

Explanation or Abstract: this is a set of notes on logic. The purpose is to lay the fundamentals for a new logic. The old logic is that of statistical faith, used so far to effect all of what is called modern science. This old logic is contained in its essentials, even without any of the later statistical machinery, in the emotional thought mechanism Descartes introduces from out of his Catholic faith into his mathematics, putting a time of doubt and a leap of faith into his purely mathematical definition of the self. The new logic unites the time of doubt and the leap of faith into a single step by the emotional thought mechanism of a hinge, defined variously as a dream (in the sense of a change in my way of thought, making both sides of the change thus proven to be real, since a real change does split them apart and thus unites them in a structured whole to my own experience) in which the very fact of doubt is treated as a step of faith, that is, as an ontological assertion of the truth of what is doubted exactly in the mode in which it really does appear (thus, as it appears phenomenologically) to the doubter's self: hence the fact of doubt is both an ontological assertion of the self and an ontological assertion of what this self called I experiences doubt about. Thus, as the logic of Descartes allowed for a spatial imagination to replace the pure non-image logic of the Middle Ages and Antiquity, so this new, hinge or dream, logic allows for and calls for the non-geometrical imagination to become the major instrument of investigation: neither axiomatic proof, nor mathematical (hence also geometrical) consequence, but the sequence of events as these are found to be necessary in the exercise of the imagination. The interest in Einstein, Schrodinger and Darwin is dictated by the great implicit change of thought between the 19<sup>th</sup> and the 20<sup>th</sup> centuries, when the physical world went from being lodged in space and time, as it is for Darwin, to *being* space and time itself, as this is implied in even the theory of the DNA, which is a set of structure whose development depends *not* on the economy of nature but on the physical structure of the Universe. Although the consequences for practical reason of this great exchange have been, as I guess not poorly, worked out by Heidegger, yet Heidegger was too caught up in the whirlwind of political events to see the whole thing calmly, that Europe was not breaking down its old ways of belief but undergoing a second process of transfiguration of the space-time structure. As Augustine's Catholicism was Plato's forms transsubstantiated into attributes of Christ, so the new structure of space-time was the Catholic frame finally simplified on its way towards the Book of Tao in the reunification of Western and Chinese Humanity into a unitary whole. Because of the necessity to keep to some length and not a very great length, I do not elaborate here the philosophical instruments in much detail, but begin by using them, in no special order. It is of a part in my technique, that making claim to perfect technical incompetence I therefore deliberately misuse the terms of formal logic, as this thing is practiced in this day.

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Hypothesis: Einstein's refuge to statistics experiment, both of them methods of practical reason elaborated before Einstein and done for him, in large, by others than himself, are what allows him to reduce both the dogma and skepsis, supposing of a faith and opposing by a doubt, of the ancient philosophers to almost one whole

system.

Implication: where it is almost one whole system, still lacking certain modes of thought, which have not yet entered into the sphere of thought, neither Einstein's theory nor Schrodinger's answer to it can give a single view about the whole.

Proof of the hypothesis

Dogmatic axiom: thought is an action, as distinct from all other possible actions, whether of the body or the mind, or of something else perhaps, speaking of these things colloquially and loosely.

Note on dogma: the axiom is given dogmatically because I am able neither to prove it nor disprove it, lacking both knowledge in the history of thought and also the logical instruments of formal proof. So I leave the whole thing to persons better qualified than I am, trusting that both proof and disproof in no way affect the value of what follows from the axiom itself, being made as a step of practical reason. Whether to disagree with me or to agree, others must thus have made the step, at least in plausibility.

Implicit axiom: nothing can ever be proposed, not even the law of identity,  $1=1$ , or the reality of God, that God is real by definition, can ever be either proven or disproven, unless first granted, at least in plausibility. Those who identify absolute distrust with the scientific method, or ontological doubt with nihilism, have no understanding of real science, no matter how much flattered by popular opinion for the specious solidity of their positions they might be.

First therefore: if thought is an action distinct from all other actions, then we may separate the sphere of thought off from the sphere of action, understood as all the actions which stand outside thought.

Second therefore: if thought is rendered distinct from all the sphere of action (including feelings and visions), then the number of possible thoughts will be limited at first by its being completely distinct from all other kinds of action.

Third therefore: if thought is limited in the kinds of thought available at first, then new thoughts have nowhere to come from except by an absorption from the sphere of action.

