6.1 | *The Characteristics and Conditions of Human Knowledge*

On a number of points, the quotations collected here tend to be in substantial agreement: that knowledge, or the truth that is attained when we know, is the essential good of the mind; that it is both good in itself, to be loved for its own sake, and also good as a means to be used in action and production; that, while man aspires to know all that is knowable, human knowledge at its best is imperfect and limited; and that knowledge is a relation between a knower and an object known.

Other points made by some of the authors quoted are not concurred in or mentioned by others, such as the distinction between that which is more knowable in itself and that which is more knowable to us; the comparison between man's finite or limited knowledge and God's infinite knowledge; the difference between sensitive and intellectual knowledge; the difference between simple apprehensions which assert nothing and so are neither true nor false and judgments which, affirming or denying something, are capable of truth and falsity; the difference between knowledge by acquaintance (or knowledge *of*) and knowledge by description (or knowledge *about*); the difference between scientific and technical knowledge (or between know-that and know-how); and the difference between speculative and practical knowledge (or knowing what *is* the case and knowing what *ought* to be done or sought).

Beyond this, the reader will find that the quotations exhibit a pattern of manifold and intricate disagreements about the process of knowing itself—how we know whatever it is that we do know; about the precise nature of the relationship between knower and known; about the existential status of the object known; about the grades of human knowledge, either in terms of the character of the objects known or in terms of the degree of certainty or uncertainty with which something is known; about the distinction between knowledge and opinion; and about the limits of human knowledge. Some of these matters, merely hinted at in the passages quoted here, are more fully discussed in later sections of this chapter, especially Sections 6.4, 6.5, and 6.6.

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1 The fear of the Lord is the beginning of knowledge: but fools despise wisdom and instruction.

Proverbs 1:7

2 *Persian soldier.* 'Tis the sorest of all human ills, to abound in knowledge and yet have no power over action.

Herodotus, *History,* IX, 16

3 *Socrates.* In questions of just and unjust, fair and foul, good and evil, which are the subjects of our present consultation, ought we to follow the opinion of the many and to fear them; or the opinion of the one man who has understanding? ought we not to fear and reverence him more than all the rest of the world: and if we desert him shall we not destroy and injure that principle in us which may be assumed to be improved by justice and deteriorated by injustice?

Plato, *Crito,* 47B

4 *Socrates.* What again shall we say of the actual acquirement of knowledge?—is the body, if invited to share in the enquiry, a hinderer or a helper? I mean to say, have sight and hearing any truth in them? Are they not, as the poets are always telling

us, inaccurate witnesses? and yet, if even they are inaccurate and indistinct, what is to be said of the other senses?—for you will allow that they are the best of them?

Certainly, he [Simmias] replied.

Then when does the soul attain truth?—for in attempting to consider anything in company with the body she is obviously deceived.

True.

Then must not true existence be revealed to her in thought, if at all?

Yes.

And thought is best when the mind is gathered into herself and none of these things trouble her—neither sounds nor sights nor pain nor any pleasure,—when she takes leave of the body, and has as little as possible to do with it, when she has no bodily sense or desire, but is aspiring after true being?

Certainly.

And in this the philosopher dishonours the body; his soul runs away from his body and desires to be alone and by herself?

That is true.

Well, but there is another thing, Simmias: Is there or is there not an absolute justice?

Assuredly there is.

And an absolute beauty and absolute good?

Of course.

But did you ever behold any of them with your eyes?

Certainly not.

Or did you ever reach them with any other bodily sense?—and I speak not of these alone, but of absolute greatness, and health, and strength, and of the essence or true nature of everything. Has the reality of them ever been perceived by you through the bodily organs? or rather, is not the nearest approach to the knowledge of their several natures made by him who so orders his intellectual vision as to have the most exact conception of the essence of each thing which he considers?

Certainly.

And he attains to the purest knowledge of them who goes to each with the mind alone, not introducing or intruding in the act of thought sight or any other sense together with reason, but with the very light of the mind in her own clearness searches into the very truth of each; he who has got rid, as far as he can, of eyes and ears and, so to speak, of the whole body, these being in his opinion distracting elements which when they infect the soul hinder her from acquiring truth and knowledge—who, if not he, is likely to attain to the knowledge of true being?

Plato, *Phaedo*, 65A

5 *Socrates.* You have to imagine . . . that there are two ruling powers, and that one of them is set over the intellectual world, the other over the visible. I do not say heaven, lest you should fancy that I am playing upon the name. May I suppose that you have this distinction of the visible and intelligible fixed in your mind?

Glaucon. I have.

Now take a line which has been cut into two unequal parts, and divide each of them again in the same proportion, and suppose the two main divisions to answer, one to the visible and the other to the intelligible, and then compare the subdivisions in respect of their clearness and want of clearness, and you will find that the first section in the sphere of the visible consists of images. And by images I mean, in the first place, shadows, and in the second place, reflections in water and in solid, smooth and polished bodies and the like: Do you understand?

Yes, I understand.

Imagine, now, the other section, of which this is only the resemblance, to include the animals which we see, and everything that grows or is made.

Very good.

Would you not admit that both the sections of this division have different degrees of truth, and that the copy is to the original as the sphere of opinion is to the sphere of knowledge?

Most undoubtedly.

Next proceed to consider the manner in which the sphere of the intellectual is to be divided.

In what manner?

Thus:—There are two subdivisions, in the lower of which the soul uses the figures given by the former division as images; the enquiry can only be hypothetical, and instead of going upwards to a principle descends to the other end; in the higher of the two, the soul passes out of hypotheses, and goes up to a principle which is above hypotheses, making no use of images as in the former case, but proceeding only in and through the ideas themselves.

I do not quite understand your meaning, he said.

Then I will try again; you will understand me better when I have made some preliminary remarks. You are aware that students of geometry, arithmetic, and the kindred sciences assume the odd and the even and the figures and three kinds of angles and the like in their several branches of science; these are their hypotheses, which they and every body are supposed to know, and therefore they do not deign to give any account of them either to themselves or others; but they begin with them, and go on until they arrive at last, and in a consistent manner, at their conclusion?

Yes, he said, I know.

And do you not know also that although they make use of the visible forms and reason about them, they are thinking not of these, but of the ideals which they resemble; not of the figures which they draw, but of the absolute square and

the absolute diameter, and so on—the forms which they draw or make, and which have shadows and reflections in water of their own, are converted by them into images, but they are really seeking to behold the things themselves, which can only be seen with the eye of the mind?

That is true.

And of this kind I spoke as the intelligible, although in the search after it the soul is compelled to use hypotheses; not ascending to a first principle, because she is unable to rise above the region of hypothesis, but employing the objects of which the shadows below are resemblances in their turn as images, they having in relation to the shadows and reflections of them a greater distinctness, and therefore a higher value.

I understand, he said, that you are speaking of the province of geometry and the sister arts.

And when I speak of the other division of the intelligible, you will understand me to speak of that other sort of knowledge which reason herself attains by the power of dialectic, using the hypotheses not as first principles, but only as hypotheses—that is to say, as steps and points of departure into a world which is above hypotheses, in order that she may soar beyond them to the first principle of the whole; and clinging to this and then to that which depends on this, by successive steps she descends again without the aid of any sensible object, from ideas, through ideas, and in ideas she ends.

I understand you, he replied; not perfectly, for you seem to me to be describing a task which is really tremendous; but, at any rate, I understand you to say that knowledge and being, which the science of dialectic contemplates, are clearer than the notions of the arts, as they are termed, which proceed from hypotheses only: these are also contemplated by the understanding, and not by the senses: yet, because they start from hypotheses and do not ascend to a principle, those who contemplate them appear to you not to exercise the higher reason upon them, although when a first principle is added to them they are cognizable by the higher reason. And the habit which is concerned with geometry and the cognate sciences I suppose that you would term understanding and not reason, as being intermediate between opinion and reason.

You have quite conceived my meaning, I said; and now, corresponding to these four divisions, let there be four faculties in the soul—reason answering to the highest, understanding to the second, faith (or conviction) to the third, and perception of shadows to the last—and let there be a scale of them, and let us suppose that the several faculties have clearness in the same degree that their objects have truth.

Plato, *Republic,* VI, 509B

6 For everything that exists there are three instruments by which the knowledge of it is necessarily imparted; fourth, there is the knowledge itself, and, as fifth, we must count the thing itself which is known and truly exists. The first is the name, the second the definition, the third the image, and the fourth the knowledge. If you wish to learn what I mean, take these in the case of one instance, and so understand them in the case of all. A circle is a thing spoken of, and its name is that very word which we have just uttered. The second thing belonging to it is its definition, made up of names and verbal forms. For that which has the name "round," "annular," or "circle," might be defined as that which has the distance from its circumference to its centre everywhere equal. Third, comes that which is drawn and rubbed out again, or turned on a lathe and broken up—none of which things can happen to the circle itself—to which the other things mentioned have reference; for it is something of a different order from them. Fourth, comes knowledge, intelligence and right opinion about these things. Under this one head we must group everything which has its existence, not in words nor in bodily shapes, but in souls—from which it is clear that it is something different from the nature of the circle itself and from the three things mentioned before. Of these things intelligence comes closest in kinship and likeness to the fifth, and the others are farther distant.

The same applies to straight as well as to circular form, to colours, to the good, the beautiful, the just, to all bodies whether manufactured or coming into being in the course of nature, to fire, water, and all such things, to every living being, to character in souls, and to all things done and suffered. For in the case of all these no one, if he has not some how or other got hold of the four things first mentioned, can ever be completely a partaker of knowledge of the fifth. Further, on account of the weakness of language, these (i.e., the four) attempt to show what each thing is like, not less than what each thing is. For this reason no man of intelligence will venture to express his philosophical views in language, especially not in language that is unchangeable, which is true of that which is set down in written characters.

Plato, *Seventh Letter*

7 It does not appear to be true in all cases that correlatives come into existence simultaneously. The object of knowledge would appear to exist before knowledge itself, for it is usually the case that we acquire knowledge of objects already existing; it would be difficult, if not impossible, to find a branch of knowledge the beginning of the existence of which was contemporaneous with that of its object.

