the sense of not being relative to the mind, though things which are relative to the mind doubtless are, apart from that relation. The cognitions which thus reach us by this infinite series of inductions and hypotheses (which though infinite *a parte ante* logice, is yet as one continuous process not without a beginning in time) are of two kinds, the true and the untrue, or cognitions whose objects are *real* and those whose objects are *unreal*. And what do we mean by the real? It is a conception which we must first have had when we discovered that there was an unreal, an illusion; that is, when we first corrected ourselves. Now the distinction for which alone this fact logically called, was between an *ens* relative to private inward determinations, to the negations belonging to idiosyncrasy, and an *ens* such as would stand in the long run. The real, then, is that which, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you. Thus, the very origin of the conception of reality shows that this conception essentially involves the notion of a COMMUNITY, without definite limits, and capable of a definite increase of knowledge. And so those two series of cognitions—the real and the unreal—consist of those which, at a time sufficiently future, the community will always continue to re-affirm; and of those which, under the same conditions, will ever after be denied. Now, a proposition whose falsity can never be discovered, and the error of which therefore is absolutely incognizable, contains, upon our principle, absolutely no error. Consequently, that which is thought in these cognitions is the real, as it really is. There is nothing, then, to prevent our knowing outward things as they really are, and it is most likely that we do thus know them in numberless cases, although we can never be absolutely certain of doing so in any special case.

But it follows that since no cognition of ours is absolutely determinate, generals must have a real existence. Now this scholastic realism is usually set down as a belief in met-

* By an ideal, I mean the limit which the possible cannot attain.

aphysical fictions. But, in fact, a realist is simply one who knows no more recondite reality than that which is represented in a true representation. Since, therefore, the word "man" is true of something, that which "man" means is real. The nominalist must admit that man is truly applicable to something; but he believes that there is beneath this a thing in itself, an incognizable reality. His is the metaphysical figment. Modern nominalists are mostly superficial men, who do not know, as the more thorough Roscellinus and Occam did, that a reality which has no representation is one which has no relation and no quality. The great argument for nominalism is that there is no man unless there is some particular man. That, however, does not affect the realism of Scotus; for although there is no man of whom all further determination can be denied, yet there is a man, abstraction being made of all further determination. There is a real difference between man irrespective of what the other determinations may be, and man with this or that particular series of determinations, although undoubtedly this difference is only relative to the mind and not in *re*. Such is the position of Scotus.* Occam's great objection is, there can be no real distinction which is not in *re*, in the thing-in-itself; but this begs the question, for it is itself based only on the notion that reality is something independent of representative relation.†

Such being the nature of reality in general, in what does the reality of the mind consist? We have seen that the content of consciousness, the entire phenomenal manifestation of mind, is a sign resulting from inference. Upon our principle, therefore, that the absolutely incognizable does not exist, so that the phenomenal manifestation of a substance is the substance, we must conclude that the mind is a sign developing according to the laws of inference. What distinguishes a man from a word? There is a distinction doubtless. The material qualities, the forces which constitute the pure denotative application, and the meaning of

* "Eadem natura est, quæ in existentia per gradum singularitatis est determinata, et in intellectu, hoc est ut habet relationem ad intellectum ut cognitum ad cognoscens, est indeterminata."—Quæst. Subtilissimæ, lib. 7, qu. 18.

† See his argument *Summa logices*, part. 1, cap. 16.

the human sign, are all exceedingly complicated in comparison with those of the word. But these differences are only relative. What other is there? It may be said that man is conscious, while a word is not. But consciousness is a very vague term. It may mean that emotion which accompanies the reflection that we have animal life. This is a consciousness which is dimmed when animal life is at its ebb in old age, or sleep, but which is not dimmed when the spiritual life is at its ebb; which is the more lively the better animal a man is, but which is not so, the better man he is. We do not attribute this sensation to words, because we have reason to believe that it is dependent upon the possession of an animal body. But this consciousness, being a mere sensation, is only a part of the material quality of the man-sign. Again, consciousness is sometimes used to signify the *I think*, or unity in thought; but the unity is nothing but consistency, or the recognition of it. Consistency belongs to every sign, so far as it is a sign; and therefore every sign, since it signifies primarily that it is a sign, signifies its own consistency. The man-sign acquires information, and comes to mean more than he did before. But so do words. Does not electricity mean more now than it did in the days of Franklin? Man makes the word, and the word means nothing which the man has not made it mean, and that only to some man. But since man can think only by means of words or other external symbols, these might turn round and say: "You mean nothing which we have not taught you, and then only so far as you address some word as the interpretant of your thought." In fact, therefore, men and words reciprocally educate each other; each increase of a man's information involves and is involved by, a corresponding increase of a word's information.