Explanation: absorption need not be an individually regular phenomenon, but may be allowed all the chaotic individual freedom of events we see in personal life as well as in history. What I mean here is the Browning-movement model of absorption, as described by Schrodinger in his second lecture in the little book called *What is Life* and by Einstein in his 1905 article on Browning movement. Under the reality of

complete atomic chaos, there will still be the statistical regularity of dispersion towards a region where there will be fewer atoms (here, forms of action) from a region where there will be more, simply because there will be more movement, no matter if chaotic, in the fuller region, and so more probability of something or other randomly proceeding into the emptier part of the glass. Thus, too, with thought taken as a part of action within the whole possible sphere of action. This might seem to stretch the definition given above, but I mean only that, since in the narrow sense thought has been defined as thought and not action, in the large sense both will still belong to a great imaginary sphere, called Action. And the larger concentration of possible actions in the part of the great sphere which we called action simply, will lead to a natural, although in each case individually chaotic, dispersal of new actions into the emptier part of the sphere first labeled thought. There will have to be a necessary mechanism of transformation by which the actions become thoughts, but let us leave that be to its own proof, given in another place.

Second explanation: what is called thought in the narrow sense can also be called practical reason, in the sense given this by Kant. That part of thought which is sufficient for producing a directed action in the mind, going from one thought to another. Before a large number of thoughts enter the domain of practical reason, being separated off from action as the things things of the body (which includes here both the feelings and the visions of what, for convenience, from earliest thinking times was called the hear, and so made different somehow from the mind) of thought, there can be no talk at all either of philosophy or science. In short, thought is one thing, thoughts another: all actions necessarily require a kind of thinking, but when this thinking becomes a thing self-conscious, and able to produce more thought without producing further actions, then we have what I mean by a translation of an item from the world of action to the world of thought.

Implication: it was not, as the newest revisionary historians would have us think on purely fabricated hypothetical visits of Hindu sages to the Greek world (for which there is not even the evidence of myth, and which, on their own terms, serve only to plug up the holes in formulating the fashionable theory, flattering the modern world-trade love for thinking money talks by having cooks and wheel-wrights in a Nietzschean fantasy convey the fruits of deepest Greek thought to India and back again) that led to the development of the ideas an earlier generation of scholars called the Axial Age (and they explained things more convincingly because more broadly, since the new explanation of the tourist-value of the Persian roads does in no way explain why Laotsu and Confucius lived at nearly the same dates as did the Buddha and Democritus, and spoke things near enough to each to make one pause in doubt); not, therefore, the result of scholarly travel along the new Persian roads of the Achaemenid Empire, but rather the movement from the administrative sphere of action to the sphere of thought of the great new innovation of the centralized system of official roads. As these roads extended both to Greece and India, the practical thinking that came with the roads soon extended, by what I propose to call a

Browning movement in the fundamental chaos of the mind, to the sphere of pure thought at both ends of the great Empire; and as the new administrative concepts did, after all, get their encounter with Chinese merchants traveling along the old Silk Road, these brought back the new germs of thought to China, which in China had the strange but characteristically Chinese reversal of first entering the books and saying of the most non-practical philosophers, Laotsu and Confucius, and only then, some few hundred years later, having been put to real use by the Qin Emperor, the greatest of all pragmatists in Ancient China.

Second Implication: Einstein's example of the suspended particles passing through a semipermeable wall, whose location in the glass does not influence their movement so long as the total surface of exposure is not changed, and where all forces may be isolated to the end that, finally, only the random motion of the suspended particles themselves is causing to move across the barrier, may, in a very large Universe as compared with our own (say, ours times ten to the sixteenth power), be replaced with so and so many cats in a room, jumping through the movable glass door to a rather large cat-toilet. Since it will be difficult for us to say which of the cats will be doing their needs of nature, which just playing with the sand, and which with the other cats, and which, perhaps, just to go in and out again, all these random factors (if we can formulate them as statistically random factors that only satisfy our equations for their rate of movement, but not more than statistically satisfy - that is, are not predicted as a prophet would predict, but as a weather-station); which gives a nearer image for the mechanism of transformation of actions to the sphere of thought, but with the disadvantage of some cats having to leave their little bathroom now and then, whereas we are not sure yet whether any thoughts can be said quite to leave the sphere of thought once they have entered into it. I think that it is only reason that they can, and must, and do, if we now formulate thought as a statistical phenomenon. Thus, the second implication of that thoughts can travel from the realm of action to the realm of thought (practical reason) without a conscious effort, we can reformulate the conscious effort itself to think this and that, or so and so, as a purely statistical phenomenon. This makes the exercise of reason, so far from being the most free, the most determined of all human activities.