Again, while the object of knowledge, if it ceases to exist, cancels at the same time the knowledge which was its correlative, the converse of this is not true. It is true that if the object of knowledge

does not exist there can be no knowledge: for there will no longer be anything to know. Yet it is equally true that, if the knowledge of a certain object does not exist, the object may nevertheless quite well exist. Thus, in the case of the squaring of the circle, if indeed that process is an object of knowledge, though it itself exists as an object of knowledge, yet the knowledge of it has not yet come into existence. Again, if all animals ceased to exist, there would be no knowledge, but there might yet be many objects of knowledge.

Aristotle, *Categories,* $7^{b}21$

8 Knowledge, as a genus, is explained by reference to something else, for we mean a knowledge *of something.* But particular branches of knowledge are not thus explained. The knowledge of grammar is not relative to anything external, nor is the knowledge of music, but these, if relative at all, are relative only in virtue of their genera; thus grammar is said to be the *knowledge* of something, not the grammar of something; similarly music is the *knowledge* of something, not the music of something.

Thus individual branches of knowledge are not relative. And it is because we possess these individual branches of knowledge that we are said to be such and such. It is these that we actually possess: we are called experts because we possess knowledge in some particular branch.

Aristotle, *Categories,* $11^{a}24$

9 There is a difference between what is prior and better known in the order of being and what is prior and better known to man. I mean that objects nearer to sense are prior and better known to man; objects without qualification prior and better known are those further from sense. Now the most universal causes are furthest from sense and particular causes are nearest to sense, and they are thus exactly opposed to one another.

Aristotle, *Posterior Analytics,* $71^{b}34$

10 It is hard to be sure whether one knows or not; for it is hard to be sure whether one's knowledge is based on the basic truths appropriate to each attribute—the differentia of true knowledge. We think we have scientific knowledge if we have reasoned from true and primary premisses. But that is not so: the conclusion must be homogeneous with the basic facts of the science.

Aristotle, *Posterior Analytics,* $76^{a}26$

11 In the case of all discoveries the results of previous labours that have been handed down from others have been advanced bit by bit by those who have taken them on, whereas the original discoveries generally make an advance that is small at first though much more useful than the development which later springs out of them. For it may be that in everything, as the saying is, 'the first start is the main part': and for this reason also it is the most difficult; for in proportion as it is most potent in its influence, so it is smallest in its compass and therefore most difficult to see: whereas when this is once discovered, it is easier to add and develop the remainder in connexion with it.

Aristotle, *On Sophistical Refutations,* $183^{b}17$

12 When the objects of an inquiry, in any department, have principles, conditions, or elements, it is through acquaintance with these that knowledge, that is to say scientific knowledge, is attained. For we do not think that we know a thing until we are acquainted with its primary conditions or first principles, and have carried our analysis as far as its simplest elements. Plainly therefore in the science of Nature, as in other branches of study, our first task will be to try to determine what relates to its principles.

The natural way of doing this is to start from the things which are more knowable and obvious to us and proceed towards those which are clearer and more knowable by nature; for the same things are not 'knowable relatively to us' and 'knowable' without qualification. So in the present inquiry we must follow this method and advance from what is more obscure by nature, but clearer to us, towards what is more clear and more knowable by nature.

Aristotle, *Physics,* $184^{a}10$

13 All men by nature desire to know. An indication of this is the delight we take in our senses; for even apart from their usefulness they are loved for themselves; and above all others the sense of sight. For not only with a view to action, but even when we are not going to do anything, we prefer seeing (one might say) to everything else. The reason is that this, most of all the senses, makes us know and brings to light many differences between things.

Aristotle, *Metaphysics,* $980^{a}1$

14 For all men begin, as we said, by wondering that things are as they are, as they do about self-moving marionettes, or about the solstices or the incommensurability of the diagonal of a square with the side; for it seems wonderful to all who have not yet seen the reason, that there is a thing which cannot be measured even by the smallest unit. But we must end in the contrary and, according to the proverb, the better state, as is the case in these instances too when men learn the cause; for there is nothing which would surprise a geometer so much as if the diagonal turned out to be commensurable.

Aristotle, *Metaphysics,* $983^{a}13$

15 It is absurd to seek at the same time knowledge

and the way of attaining knowledge; and it is not easy to get even one of the two.

Aristotle, *Metaphysics,* 995a13

16 Since men may know the same thing in many ways, we say that he who recognizes what a thing is by its being so and so knows more fully than he who recognizes it by its not being so and so, and in the former class itself one knows more fully than another, and he knows most fully who knows what a thing is, not he who knows its quantity or quality or what it can by nature do or have done to it.

Aristotle, *Metaphysics,* 996b14

17 That there is no science of the accidental is obvious; for all science is either of that which is always or of that which is for the most part. (For how else is one to learn or to teach another? The thing must be determined as occurring either always or for the most part, e.g. that honey-water is useful for a patient in a fever is true for the most part.) But that which is contrary to the usual law science will be unable to state, i.e. when the thing does *not* happen, e.g. 'on the day of new moon'; for even that which happens on the day of new moon happens then either always or for the most part; but the accidental is contrary to such laws.

Aristotle, *Metaphysics,* 1027a19

18 What *scientific knowledge* is, if we are to speak exactly and not follow mere similarities, is plain from what follows. We all suppose that what we know is not even capable of being otherwise; of things capable of being otherwise we do not know, when they have passed outside our observation, whether they exist or not. Therefore the object of scientific knowledge is of necessity. Therefore it is eternal; for things that are of necessity in the unqualified sense are all eternal; and things that are eternal are ungenerated and imperishable. Again, every science is thought to be capable of being taught, and its object of being learned. And all teaching starts from what is already known, as we maintain in the *Analytics* also; for it proceeds sometimes through induction and sometimes by syllogism. Now induction is the starting-point which knowledge even of the universal presupposes, while syllogism proceeds, *from* universals. There are therefore starting-points from which syllogism proceeds, which are not reached by syllogism; it is therefore by induction that they are acquired. Scientific knowledge is, then, a state of capacity to demonstrate, and has the other limiting characteristics which we specify in the *Analytics,* for it is when a man believes in a certain way and the starting-points are known to him that he has scientific knowledge, since if they are not better known to him than the conclusion, he will have his knowledge only incidentally.

Aristotle, *Ethics,* 1139b19

19 The fact that men use the language that flows from knowledge proves nothing; for even men under the influence of these passions utter scientific proofs and verses of Empedocles, and those who have just begun to learn a science can string together its phrases, but do not yet know it; for it has to become part of themselves, and that takes time.

Aristotle, *Ethics,* 1147a17

20 It is one thing . . . to remember, another to know. To remember is to safeguard something entrusted to your memory, whereas to know, by contrast, is actually to make each item your own, and not to be dependent on some original and be constantly looking to see what the master said.

Seneca, *Letters to Lucilius,* 33

21 Now as touching things offered unto idols, we know that we all have knowledge. Knowledge puffeth up, but charity edifieth.

And if any man think that he knoweth any thing, he knoweth nothing yet as he ought to know.

But if any man love God, the same is known of him.

I Corinthians 8:1–3

22 Knowledge, if it does not determine action, is dead to us.

Plotinus, *First Ennead,* II, 4

23 Yet, Lord God of truth, is any man pleasing to You for knowing such things? Surely a man is unhappy even if he knows all these things but does not know You; and that man is happy who knows You even though he knows nothing of them. and the man who knows both You and them is not the happier for them but only on account of You: if knowing You he glorifies You as You are and gives thanks and does not become vain in his thoughts. For just as he is better who knows he possesses a tree and gives thanks to You for the use it is to him, although he does not know how many cubits high it is or the width of its spread, than another man who can measure it and number its branches but neither possesses it nor knows and loves Him who created it; so it would be absurd to doubt that a true Christian—who in some sense possesses all this world of riches and who having nothing yet possesses all things by cleaving unto You whom all things serve—is better though he does not even know the circles of the Great Bear than one who can measure the heavens and number the stars and balance the elements, if in all this he neglects You who have *ordered all things in measure and number and weight.*

Augustine, *Confessions,* V, 4

24 The knowledge of the creature is, in comparison of the knowledge of the Creator, but a twilight;

and so it dawns and breaks into morning when the creature is drawn to the praise and love of the Creator; and night never falls when the Creator is not forsaken through love of the creature.

Augustine, *City of God,* XI, 7

25 Certain it is that, though philosophers disagree regarding the nature of things, and the mode of investigating truth, and of the good to which all our actions ought to tend, yet in these three great general questions all their intellectual energy is spent. And though there be a confusing diversity of opinion, every man striving to establish his own opinion in regard to each of these questions, yet no one of them all doubts that nature has some cause, science some method, life some end and aim. Then, again, there are three things which every artificer must possess if he is to effect anything—nature, education, practice. Nature is to be judged by capacity, education by knowledge, practice by its fruit.

Augustine, *City of God,* XI, 25

26 In ourselves beholding His image, let us, like that younger son of the gospel, come to ourselves, and arise and return to Him from Whom by our sin we had departed. There our being will have no death, our knowledge no error, our love no mishap.

Augustine, *City of God,* XI, 28

27 Owing to the liability of the human mind to fall into mistakes, this very pursuit of knowledge may be a snare to [man] unless he has a divine Master, whom he may obey without misgiving, and who may at the same time give him such help as to perserve his own freedom.