Without fatiguing the reader by stretching this parallelism too far, it is sufficient to say that there is no element whatever of man's consciousness which has not something corresponding to it in the word; and the reason is obvious. It is that the word or sign which man uses is the man himself. For, as the fact that every thought is a sign, taken in conjunction with the fact that life is a train of thought, proves that man is a sign; so, that every thought is an external sign, proves that man is an external sign. That is to say, the man and the external

sign are identical, in the same sense in which the words *homo* and *man* are identical. Thus my language is the sum total of myself; for the man is the thought.

It is hard for man to understand this, because he persists in identifying himself with his will, his power over the animal organism, with brute force. Now the organism is only an instrument of thought. But the identity of a man consists in the consistency of what he does and thinks, and consistency is the intellectual character of a thing; that is, is its expressing something.

Finally, as what anything really is, is what it may finally come to be known to be in the ideal state of complete information, so that reality depends on the ultimate decis-

ion of the community; so thought is what it is, only by virtue of its addressing a future thought which is in its value as thought identical with it, though more developed. In this way, the existence of thought now, depends on what is to be hereafter; so that it has only a potential existence, dependent on the future thought of the community.

The individual man, since his separate existence is manifested only by ignorance and error, so far as he is anything apart from his fellows, and from what he and they are to be, is only a negation. This is man,

* * * "proud man,
Most ignorant of what he's most assured,
His glassy essence."

ANALYSIS OF HEGEL'S *ÆSTHETICS*.

[Translated from the French of Charles Bénard by JAS. A. MARTLING.]

IV. Music.—Art represents, under different forms, the development of spirit. It is, accordingly, the degree of spirituality in the mode of expression which assigns to each of the arts its rank, its pre-eminence, and which serves to fix its relations.

Architecture is the most imperfect art, expressing thought in a vague manner only, through forms borrowed from inorganic matter. Next, *Sculpture* represents spirit, but still as identified with the body, and only so far as corporeal form allows. *Painting* expresses the innermost and profoundest side of the soul, passion, and moral sentiment. Hence it rejects matter, in order that it may confine itself to surface. It employs visible appearance and color as a richer, more varied and more spiritual mode of expression. Nevertheless this appearance is always borrowed from the visible, extended, and permanent form.

There is in the soul a necessity for signs, for materials, more in conformity with its nature, presenting nothing fixed and extended, and where the material side wholly disappears.

This need is supplied in *Music*. Its end is to express the soul in itself, the inner sentiment, by a sign which no longer offers anything extended or material, by a sign invisible, rapid and fleeting as the movements of

soul itself. This sign, which is, however, still produced by means of matter, no more recalls extension and its forms, but is sound, the result of the undulatory vibration of bodies.

As music abandons visible forms, it addresses itself to a new organ, to the hearing, a sense more spiritual, though less contemplative, than vision. The ear perceives this unextended sign, the resultant of that vibration which leaves no trace after it, and vanishes in its expression.

By thus divesting itself of external and material form, sound is eminently fitted to be the echo of the soul and of sentiment. Accordingly, the problem of music will be to awake the innermost chords of the soul, and to reproduce all its movements and emotions.

Thereby, also, its effects are explained. Its aim is to reach the utmost limit of sentiment; it is the art of *sentiment*. Between art and sentiment there exists so intimate a union that they seemingly fuse together. Sound, that immaterial phenomenon, without proper duration, instantaneous, borrowing all its value from the sentiment which it veils, penetrates into the soul and echoes through its depths.

If we compare music with the other arts, we find, in the first place, that it exhibits certain real analogies with *Architecture*. If

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