Major proposition: what was missing from the thoughts of the ancient atomists, necessary for them to move their ideas into what is now recognized as the realm of calculation and experimental observation, was a series of techniques, most of which had gradually come over into the sphere of thought from the uses, mainly, of military science and administrative thought over the 2000-something years dividing Democritus from Descartes.

Minor proposition: the instrument of putting-faith, which unites ancient skepsis with ancient dogma into a single indissoluble whole, was supplied by the Gospel in the person of the Christ, and entered into the body of Western thought by the series of religious and political events implied in Paul, Nero, Peter, Domitius, Marcus Aurelius,

Constantine, Jerome and Augustine; and was finally integrated into Western thought by the mechanism of Catholic Pejoration, which makes the backbone of the thought of Augustine, useful not only to question faith but also to command it. This mechanism became reworked by Descartes into his famous I think therefore I am, which would have been perfectly inane to any ancient thinker as nothing but material for a proposition (lacking the putting-faith in things brought in by Christ) and took its mathematical formulation in Newton's integral function, which had made statistical mathematics a possibility.

Unified, this gives: in the three hundred years dividing Galileo and Descartes from Einstein, these new means of thought grew together into a set of mathematical sciences, each brought forward in the hope of either proving or disproving what was understood dogmatically and by means of logical deduction, ratified as dogma to be put-faith in by the Catholic church ever since Augustine.<sup>1</sup> These sciences, when reaching the point of their maturity, had produced all the conditions in which Einstein could, being neither statistician nor experimental chemist or physicist himself, command the uses, as also in good faith the future uses, of both statistics and experimental chemistry and physics. The good faith in the honesty of the statisticians and the self-reliability of the statistics, as also in that the experimenters are not telling lies on the one hand and that nature is not laughing at them on the other, are all consequent upon the elaboration of the mental instrument of the light of nature by Descartes: we can trust ourselves to know the truth, when the mind brightens and we feel we know the truth.

Fourth therefore: Einstein, taken as a set of new ways to put together thoughts, is nothing but the secondary processing of all the possible actions which have entered in the sphere of thought towards 1900. QED.<sup>2</sup>

2

Towards a new logic, I have a reason to be inclined: I do not know enough of anything in order to use with any confidence the systems of thought which are already

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<sup>1</sup> This explains the rigidly unphilosophical slip in Darwin's thought from the conceptual infinity of the integral function (which is therefore real that it cannot even be imagined, and so can be put faith in, along Tertullian's old formula *credo, quia absurdum est*) with the perceptual infinity of what the eye can see and the mind can grasp, thinking that this can exclude God's individual presence at each point, exactly insofar as it is a point, along his infinite line, when it is in the conceptual infinity that Darwin's own God, had Darwin had the time to think about it, dwells in, and so not only can but does put his hand into the processes of nature at each point, creating every point of time and space. That Darwin had no time to think about this, was the usefulness of the self-transforming psychological thought mechanism of science: Darwin's own faith in the goodness and the greatness of God left with him no time to think about the goodness and the greatness, but about the mechanisms of its particular manifestation in the observed world. Einstein would have no use for these thoughts at all, and would found his existential physics in his own impatience.

<sup>2</sup> NB! Einstein shares with Darwin the understood right to a division of labor, made possible by the goodwill of the scientific community that grew up through the 19<sup>th</sup> century in the consciousness of working for a world-wide shared effort. Fatefully enough, and strangely indeed, Marx the internationalist is cut off by his very political associations from his participation in this scientific culture; and Freud the universalist by the revolutionary (that is, insofar as it destroyed the old society in which these waist-coated gentlemen all shared their minds and hearts, anti-social) nature of his theory. These are the trains, I think, of a whole development.

in place, if they are in place. I do not even know enough to know if they are in place or not, or if perhaps this has been changed without my knowledge. I am in the position of that Roman general who has to become Emperor to save his life. Thus, then:

What can be imagined ought to be investigated.