Augustine, *City of God,* XIX, 14

28 I think that it is well to warn studious and able young men, who fear God and are seeking for happiness of life, not to venture heedlessly upon the pursuit of the branches of learning that are in vogue beyond the pale of the Church of Christ, as if these could secure for them the happiness they seek; but soberly and carefully to discriminate among them. And if they find any of those which have been instituted by men varying by reason of the varying pleasure of their founders, and unknown by reason of erroneous conjectures, especially if they involve entering into fellowship with devils by means of leagues and covenants about signs, let these be utterly rejected and held in detestation. Let the young men also withdraw their attention from such institutions of men as are unnecessary and luxurious. But for the sake of the necessities of this life we must not neglect the arrangements of men that enable us to carry on intercourse with those around us. I think, however, there is nothing useful in the other branches of learning that are found among the heathen, except information about objects, either past or present, that relate to the bodily senses, in which are included also the experiments and conclusions of the useful mechanical arts, except also the sciences of reasoning and of numbers. And in regard to all these we must hold by the maxim, "Not too much of anything"; especially in the case of those which, pertaining as they do to the senses, are subject to the relations of space and time.

Augustine, *Christian Doctrine,* II, 39

29 When the student of the Holy Scriptures . . . shall enter upon his investigations, let him constantly meditate upon that saying of the apostle's, "Knowledge puffeth up, but charity edifieth." For so he will feel that, whatever may be the riches he brings with him out of Egypt, yet unless he has kept the passover, he cannot be safe. Now Christ is our passover sacrificed for us. . . . Let them remember, then, that those who celebrated the passover at that time in type and shadow, when they were ordered to mark their door-posts with the blood of the lamb, used hyssop to mark them with. Now this is a meek and lowly herb, and yet nothing is stronger and more penetrating than its roots; that being rooted and grounded in love, we may be able to comprehend with all saints what is the breadth, and length, and depth, and height—that is, to comprehend the cross of our Lord, the breadth of which is indicated by the transverse wood on which the hands are stretched, its length by the part from the ground up to the cross-bar on which the whole body from the head downwards is fixed, its height by the part from the cross-bar to the top on which the head lies, and its depth by the part which is hidden, being fixed in the earth. And by this sign of the cross all Christian action is symbolized, viz., to do good works in Christ, to cling with constancy to Him, to hope for heaven, and not to desecrate the sacraments. And purified by this Christian action, we shall be able to know even "the love of Christ which passeth knowledge."

Augustine, *Christian Doctrine,* II, 41

30 The brevity of our life, the dullness of our senses, the torpor of our indifference, the futility of our occupation, suffer us to know but little: and that little is soon shaken and then torn from the mind by that traitor to learning, that hostile and faithless stepmother to memory, oblivion.

John of Salisbury, *Prologue to the Policraticus*

31 Our soul possesses two cognitive powers. One is the act of any corporeal organ, which naturally knows things existing in individual matter; hence sense knows only the singular. But there is another kind of cognitive power in the soul, called the intellect, and this is not the act of any corporeal organ. Therefore the intellect naturally knows na-

tures which have being only in individual matter; not however as they are in individual matter, but according as they are abstracted from it by the consideration of the intellect. Hence it follows that through the intellect we can understand things of this kind as universal, and this is beyond the power of sense. Now the angelic intellect naturally knows natures not existing in matter; but this is beyond the natural power of the intellect of our soul in the state of its present life, united as it is to the body.

Aquinas, *Summa Theologica,* I, 12, 4

32 Each thing is known insofar as its likeness is in the one who knows. Now this takes place in two ways. For since things which are like one and the same thing are like each other, the knowing power can be assimilated to any knowable object in two ways. In one way it is assimilated by the object itself, when it is directly informed by its likeness, and then the object is known in itself. In another way when informed by a species which resembles the object; and in this way the knowledge is not of the thing in itself, but of the thing in its likeness. For the knowledge of a man in himself differs from the knowledge of him in his image.

Aquinas, *Summa Theologica,* I, 12, 9

33 A thing is said to be comprehended when the end of the knowledge of it is attained, and this is accomplished when it is known as perfectly as it is knowable; as, for instance, a demonstrable proposition is comprehended when known by demonstration, but not, however, when it is known by some probable reason.

Aquinas, *Summa Theologica,* I, 14, 3

34 As the Philosopher [Aristotle] says, "one knowledge is preferable to another, either because it is about a higher object, or because it is more certain." Hence if the subject be equally good and sublime, that virtue will be the greater which possesses more certain knowledge. But a virtue which is less certain about a higher and better object, is preferable to that which is more certain about an object of inferior degree. Hence the Philosopher says that it is a great thing to be able to know something about celestial beings, though it be based on weak and probable reasoning; and again, that it is better to know a little about sublime things, than much about mean things. Accordingly wisdom, to which knowledge about God pertains, is beyond the reach of man, especially in this life, so as to be his possession, for this belongs to God alone; and yet this little knowledge about God which we can have through wisdom is preferable to all other knowledge.

Aquinas, *Summa Theologica,* I, 14, 5

35 Some knowledge is speculative only, some is practical only, and some is partly speculative and partly practical. In proof of this it must be observed that knowledge can be called speculative in three ways. First, on the part of the things known, which are not operable by the knower; such is the knowledge of man about natural or divine things. Secondly, as regards the manner of knowing—as, for instance, if a builder consider a house by defining and dividing, and considering what belongs to it in general, for this is to consider operable things in a speculative manner, and not as they are operable; for operable means the application of form to matter, and not the resolution of the composite into its universal formal principles. Thirdly, as regards the end; "for the practical intellect differs in its end from the speculative," as the Philosopher [Aristotle] says. For the practical intellect is ordered to the end of the operation, whereas the end of the speculative intellect is the consideration of truth. Hence if a builder should consider how a house can be made, not ordering this to the end of operation, but only to know (how to do it), this would be only a speculative consideration as regards the end, although it concerns an operable thing. Therefore knowledge which is speculative by reason of the thing itself known, is merely speculative. But that which is speculative either in its mode or as to its end is partly speculative and partly practical; and when it is ordered to an operative end it is simply practical.

Aquinas, *Summa Theologica,* I, 14, 16

36 The intellect knows principles naturally; and this knowledge in man causes the knowledge of conclusions, which are known by him not naturally, but by discovery, or by teaching.

Aquinas, *Summa Theologica,* I, 60, 2

37 Knowledge is loved not that any good may come to it but that it may be possessed.

Aquinas, *Summa Theologica,* I, 60, 3

38 The action of the intellect consists in this—that the notion of the thing understood is in the one who understands, while the act of the will consists in this—that the will is inclined to the thing itself as it is in itself. And therefore the Philosopher [Aristotle] says in the *Metaphysics* that good and evil, which are objects of the will, are in things, but truth and error, which are objects of the intellect, are in the mind. When, therefore, the thing in which there is good is nobler than the soul itself, in which is the idea understood, by comparison with such a thing the will is higher than the intellect. But when the thing which is good is less noble than the soul, then even in comparison with that thing the intellect is higher than the will. Therefore the love of God is better than the knowledge of God; but, on the contrary, the knowledge of corporeal things is better than the love of them. Absolutely, however, the intellect is

nobler than the will.

Aquinas, *Summa Theologica,* I, 82, 3

39 Material things known must exist in the knower not materially, but immaterially. The reason of this is because the act of knowledge extends to things outside the knower, for we also know the things that are outside us. Now by matter the form of a thing is determined to some one thing. Therefore it is clear that knowledge is in inverse ratio to materiality. And consequently things that are not receptive of forms save materially, have no power of knowledge whatever—such as plants, as the Philosopher [Aristotle] says. But the more immaterially a thing has the form of the thing known, the more perfect is its knowledge. Therefore the intellect which abstracts the species not only from matter, but also from the individuating conditions of matter, has more perfect knowledge than the senses, which receive the form of the thing known, without matter indeed, but subject to material conditions. Moreover, among the senses, sight has the most perfect knowledge because it is the least material . . . while among intellects the more perfect is the more immaterial.

Aquinas, *Summa Theologica,* I, 84, 2

40 Plato held that naturally man's intellect is filled with all intelligible species, but that, by being united to the body, it is hindered from the realization of its act. But this seems to be wrong. First, because, if the soul has a natural knowledge of all things, it seems impossible for the soul so far to forget this natural knowledge as not to know that it has it. For no man forgets what he knows naturally; that, for instance, every whole is larger than the part, and the like. And especially unreasonable does this seem if we suppose that it is natural to the soul to be united to the body . . . for it is unreasonable that the natural operation of a thing be totally hindered by that which belongs to it naturally. Secondly, the falseness of this opinion is clearly proved from the fact that if a sense be wanting, the knowledge of what is apprehended through that sense is wanting also; for instance, a man who is born blind can have no knowledge of colours. This would not be the case if the soul had innate species of all intelligible things. We must therefore conclude that the soul does not know corporeal things through innate species.

Aquinas, *Summa Theologica,* I, 84, 3

41 Good is the cause of love, as being its object. But good is not the object of the appetite, except as apprehended. And therefore love demands some apprehension of the good that is loved. . . . Accordingly knowledge is the cause of love for the same reason as good is, which can be loved only if known.

Aquinas, *Summa Theologica,* I–II, 27, 2

42 Something is required for the perfection of knowledge that is not requisite for the perfection of love. For knowledge pertains to the reason, whose function consists in distinguishing things which in reality are united, and in uniting together, after a fashion, things that are distinct, by comparing one with another. Consequently the perfection of knowledge requires that man should know one by one all that is in a thing, such as its parts, powers, and properties. On the other hand, love is in the appetitive power, which regards a thing as it is in itself; therefore it suffices, for the perfection of love, that a thing be loved according as it is apprehended in itself. Hence it is, therefore, that a thing is loved more than it is known, since it can be loved perfectly, even without being perfectly known. This is most evident in regard to the sciences, which some love through having a certain summary knowledge of them; for instance, they know that rhetoric is a science that enables man to persuade others, and this is what they love in rhetoric. The same applies to the love of God.

Aquinas, *Summa Theologica,* I–II, 27, 2

43 As saith the Philosopher [Aristotle] in the beginning of the First Philosophy, 'All men by nature desire to know'; the reason whereof may be, that each thing, impelled by its own natural foresight, inclines to its own perfection; wherefore, inasmuch as knowledge is the distinguishing perfection of our soul, wherein consists our distinguishing blessedness, all of us are naturally subject to the longing for it.

Dante, *Convivio,* I, 1

44 Before Noah's flood the world was highly learned, by reason men lived a long time, and so attained great experience and wisdom; now, ere we begin rightly to come to the true knowledge of a thing, we lie down and die. God will not have it that we should attain a higher knowledge of things.

Luther, *Table Talk,* H160

45 In truth, knowledge is a great and very useful quality; those who despise it give evidence enough of their stupidity. But yet I do not set its value at that extreme measure that some attribute to it, like Herillus the philosopher, who placed in it the sovereign good, and held that it was in its power to make us wise and content. That I do not believe, nor what others have said, that knowledge is the mother of all virtue, and that all vice is produced by ignorance. If that is true, it is subject to a long interpretation.

Montaigne, *Essays,* II, 12, Apology for Raymond Sebond

46 *Leontes.* How blest am I
In my just censure, in my true opinion!
Alack, for lesser knowledge! how accursed
In being so blest! There may be in the cup

A spider steep'd, and one may drink, depart,
And yet partake no venom, for his knowledge
Is not infected; but if one present
The abhorr'd ingredient to his eye, make known
How he hath drunk, he cracks his gorge, his sides,
With violent hefts. I have drunk, and seen the spider.

Shakespeare, *Winter's Tale,* II, i, 36

47 The contemplation of God's creatures and works produceth (having regard to the works and creatures themselves) knowledge, but having regard to God, no perfect knowledge, but wonder which is broken knowledge.

Bacon, *Advancement of Learning,* Bk. I, I, 3

48 The commandment of knowledge is yet higher than the commandment over the will: for it is a commandment over the reason, belief, and understanding of man, which is the highest part of the mind, and giveth law to the will itself. For there is no power on earth which setteth up a throne or chair of estate in the spirits and souls of men, and in their cogitations, imaginations, opinions, and beliefs, but knowledge and learning.

Bacon, *Advancement of Learning,* Bk. I, VIII, 3

49 Let this be a rule, that all partitions of knowledges be accepted rather for lines and veins than for sections and separations; and that the continuance and entireness of knowledge be preserved. For the contrary hereof hath made particular sciences to become barren, shallow, and erroneous, while they have not been nourished and maintained from the common fountain.

Bacon, *Advancement of Learning,* Bk. II, IX, 1

50 Howbeit (if we will truly consider of it) more worthy it is to believe than to know as we now know. For in knowledge man's mind suffereth from sense; but in belief it suffereth from spirit, such one as it holdeth for more authorized than itself, and so suffereth from the worthier agent. Otherwise it is of the state of man glorified; for then faith shall cease, and we shall know as we are known.

Bacon, *Advancement of Learning,* Bk. II, XXV, 2

51 The human understanding, when any proposition has been once laid down (either from general admission and belief, or from the pleasure it affords), forces everything else to add fresh support and confirmation; and although most cogent and abundant instances may exist to the contrary, yet either does not observe or despises them, or gets rid of and rejects them by some distinction, with violent and injurious prejudice, rather than sacrifice the authority of its first conclusions.

Bacon, *Novum Organum,* I, 46

52 How much more exalted will that discovery be, which leads to the easy discovery of everything else! Yet (to speak the truth) in the same manner as we are very thankful for light which enables us to enter on our way, to practise arts, to read, to distinguish each other, and yet sight is more excellent and beautiful than the various uses of light; so is the contemplation of things as they are, free from superstition or imposture, error or confusion, much more dignified in itself than all the advantage to be derived from discoveries.

Bacon, *Novum Organum,* I, 129

53 Again, the meanness of my estate doth somewhat move me: for though I cannot accuse myself that I am either prodigal or slothful, yet my health is not to spend, nor my course to get. Lastly, I confess that I have as vast contemplative ends, as I have moderate civil ends: for I have taken all knowledge to be my province; and if I could purge it of two sorts of rovers, whereof the one with frivolous disputations, confutations, and verbosities, the other with blind experiments and auricular traditions and impostures, hath committed so many spoils, I hope I should bring in industrious observations, grounded conclusions, and profitable inventions and discoveries; the best state of that province.

Bacon, *Letter to Lord Burghley (1592)*

54 In the subjects we propose to investigate, our inquiries should be directed, not to what others have thought, nor to what we ourselves conjecture, but to what we can clearly and perspicuously behold and with certainty deduce; for knowledge is not won in any other way.

Descartes, *Rules for Direction of the Mind,* III

55 Since we cannot be universal and know all that is to be known of everything, we ought to know a little about everything. For it is far better to know something about everything than to know all about one thing. This universality is the best. If we can have both, still better; but if we must choose, we ought to choose the former. And the world feels this and does so; for the world is often a good judge.

Pascal, *Pensées,* I, 37

56 Our intellect holds the same position in the world of thought as our body occupies in the expanse of nature.

Limited as we are in every way, this state which holds the mean between two extremes is present in all our impotence. Our senses perceive no extreme. Too much sound deafens us; too much light dazzles us; too great distance or proximity

hinders our view. Too great length and too great brevity of discourse tend to obscurity; too much truth is paralysing (I know some who cannot understand that to take four from nothing leaves nothing). First principles are too self-evident for us; too much pleasure disagrees with us. Too many concords are annoying in music; too many benefits irritate us; we wish to have the wherewithal to overpay our debts. . . . We feel neither extreme heat nor extreme cold. Excessive qualities are prejudicial to us and not perceptible by the senses; we do not feel but suffer them. Extreme youth and extreme age hinder the mind, as also too much and too little education. In short, extremes are for us as though they were not, and we are not within their notice. They escape us, or we them.

This is our true state; this is what makes us incapable of certain knowledge and of absolute ignorance. We sail within a vast sphere, ever drifting in uncertainty, driven from end to end. When we think to attach ourselves to any point and to fasten to it, it wavers and leaves us; and if we follow it, it eludes our grasp, slips past us, and vanishes for ever. Nothing stays for us. This is our natural condition and yet most contrary to our inclination; we burn with desire to find solid ground and an ultimate sure foundation whereon to build a tower reaching to the Infinite. But our whole groundwork cracks, and the earth opens to abysses.

Let us, therefore, not look for certainty and stability. Our reason is always deceived by fickle shadows; nothing can fix the finite between the two Infinites, which both enclose and fly from it.

If this be well understood, I think that we shall remain at rest, each in the state wherein nature has placed him. As this sphere which has fallen to us as our lot is always distant from either extreme, what matters it that man should have a little more knowledge of the universe? If he has it, he but gets a little higher. Is he not always infinitely removed from the end, and is not the duration of our life equally removed from eternity, even if it lasts ten years longer?

In comparison with these Infinites, all finites are equal, and I see no reason for fixing our imagination on one more than on another. The only comparison which we make of ourselves to the finite is painful to us.

Pascal, *Pensées,* II, 72

57 We must not think to make a staple commodity of all the knowledge in the land, to mark and licence it like our broadcloth and our woolpacks.

Milton, *Areopagitica*

58 We boast our light; but if we look not wisely on the Sun itself, it smites us into darkness. Who can discern those planets that are oft combust, and those stars of brightest magnitude that rise and set with the Sun, until the opposite motion of their orbs bring them to such a place in the firmament, where they may be seen evening or morning? The light which we have gained was given us, not to be ever staring on, but by it to discover onward things more remote from our knowledge.

Milton, *Areopagitica*

59 To be still searching what we know not by what we know, still closing up truth to truth as we find it (for all her body is homogeneal and proportional), this is the golden rule in theology as well as in arithmetic, and makes up the best harmony in a Church; not the forced and outward union of cold and neutral, and inwardly divided minds.

Milton, *Areopagitica*

60 A person who knows anything, by that very fact knows that he knows, and knows that he knows that he knows, and so *ad infinitum.*

Spinoza, *Ethics,* II, Prop. 21, Schol.

61 All efforts which we make through reason are nothing but efforts to understand, and the mind, in so far as it uses reason, adjudges nothing as profitable to itself excepting that which conduces to understanding.

Spinoza, *Ethics,* IV, Prop. 26

62 We do not know that anything is certainly good or evil excepting that which actually conduces to understanding, or which can prevent us from understanding.

Spinoza, *Ethics,* IV, Prop. 27

63 The highest good of the mind is the knowledge of God, and the highest virtue of the mind is to know God.

Spinoza, *Ethics,* IV, Prop. 28

64 *Faith.* There is . . . knowledge and knowledge. Knowledge that resteth in the bare speculation of things, and knowledge that is accompanied with the grace of faith and love, which puts a man upon doing even the will of God from the heart: the first of these will serve the Talker, but without the other the true Christian is not content.

Bunyan, *Pilgrim's Progress,* I

65 He that hawks at larks and sparrows has no less sport, though a much less considerable quarry, than he that flies at nobler game: and he is little acquainted with the subject of this treatise—the UNDERSTANDING—who does not know that, as it is the most elevated faculty of the soul, so it is employed with a greater and more constant delight than any of the other. Its searches after truth are a sort of hawking and hunting, wherein the very pursuit makes a great part of the pleasure. Every step the mind takes in its progress towards Knowl-

edge makes some discovery, which is not only new, but the best too, for the time at least.

For the understanding, like the eye, judging of objects only by its own sight, cannot but be pleased with what it discovers, having less regret for what has escaped it, because it is unknown. Thus he who has raised himself above the alms-basket, and, not content to live lazily on scraps of begged opinions, sets his own thoughts on work, to find and follow truth, will (whatever he lights on) not miss the hunter's satisfaction; every moment of his pursuit will reward his pains with some delight; and he will have reason to think his time not ill spent, even when he cannot much boast of any great acquisition.

Locke, *Concerning Human Understanding,* Epistle to the Reader

66 Though the comprehension of our understandings comes exceeding short of the vast extent of things, yet we shall have cause enough to magnify the bountiful Author of our being, for that proportion and degree of knowledge he has bestowed on us, so far above all the rest of the inhabitants of this our mansion. Men have reason to be well satisfied with what God hath thought fit for them, since he hath given them . . . whatsoever is necessary for the conveniences of life and information of virtue; and has put within the reach of their discovery, the comfortable provision for this life, and the way that leads to a better. How short soever their knowledge may come of a universal or perfect comprehension of whatsoever is, it yet secures their great concernments, that they have light enough to lead them to the knowledge of their Maker, and the sight of their own duties. . . . It will be no excuse to an idle and untoward servant, who would not attend his business by candle light, to plead that he had not broad sunshine. The Candle that is set up in us shines bright enough for all our purposes. The discoveries we can make with this ought to satisfy us; and we shall then use our understandings right, when we entertain all objects in that way and proportion that they are suited to our faculties, and upon those grounds they are capable of being proposed to us; and not peremptorily or intemperately require demonstration, and demand certainty, where probability only is to be had, and which is sufficient to govern all our concernments. If we will disbelieve everything, because we cannot certainly know all things, we shall do muchwhat as wisely as he who would not use his legs, but sit still and perish, because he had no wings to fly.

Locke, *Concerning Human Understanding,* Intro.

67 Since the mind, in all its thoughts and reasonings, hath no other immediate object but its own ideas, which it alone does or can contemplate, it is evident that our knowledge is only conversant about them. . . . *Knowledge* then seems to me to be nothing but *the perception of the connexion of and agreement, or disagreement and repugnancy of any of our ideas.* In this alone it consists. Where this perception is, there is knowledge, and where it is not, there, though we may fancy, guess, or believe, yet we always come short of knowledge.

Locke, *Concerning Human Understanding,* Bk. IV, I, 1–2

68 The knowledge of our own being we have by intuition. The existence of a God, reason clearly makes known to us, as has been shown.

The knowledge of the existence of *any other thing* we can have only by *sensation:* for there being no necessary connexion of real existence with any *idea* a man hath in his memory; nor of any other existence but that of God with the existence of any particular man: no particular man can know the existence of any other being, but only when, by actual operating upon him, it makes itself perceived by him. For, the having the idea of anything in our mind, no more proves the existence of that thing, than the picture of a man evidences his being in the world, or the visions of a dream make thereby a true history.

Locke, *Concerning Human Understanding,* Bk. IV, XI, 1

69 We should believe that God has dealt more bountifully with the sons of men than to give them a strong desire for that knowledge which he had placed quite out of their reach.

Berkeley, *Principles of Human Knowledge,* Intro., 3

70 It is evident to any one who takes a survey of the *objects* of human knowledge, that they are either ideas actually imprinted on the senses; or else such as are perceived by attending to the passions and operations of the mind; or lastly, ideas formed by help of memory and imagination—either compounding, dividing, or barely representing those originally perceived in the aforesaid ways. By sight I have the ideas of light and colours, with their several degrees and variations. By touch I perceive hard and soft, heat and cold, motion and resistance, and of all these more and less either as to quantity or degree. Smelling furnishes me with odours; the palate with tastes; and hearing conveys sounds to the mind in all their variety of tone and composition. And as several of these are observed to accompany each other, they come to be marked by one name, and so to be reputed as one thing. Thus, for example a certain colour, taste, smell, figure and consistence having been observed to go together, are accounted one distinct thing, signified by the name *apple;* other collections of ideas constitute a stone, a tree, a book, and the like sensible things—which as they are pleasing or disagreeable excite the passions of love, hatred, joy, grief, and so forth.

But, besides all that endless variety of ideas or objects of knowledge, there is likewise something

which knows or perceives them, and exercises divers operations, as willing, imagining, remembering, about them. This perceiving, active being is what I call *mind, spirit, soul,* or *myself.* By which words I do not denote any one of my ideas, but a thing entirely distinct from them, wherein, they exist, or, which is the same thing, whereby they are perceived—for the existence of an idea consists in being perceived.

That neither our thoughts, nor passions, nor ideas formed by the imagination, exist without the mind, is what everybody will allow. And it seems no less evident that the various sensations or ideas imprinted on the sense, however blended or combined together (that is, whatever objects they compose), cannot exist otherwise than in a mind perceiving them.—I think an intuitive knowledge may be obtained of this by any one that shall attend to what is meant by the term *exists,* when applied to sensible things. The table I write on I say exists, that is, I see and feel it; and if I were out of my study I should say it existed—meaning thereby that if I was in my study I might perceive it, or that some other spirit actually does perceive it. There was an odour, that is, it was smelt; there was a sound, that is, it was heard; a colour or figure, and it was perceived by sight or touch. This is all that I can understand by these and the like expressions. For as to what is said of the absolute existence of unthinking things without any relation to their being perceived, that seems perfectly unintelligible. Their *esse* is *percepi,* nor is it possible they should have any existence out of the minds or thinking things which perceive them.

It is indeed an opinion strangely prevailing amongst men, that houses, mountains, rivers, and in a word all sensible objects, have an existence, natural or real, distinct from their being perceived by the understanding. But, with how great an assurance and acquiescence soever this principle may be entertained in the world, yet whoever shall find in his heart to call it in question may, if I mistake not, perceive it to involve a manifest contradiction. For, what are the forementioned objects but the things we perceive by sense? and what do we perceive besides our own ideas or sensations? and is it not plainly repugnant that any one of these, or any combination of them, should exist unperceived?

Berkeley, *Principles of Human Knowledge,* 1–4

71 As several gentlemen in these times, by the wonderful force of genius only, without the least assistance of learning, perhaps without being well able to read, have made a considerable figure in the republic of letters; the modern critics, I am told, have lately begun to assert, that all kind of learning is entirely useless to a writer; and, indeed, no other than a kind of fetters on the natural sprightliness and activity of the imagination, which is thus weighed down, and prevented from soaring to those high flights which otherwise it would be able to reach.

This doctrine, I am afraid, is at present carried much too far: for why should writing differ so much from all other arts? The nimbleness of a dancing-master is not at all prejudiced by being taught to move; nor doth any mechanic, I believe, exercise his tools the worse by having learnt to use them. For my own part, I cannot conceive that Homer or Virgil would have writ with more fire, if, instead of being masters of all the learning of their times, they had been as ignorant as most of the authors of the present age. Nor do I believe that all the imagination, fire, and judgment of Pitt, could have produced those orations that have made the senate of England, in these our times, a rival in eloquence to Greece and Rome, if he had not been so well read in the writings of Demosthenes and Cicero, as to have transferred their whole spirit into his speeches, and, with their spirit, their knowledge too.

I would not here be understood to insist on the same fund of learning in any of my brethren, as Cicero persuades us is necessary to the composition of an orator. On the contrary, very little reading is, I conceive, necessary to the poet, less to the critic, and the least of all to the politician. For the first, perhaps, Byshe's Art of Poetry, and a few of our modern poets, may suffice; for the second, a moderate heap of plays; and, for the last, an indifferent collection of political journals.

To say the truth, I require no more than that a man should have some little knowledge of the subject on which he treats, according to the old maxim of law, *Quam quisque norit artem in ea se exerceat.* With this alone a writer may sometimes do tolerably well; and, indeed, without this, all the other learning in the world will stand him in little stead.

For instance, let us suppose that Homer and Virgil, Aristotle and Cicero, Thucydides and Livy, could have met all together, and have clubbed their several talents to have composed a treatise on the art of dancing: I believe it will be readily agreed they could not have equalled the excellent treatise which Mr. Essex hath given us on that subject, entitled, The Rudiments of Genteel Education. And, indeed, should the excellent Mr. Broughton be prevailed on to set fist to paper, and to complete the above-said rudiments, by delivering down the true principles of athletics, I question whether the world will have any cause to lament, that none of the great writers, either antient or modern, have ever treated about that noble and useful art.

To avoid a multiplicity of examples in so plain a case, and to come at once to my point, I am apt to conceive, that one reason why many English writers have totally failed in describing the manners of upper life, may possibly be, that in reality they know nothing of it.

Fielding, *Tom Jones,* XIV, 1

72 Man is a reasonable being; and as such, receives from science his proper food and nourishment: But so narrow are the bounds of human understanding, that little satisfaction can be hoped for in this particular, either from the extent of security or his acquisitions. Man is a sociable, no less than a reasonable being: But neither can he always enjoy company agreeable and amusing, or preserve the proper relish for them. Man is also an active being; and from that disposition, as well as from the various necessities of human life, must submit to business and occupation: But the mind requires some relaxation, and cannot always support its bent to care and industry. It seems, then, that nature has pointed out a mixed kind of life as most suitable to the human race, and secretly admonished them to allow none of these biasses to *draw* too much, so as to incapacitate them for other occupations and entertainments. Indulge your passion for science, says she, but let your science be human, and such as may have a direct reference to action and society. Abstruse thought and profound researches I prohibit, and will severely punish, by the pensive melancholy which they introduce, by the endless uncertainty in which they involve you, and by the cold reception which your pretended discoveries shall meet with, when communicated.

Hume, *Concerning Human Understanding,* I, 4

73 The sweetest and most inoffensive path of life leads through the avenues of science and learning; and whoever can either remove any obstructions in this way, or open up any new prospect, ought so far to be esteemed a benefactor to mankind. And though these researches may appear painful and fatiguing, it is with some minds as with some bodies, which being endowed with vigorous and florid health, require severe exercise, and reap a pleasure from what, to the generality of mankind, may seem burdensome and laborious. Obscurity, indeed, is painful to the mind as well as to the eye; but to bring light from obscurity, by whatever labour, must needs be delightful and rejoicing.

Hume, *Concerning Human Understanding,* I, 6

74 What though these reasonings concerning human nature seem abstract, and of difficult comprehension? This affords no presumption of their falsehood. On the contrary, it seems impossible, that what has hitherto escaped so many wise and profound philosophers can be very obvious and easy. And whatever pains these researches may cost us, we may think ourselves sufficiently rewarded, not only in point of profit but of pleasure, if, by that means, we can make any addition to our stock of knowledge, in subjects of such unspeakable importance.

Hume, *Concerning Human Understanding,* I, 10

75 Whatever moralists may hold, the human understanding is greatly indebted to the passions, which, it is universally allowed, are also much indebted to the understanding. It is by the activity of the passions that our reason is improved; for we desire knowledge only because we wish to enjoy; and it is impossible to conceive any reason why a person who has neither fears nor desires should give himself the trouble of reasoning.

Rousseau, *Origin of Inequality,* I

76 Knowledge, for most of those who cultivate it, is only a kind of money. They value it greatly, but only in proportion as it is communicated; it is good only in commerce. Take from the learned the pleasure of being listened to, and knowledge would cease to be anything to them.

Rousseau, *La Nouvelle Héloïse,* XII

77 There are . . . many subjects of study which seem but remotely allied to useful knowledge and of little importance to happiness or virtue; nor is it easy to forbear some sallies of merriment or expressions of pity when we see a man wrinkled with attention and emaciated with solicitude in the investigation of questions of which, without visible inconvenience, the world may expire in ignorance.

Johnson, *Rambler No. 83*

78 Knowledge always desires increase: it is like fire, which must first be kindled by some external agent, but which will afterwards propagate itself.

Johnson, *Letter to William Drummond (Aug. 13, 1766)*

79 Deign on the passing world to turn thine eyes,
And pause awhile from letters, to be wise.

Johnson, *Vanity of Human Wishes,* 157

80 "Sir, (said he [Johnson]) a desire of knowledge is the natural feeling of mankind; and every human being, whose mind is not debauched, will be willing to give all that he has to get knowledge."

Boswell, *Life of Johnson (July 30, 1763)*

81 He [Johnson] observed, "All knowledge is of itself of some value. There is nothing so minute or inconsiderable, that I would not rather know it than not. In the same manner, all power, of whatever sort, is of itself desirable. A man would not submit to learn to hem a ruffle, of his wife, or his wife's maid; but if a mere wish could attain it, he would rather wish to be able to hem a ruffle."

Boswell, *Life of Johnson (Apr. 14, 1775)*

82 Mathematical science affords us a brilliant example, how far, independently of all experience, we may carry our *a priori* knowledge. It is true that the mathematician occupies himself with objects and cognitions only in so far as they can be repre-

sented by means of intuition. But this circumstance is easily overlooked, because the said intuition can itself be given *a priori,* and therefore is hardly to be distinguished from a mere pure conception. Deceived by such a proof of the power of reason, we can perceive no limits to the extension of our knowledge. The light dove cleaving in free flight the thin air, whose resistance it feels, might imagine that her movements would be far more free and rapid in airless space. Just in the same way did Plato, abandoning the world of sense because of the narrow limits it sets to the understanding, venture upon the wings of ideas beyond it, into the void space of pure intellect. He did not reflect that he made no real progress by all his efforts; for he met with no resistance which might serve him for a support, as it were, whereon to rest, and on which he might apply his powers, in order to let the intellect acquire momentum for its progress. It is, indeed, the common fate of human reason in speculation, to finish the imposing edifice of thought as rapidly as possible, and then for the first time to begin to examine whether the foundation is a solid one or no. Arrived at this point, all sorts of excuses are sought after, in order to console us for its want of stability, or rather, indeed, to enable us to dispense altogether with so late and dangerous an investigation.

Kant, *Critique of Pure Reason,* Introduction, III

83 All our knowledge begins with sense, proceeds thence to understanding, and ends with reason, beyond which nothing higher can be discovered in the human mind for elaborating the matter of intuition and subjecting it to the highest unity of thought.

Kant, *Critique of Pure Reason,* Transcendental Dialectic

84 It is a maxim universally admitted in geometry, and indeed in every branch of knowledge, that, in the progress of investigation, we should proceed from known facts to what is unknown. In early infancy, our ideas spring from our wants; the sensation of want excites the idea of the object by which it is to be gratified. In this manner, from a series of sensations, observations, and analyses, a successive train of ideas arises, so linked together that an attentive observer may trace back to a certain point the order and connection of the whole sum of human knowledge.

Lavoisier, *Elements of Chemistry,* Pref.

85 *Faust.* I've studied now Philosophy
And Jurisprudence, Medicine,
And even, alas! Theology
All through and through with ardour keen!
Here now I stand, poor fool, and see
I'm just as wise as formerly.
Am called a Master, even Doctor too,
And now I've nearly ten years through
Pulled my students by their noses to and fro
And up and down, across, about,
And see there's nothing we can know!
That all but burns my heart right out.

Goethe, *Faust,* I, 354

86 *Wagner.* But, ah, the world! the mind and heart of men!
Of these we each would fain know something just the same.
Faust. Yes, "know"! Men call it so, but then
Who dares to call the child by its right name?
The few who have some part of it descried,
Yet fools enough to guard not their full hearts, revealing
To riffraff both their insight and their feeling,
Men have of old burned at the stake and crucified.

Goethe, *Faust,* I, 586

87 *1st Destiny.* Knowledge is not happiness, and science
But an exchange of ignorance for that
Which is another kind of ignorance.

Byron, *Manfred,* II, iv, 431

88 It is . . . the wish for rational insight, not the ambition to amass a mere heap of acquirements, that should be presupposed in every case as possessing the mind of the learner in the study of science.

Hegel, *Philosophy of History,* Introduction, 3

89 Knowledge is the knowing that we can not know.

Emerson, *Montaigne; or, The Skeptic*

90 Knowledge comes, but wisdom lingers.

Tennyson, *Locksley Hall,* 141

91 Who loves not Knowledge? Who shall rail
Against her beauty? May she mix
With men and prosper! Who shall fix
Her pillars? Let her work prevail.

Tennyson, *In Memoriam,* CXIV

92 What is most of our boasted so-called knowledge but a conceit that we know something, which robs us of the advantage of our actual ignorance?

Thoreau, *Walking*

93 In science, as in life, learning and knowledge are distinct, and the study of things, and not of books, is the source of the latter.

T. H. Huxley, *A Lobster, or The Study of Zoölogy*

94 The nature of our mind leads us to seek the essence or the *why* of things. Thus we aim beyond the goal that it is given us to reach; for experience

soon teaches us that we cannot get beyond the *how,* i.e., beyond the immediate cause or the necessary conditions of phenomena.

Claude Bernard, *Experimental Medicine,* II, 1

95 The nature or very essence of phenomena, whether vital or mineral, will always remain unknown. The essence of the simplest mineral phenomenon is as completely unknown to chemists and physicists to-day as is the essence of intellectual phenomena or of any other vital phenomenon to physiologists. That, moreover, is easy to apprehend; knowledge of the inmost nature or the absolute, in the simplest phenomenon, would demand knowledge of the whole universe; for every phenomenon of the universe is evidently a sort of radiation from that universe to whose harmony it contributes. In living bodies absolute truth would be still harder to attain; because, besides implying knowledge of the universe outside a living body, it would also demand complete knowledge of the organism which, as we have long been saying, is a little world (microcosm) in the great universe (macrocosm). Absolute knowledge could, therefore, leave nothing outside itself; and only on condition of knowing everything could man be granted its attainment. Man behaves as if he were destined to reach this absolute knowledge; and the incessant *why* which he puts to nature proves it. Indeed, this hope, constantly disappointed, constantly reborn, sustains and always will sustain successive generations in the passionate search for truth.

Claude Bernard, *Experimental Medicine,* II, 1

96 The communication of knowledge certainly is either a condition or the means of that sense of enlargement or enlightenment, of which at this day we hear so much in certain quarters: this cannot be denied; but next, it is equally plain, that such communication is not the whole of the process. The enlargement consists, not merely in the passive reception into the mind of a number of ideas hitherto unknown to it, but in the mind's energetic and simultaneous action upon and towards and among those new ideas, which are rushing in upon it. It is the action of a formative power, reducing to order and meaning the matter of our acquirements; it is a making the objects of our knowledge subjectively our own, or, to use a familiar word, it is a digestion of what we receive, into the substance of our previous state of thought; and without this no enlargement is said to follow. There is no enlargement, unless there be a comparison of ideas one with another, as they come before the mind, and a systematizing of them. We feel our minds to be growing and expanding *then,* when we not only learn, but refer what we learn to what we know already. It is not the mere addition to our knowledge that is the illumination; but the locomotion, the movement onwards, of that mental centre, to which both what we know, and what we are learning, the accumulating mass of our acquirements, gravitates. And therefore a truly great intellect, and recognized to be such by the common opinion of mankind, such as the intellect of Aristotle, or of St. Thomas, or of Newton, or of Goethe (I purposely take instances within and without the Catholic pale, when I would speak of the intellect as such), is one which takes a connected view of old and new, past and present, far and near, and which has an insight into the influence of all these one on another; without which there is no whole, and no centre. It possesses the knowledge, not only of things, but also of their mutual and true relations; knowledge, not merely considered as acquirement, but as philosophy.

Newman, *Idea of a University,* Discourse VI

97 It is as easy by taking thought to add a cubit to one's stature, as it is to produce an idea acceptable to any of the Muses by merely straining for it, before it is ready to come. We haunt in vain the sacred well and throne of Mnemosyne; the deeper workings of the spirit take place in their own slow way, without our connivance. Let but their bugle sound, and we may then make our effort, sure of an oblation for the altar of whatsoever divinity its savor gratifies. Beside this inward process, there is the operation of the environment, which goes to break up habits destined to be broken up and so to render the mind lively. Everybody knows that the long continuance of a routine of habit make us lethargic, while a succession of surprises wonderfully brightens the ideas. Where there is a motion, where history is a-making, there is the focus of mental activity, and it has been said that the arts and sciences reside within the temple of Janus, waking when that is open, but slumbering when it is closed.

C. S. Peirce, *Evolutionary Love*

98 Better know nothing than half-know many things!

Nietzsche, *Thus Spake Zarathustra,* IV, 64

99 *The psychologist's attitude towards cognition . . . is a thorough-going dualism.* It supposes two elements, mind knowing and thing known, and treats them as irreducible. Neither gets out of itself or into the other, neither in any way *is* the other, neither *makes* the other. They just stand face to face in a common world, and one simply knows, or is known unto, its counterpart. This singular relation is not to be expressed in any lower terms, or translated into any more intelligible name. Some sort of *signal* must be given by the thing to the mind's brain, or the knowing will not occur—we find as a matter of fact that the mere *existence* of a thing outside the brain is not a sufficient cause for our knowing it: it must strike the brain in some way, as well as be there, to be known. But the brain being struck, the knowledge is constituted

by a new construction that occurs altogether *in* the mind. The thing remains the same whether known or not. And when once there, the knowledge may remain there, whatever becomes of the thing.

William James, *Psychology,* VIII

100 *There are two kinds of knowledge* broadly and practically distinguishable: we may call them respectively *knowledge of acquaintance* and *knowledge-about.* . . . I am acquainted with many people and things, which I know very little about, except their presence in the places where I have met them. I know the color blue when I see it, and the flavor of a pear when I taste it! I know an inch when I move my finger through it; a second of time, when I feel it pass; an effort of attention when I make it; a difference between two things when I notice it; but *about* the inner nature of these facts or what makes them what they are, I can say nothing at all. I cannot impart acquaintance with them to any one who has not already made it himself. I cannot *describe* them, make a blind man guess what blue is like, define to a child a syllogism, or tell a philosopher in just what respect distance is just what it is, and differs from other forms of relation. At most, I can say to my friends, Go to certain places and act in certain ways, and these objects will probably come. All the elementary natures of the world, its highest genera, the simple qualities of matter and mind, together with the kinds of relation that subsist between them, must either not be known at all, or known in this dumb way of acquaintance without *knowledge-about.* In minds able to speak at all there is, it is true, *some* knowledge about everything. Things can at least be classed, and the times of their appearance told. But in general, the less we analyze a thing, and the fewer of its relations we perceive, the less we know about it and the more our familiarity with it is of the acquaintance-type. The two kinds of knowledge are, therefore, as the human mind practically exerts them, relative terms. That is, the same thought of a thing may be called knowledge-about it in comparison with a simpler thought, or acquaintance with it in comparison with a thought of it that is more articulate and explicit still.

The grammatical sentence expresses this. Its "subject" stands for an object of acquaintance which, by the addition of the predicate, is to get something known about it. We may already know a good deal, when we hear the subject named—its name may have rich connotations. But, know we much or little then, we know more still when the sentence is done. We can relapse at will into a mere condition of acquaintance with an object by scattering our attention and staring at it in a vacuous trance-like way. We can ascend to knowledge *about* it by rallying our wits and proceeding to notice and analyze and think. What we are only acquainted with is only *present* to our minds; we *have* it, or the idea of it. But when we know about it, we do more than merely have it; we seem, as we think over its relations, to subject it to a sort of *treatment* and to *operate* upon it with our thought. The words *feeling* and *thought* give voice to the antithesis. Through feelings we become acquainted with things, but only by our thoughts do we know about them. Feelings are the germ and starting point of cognition, thoughts the developed tree. The minimum of grammatical subject, of objective presence, of reality known about, the mere beginning of knowledge, must be named by the word that says the least. Such a word is the interjection, as *lo! there! ecce! voilà!* or the article or demonstrative pronoun introducing the sentence, as *the, it, that.*

William James, *Psychology,* VIII

101 Common sense appears . . . as a perfectly definite stage in our understanding of things, a stage that satisfies in an extraordinarily successful way the purposes for which we think. 'Things' do exist, even when we do not see them. Their 'kinds' also exist. Their 'qualities' are what they act by, and are what we act on; and these also exist. These lamps shed their quality of light on every object in this room. We intercept *it* on its way whenever we hold up an opaque screen. It is the very sound that my lips emit that travels into your ears. It is the sensible heat of the fire that migrates into the water in which we boil an egg; and we can change the heat into coolness by dropping in a lump of ice. At this stage of philosophy all non-European men without exception have remained. It suffices for all the necessary practical ends of life; and, among our race even, it is only the highly sophisticated specimens, the minds debauched by learning, as Berkeley calls them, who have ever even suspected common sense of not being absolutely true.

But when we look back, and speculate as to how the common-sense categories may have achieved their wonderful supremacy, no reason appears why it may not have been by a process just like that by which the conceptions due to Democritus, Berkeley, or Darwin, achieved their similar triumphs in more recent times. In other words, they may have been successfully *discovered* by prehistoric geniuses whose names the night of antiquity has covered up; they may have been verified by the immediate facts of experience which they first fitted; and then from fact to fact and from man to man they may have *spread,* until all language rested on them and we are now incapable of thinking naturally in any other terms. Such a view would only follow the rule that has proved elsewhere so fertile, of assuming the vast and remote to conform to the laws of formation

that we can observe at work in the small and near.

William James, *Pragmatism,* V

102 I maintain that the notion of 'mere knowledge' is a high abstraction which we should dismiss from our minds. Knowledge is always accompanied with accessories of emotion and purpose. Also we must remember that there are grades in the generality of ideas. Thus a general idea occurs in history in special forms determined by peculiar circumstances of race and of stage of civilization. The higher generalities rarely receive any accurate verbal expression.

Whitehead, *Adventures of Ideas,* I, 1

103 It is unconsciously assumed, as a premiss for a *reductio ad absurdum* of the analytic view, that, if A and B are immediate data, and A differs from B, then the fact that they differ must also be an immediate datum. It is difficult to say how this assumption arose, but I think it is to be connected with the confusion between "acquaintance" and "knowledge about." Acquaintance, which is what we derive from sense, does not, theoretically at least, imply even the smallest "knowledge about," i.e. it does not imply knowledge of any proposition concerning the object with which we are acquainted. It is a mistake to speak as if acquaintance had degrees: there is merely acquaintance and non-acquaintance. When we speak of becoming "better acquainted," as for instance with a person, what we must mean is, becoming acquainted with more parts of a certain whole; but the acquaintance with each part is either complete or non-existent. Thus it is a mistake to say that if we were perfectly acquainted with an object we should know all about it. "Knowledge about" is knowledge of propositions, which is not involved necessarily in acquaintance with the constituents of the propositions. To know that two shades of colour are different is knowledge about them; hence acquaintance with the two shades does not in any way necessitate the knowledge that they are different.

Russell, *Theory of Continuity*

104 From the point of view of knowledge, though not of logic, there is an important difference between positive and negative general propositions, namely that some general negative propositions seem to result from observation as directly as "This is not blue". . . . In *Through the Looking Glass,* the king says to Alice, "Who do you see coming along the road?" and she replies, "I see nobody coming," to which the king retorts, "What good eyes you must have! It's as much as I can do to see somebody by this light." The point, for us, is that "I see nobody" is *not* equivalent to "I do not see somebody." The latter statement is true if my eyes are shut, and affords no evidence that there is not somebody; but when I say, "I see nobody," I mean, "I see, but I do not see somebody," which is prima-facie evidence that there is not somebody. Such negative judgments are just as important as positive judgments in building up our empirical knowledge.

Russell, *Human Knowledge,* II, 10

105 Are there general *facts?* We may restate this question in the following form: Suppose I knew the truth or falsehood of every sentence not containing the word "all" or the word "some" or an equivalent of either of these words; what, then, should I not know? Would what I should not know be only something about my knowledge and belief, or would it be something that involves no reference to knowledge or belief? I am supposing that I can say, "Brown is here," "Jones is here," "Robinson is here," but not "Some men are here," still less "Exactly three men are here" or "Every man here is called 'Brown' or 'Jones' or 'Robinson.'" And I am supposing that though I know the truth or falsehood of every sentence of a certain sort, I do not know that my knowledge has this completeness. If I knew my list to be complete I could infer that there are three men here, but, as it is, I do not know that there are no others.

Russell, *Human Knowledge,* II, 10

106 It is clear that knowledge is a sub-class of true beliefs: every case of knowledge is a case of true belief, but not vice versa. It is very easy to give examples of true beliefs that are not knowledge. There is the man who looks at a clock which is not going, though he thinks it is, and who happens to look at it at the moment when it is right; this man acquires a true belief as to the time of day, but cannot be said to have knowledge. There is the man who believes, truly, that the last name of the Prime Minister in 1906 began with a B, but who believes this because he thinks that Balfour was Prime Minister then, whereas in fact it was Campbell Bannerman. There is the lucky optimist who, having bought a ticket for a lottery, has an unshakable conviction that he will win, and, being lucky, does win. Such instances can be multiplied indefinitely, and show that you cannot claim to have known merely because you turned out to be right.

What character in addition to truth must a belief have in order to count as knowledge? The plain man would say there must be sound evidence to support the belief. As a matter of common sense this is right in most of the cases in which doubt arises in practice, but if intended as a complete account of the matter it is very inadequate. "Evidence" consists, on the one hand, of certain matters of fact that are accepted as indubitable, and, on the other hand, of certain principles by means of which inferences are drawn from

the matters of fact. It is obvious that this process is unsatisfactory unless we know the matters of fact and the principles of inference not merely by means of evidence, for otherwise we become involved in a vicious circle or an endless regress. We must therefore concentrate our attention on the matters of fact and the principles of inference. We may then say that what is known consists, first, of certain matters of fact and certain principles of inference, neither of which stands in need of extraneous evidence, and secondly, of all that can be ascertained by applying the principles of inference to the matters of fact. Traditionally, the matters of fact are those given in perception and memory, while the principles of inference are those of deductive and inductive logic.

There are various unsatisfactory features in this traditional doctrine, though I am not at all sure that, in the end, we can substitute anything very much better.

Russell, *Human Knowledge,* II, 11

107 It is difficult to define knowledge, difficult to decide whether we have any knowledge, and difficult, even if it is conceded that we sometimes have knowledge, to discover whether we can ever know that we have knowledge in this or that particular case.

Russell, *Analysis of Mind,* XIII

108 Knowing always has a *particular* purpose, and its solution must be a function of its conditions in connection with *additional* ones which are brought to bear. Every reflective knowledge, in other words, has a specific task which is set by a concrete and empirical situation, so that it can perform that task only by detecting and remaining faithful to the conditions in the situation in which the difficulty arises, while its purpose is a reorganization of its factors in order to get unity.

So far, however, there is no accomplished knowledge, but only knowledge coming to be—learning, in the classic Greek conception. Thinking gets no farther, as *thinking,* than a statement of elements constituting the difficulty at hand and a statement—a propounding, a proposition—of a method for resolving them. In fixing the framework of every reflective situation, this state of affairs also determines the further step which is needed if there is to be knowledge—knowledge in the eulogistic sense, as distinct from opinion, dogma, and guesswork, or from what casually passes current as knowledge. Overt action is demanded if the worth or validity of the reflective considerations is to be determined. Otherwise, we have, at most, only a hypothesis that the conditions of the difficulty are such and such, and that the way to go at them so as to get over or through them is thus and so. This way must be tried in action; it must be applied, physically, in the situation. By finding out what then happens, we test our intellectual findings—our logical terms or projected metes and bounds. If the required reorganization is effected, they are confirmed, and reflection (on that topic) ceases; if not, there is frustration, and inquiry continues. That all knowledge, as issuing from reflection, is experimental (in the literal physical sense of experimental) is then a constituent proposition of this doctrine.

Upon this view, thinking, or knowledge-getting, is far from being the armchair thing it is often supposed to be. The reason it is not an armchair thing is that it is not an event going on exclusively within the cortex or the cortex and vocal organs. It involves the explorations by which relevant data are procured and the physical analyses by which they are refined and made precise; it comprises the readings by which information is got hold of, the words which are experimented with, and the calculations by which the significance of entertained conceptions or hypotheses is elaborated. Hands and feet, apparatus and appliances of all kinds are as much a part of it as changes in the brain. Since these physical operations (including the cerebral events) and equipments are a part of thinking, thinking is mental, not because of a peculiar stuff which enters into it or of peculiar nonnatural activities which constitute it, but because of what physical acts and appliances *do:* the distinctive purpose for which they are employed and the distinctive results which they accomplish.

Dewey, *Essays in Experimental Logic,* Introduction, 2

109 Let me . . . call attention to an ambiguity in the term "knowledge." The statement that all knowledge involves reflection—or, more concretely, that it denotes an inference from evidence—gives offense to many; it seems a departure from fact as well as a wilful limitation of the word "knowledge." I have . . . endeavored to mitigate the obnoxiousness of the doctrine by referring to "knowledge which is intellectual or logical in character." Lest this expression be regarded as a futile evasion of a real issue, I shall now be more explicit.

It may well be admitted that there is a real sense in which knowledge (as distinct from thinking or inquiring with a guess attached) does not come into existence till thinking has terminated in the experimental act which fulfils the specifications set forth in thinking. But what is also true is that the object thus determined is an object of *knowledge* only because of the thinking which has preceded it and to which it sets a happy term. To run against a hard and painful stone is not of itself, I should say, an act of knowing; but if running into a hard and painful thing is an outcome predicted after inspection of data and elaboration of a hypothesis, then the hardness and the painful bruise which define the thing as a stone also constitute it emphatically an object of knowledge. In

short, the object of knowledge in the strict sense is its objective; and this objective is not constituted till it is reached. Now this conclusion—as the word denotes—is thinking brought to a close, done with. If the reader does not find this statement satisfactory, he may, pending further discussion, at least recognize that the doctrine set forth has no difficulty in connecting knowledge with inference, and at the same time admitting that knowledge in the emphatic sense does not exist till inference has ceased. Seen from this point of view, so-called immediate knowledge or simple apprehension or acquaintance-knowledge represents a critical skill, a certainty of response which has accrued in consequence of reflection. A like sureness of footing apart from prior investigations and testings is found in instinct and habit. I do not deny that these may be better than knowing, but I see no reason for complicating an already too confused situation by giving them the name "knowledge" with its usual intellectual implications. From this point of view, the subject-matter of knowledge is precisely that which we do *not* think of, or mentally refer to in any way, being that which is taken as matter of course, but it is nevertheless knowledge in virtue of the inquiry which has led up to it.

Dewey, *Essays in Experimental Logic,* Intro., 2

110 Knowledge becomes relative, as soon as the intellect is made a kind of absolute.—We regard the human intellect, on the contrary, as relative to the needs of action. Postulate action, and the very form of the intellect can be deduced from it. This form is therefore neither irreducible nor inexplicable. And, precisely because it is not independent, knowledge cannot be said to depend on it: knowledge ceases to be a product of the intellect and becomes, in a certain sense, part and parcel of reality.

Bergson, *Creative Evolution,* II

111 In order to know an object, I must know not its external but all its internal qualities.

Wittgenstein, *Tractatus Logico-Philosophicus,* 2.01231

112 Only if there are objects can there be a fixed form of the world.

The fixed, the existent and the object are one.

The object is the fixed, the existent; the configuration is the changing, the variable.

The configuration of the objects forms the atomic fact.

In the atomic fact objects hang one in another, like the members of a chain.

In the atomic fact the objects are combined in a definite way.

The way in which objects hang together in the atomic fact is the structure of the atomic fact.

The form is the possibility of the structure.

The structure of the fact consists of the structures of the atomic facts.

The totality of existent atomic facts is the world.

The totality of existent atomic facts also determines which atomic facts do not exist.

The existence and non-existence of atomic facts is the reality.

(The existence of atomic facts we also call a positive fact, their non-existence a negative fact.)

Atomic facts are independent of one another.

From the existence or non-existence of an atomic fact we cannot infer the existence or non-existence of another.

The total reality is the world.

We make to ourselves pictures of facts.

The picture presents the facts in logical space, the existence and non-existence of atomic facts.

The picture is a model of reality.

To the objects correspond in the picture the elements of the picture.

The elements of the picture stand, in the picture, for the objects.

The picture consists in the fact that its elements are combined with one another in a definite way.

The picture is a fact.

That the elements of the picture are combined with one another in a definite way, represents that the things are so combined with one another.

This connexion of the elements of the picture is called its structure, and the possibility of this structure is called the form of representation of the picture.

The form of representation is the possibility that the things are combined with one another as are the elements of the picture.

Thus the picture is linked with reality; it reaches up to it.

It is like a scale applied to reality.

Wittgenstein, *Tractatus Logico-Philosophicus,* 2.026–2.1512

113 Knowledge is not eating, and we cannot expect to devour and possess *what we mean.* Knowledge is recognition of something absent; it is a salutation, not an embrace. It is an advance on sensation precisely because it is representative.

Santayana, *Life of Reason,* I, 3

114 Superstition, and sometimes philosophy, accepts imagination as a truer avenue to knowledge than is contact with things; but this is precisely what I endeavour to avoid by distinguishing matter, or the substance of dynamic things, from essence, or the direct datum, sensuous or intelligible, or intuition. Intuition represents the free life of the mind, the poetry native to it, which I am far from despising; but this is the subjective or ideal element in thought which we must discount if we are anxious to possess true knowledge.

Santayana, *Realms of Being,* Intro.

115 The enormous infusion of error that sense, passion, and language bring with them into human knowledge is therefore less misleading than might be supposed. Knowledge is not truth, but a view or expression of the truth; a glimpse of it secured by some animal with special organs under special circumstances. A lover of paradox might say that to be partly wrong is a condition of being partly right; or more soberly, that to be partial is, for knowledge, a condition of existing at all. To be partial and also to be relative: so that all the sensuous colour and local perspective proper to human views, and all the moral bias pervading them, far from rendering knowledge impossible, supply instruments for exploration, divers sensitive centres and divers inks, whereby in divers ways the facts may be recorded.

Santayana, *Realm of Truth,* VII

116 The love of knowledge belongs to the essence of spirit. Far from being, as Baconian pragmatism would have it, a love of power, it is a love of imagination; only that imagination needs to be fed by contact with external things and by widening vital rhythms. When the great explorers sailed in search of gold and of spices, imagination within them was dreaming of the wonders they might find, and of the splendours they might display at home after their return. The voyage too would be something glorious, to be described in fabulous books and woven into tapestries. This is a healthy love of knowledge, grounded on animal quests, but issuing in spiritual entertainment. Had the world turned out to be very small and handy, and the science of it as simple as it seemed to Descartes, spirit would have suffered no disappointment; there would have been more than matter enough for all the wit of man. Perhaps the environing blank would have positively helped to frame in the picture, and make it easier for a religion of the heart to understand and envelop existence.

There is a snare, however, in the very essence of knowledge in that it has to be a form of faith, and faith is something psychic rather than spiritual: an expectation and hope addressed to things not seen, because they would match potentialities in the soul. Actual belief (the expectation or affirmation in it) is a state of the spirit; but spirit could never fall into that state or maintain that assertiveness by a purely spiritual insight, since intuition is of the given and spirit is pure actuality. In knowledge, as distinguished from intuition, there is therefore a postulating element, an element of hunger unsatisfied; the datum hangs in the air, not being accepted for what it is, but taken as an index to a dynamic object that is perhaps nonexistent. This adventurous intent, this sense of the ulterior and potential, strains the spirit, spoils intuition, and opens the door to doubt, argument, error, and presumption. Faith belongs to earth and to purgatory: in heaven it would be a lapse into distraction.

Santayana, *Realm of Spirit,* VII

6.2 | *Experience*

Although it is a term that no one can avoid using, experience is seldom defined by those who use it. It would appear to be co-extensive with consciousness—the flow of experience from moment to moment being identical with what William James called "the stream of consciousness." It would appear to be impossible to be a sentient or conscious being and not to have experience at every waking moment and even when one's sleep is interrupted by dreams. To understand this much about experience is to recognize how much of what we know is somehow born of experience, and also to realize how special is the knowledge that some philosophers call transcendental because it is independent of and goes beyond experience.

A few of the writers quoted—namely, Aristotle, Hobbes, and Harvey—use the word "experience" in a more restricted sense. They point out that from repeated perceptions, memories are generated; and that from many memories, experience emerges. It is in this sense of the term that a man of