1 Einstein said that imagination is more important than knowledge (my authority);

2 I do not know enough in order to dismiss what I imagine as mere ignorance, since for all I know it might be an inspired guess (the instrument of the restraint of doubt, taken over from Darwin as a modification on the instrument of the restraint of faith in Plato);

3 I take my lazy ignorance about everything and anything for an extreme only of the human condition, but assume that all of human knowledge, on the terms on which it has been given, is, likewise in its sum only a pattern of inspired guesses. If this pattern shapes a whole for purposes of its perception (as light becomes a wave in time for optics, but is something else being considered as an instant; which is not yet out of time entirely, so that it might be yet a third thing there, if anything can be conceived of as being out of time, or needs to be) in what is called learning and understanding, then:

4 Knowledge ought to be thought not as gotten, but as created.

These are things I cannot prove in a way that would be convincing to anyone looking strictly. Therefore I do not look to prove them, but ask instead to be disproven. I lay the whole burden of disproof upon the shoulders of my conversation partner, as it is too heavy for me. In this I am a perfect Pharisee, but for that I assume the one I speak to, to be greater than King David as compared with me. Whoever has more knowledge than I do is greater than King David, as compared with me. But this is to evade my view of the metaphysical conversation partner, collected of the whole infinite (or sufficiently infinite, obeying Einstein: satisfying the condition of infinity in such a way that nothing I can ever think or learn or do would show me that infinity is *not* reached in this matter) of conversation partners, being in a word the Christ. This part of Christianity must be taken over by any logic that proposes to have a foundation in the history of Western Humanity at all, and that claims to have access to any truth at all: whoever will be speaking with the truth, as it is accessible to the human understanding, must therefore be speaking with a face of Christ.

Since all that has been actually imagined must therefore be investigated, and I am free to lay out my thoughts openly and simply without regard for the perfection of their logical connections (which, I say, cannot be had: each who follows worthy of the thoughts will see holes there between them),

then I am therefore under obligation to consider well, to my full ability, the shell of light I guessed from reading Einstein's first four published papers.

If light goes more rapidly than anything else at a speed that cannot change and if all space and time should be considered uniform

then light would in course of swift time go to the far edge of the Universe and there begin to make a shell of light, growing in thickness

which would be impossible to see or test by any observation because of the direction of that light, away from all things: any signal we could send would have to go the number of light years to the nearest edge of the growing shell of light, so that even if it could be made somehow to be pushed back on reaching that shell, the time this would take would be millions of years

and moreover the signal, to catch up with the shell of light, which would be naturally growing distant from the center of the Universe at the speed of light, would have to be faster than the speed of light. And that is, on the theory's terms, an impossibility.

But the introduction of quanta, making light itself not be a wave-thing opening up in a volumed fan over ever-increasing volumes of space (Einstein's words in the introduction to his fifth published paper, on the quanta), but instead a set of grain-things, like a stream of rice pouring in a pot or sand for a cat-toilet being poured into its big container, then that seems somehow to break the shell of light with which I would have crowned the Universe, having made it out to be God's candle, to which God talks in the lonely darkness of his world. This, then, opens me to further reading in the matter.

3

Dialectics is not dialogue but the exchange of opinion.

I can change opinions even with myself without imputation of insanity if I change my mind: but on the condition that my new idea to go to the store, having been exchanged for my old thought to remain at home all day, has in it something of the like that it is better to go to the store at least than to stay home all day.

Exchange of opinion is the thing that most often does not happen at academic conferences, as also in the novels of Tolstoy, where people speak and speak in plenty, have as much dialogue as you would please, and yet stay to their opinions in the end. Again, exchange of opinion does not happen in religious conversion, or in any *nullifying* experience: there the old is erased by the new, and we have not an exchange but a conquest.

Thus dialectics is not at all the kind of thing that Jonathan Barnes understands in that protean word, as he calls it, because of which in his first review of Castiglione's book on ancient contradictions he understood 'dialectical arguments' and the 'dialectical nature of ancient arguments' to mean that there were these two naked wrestlers

groping one another with their words in front of a big crowd, to see who wins. The point is not the winning but the exchange. Insofar as the winner exchanges the position on the ground for the position on the top, and the loser the position on the top for the position on the ground, the winning does mean this exchange; but insofar as they both start out standing, and neither one has the position on the ground to give or on the top to exchange with, there is required here an item of irrational intervention, and that is what Plato does each time by introducing his generic god: somehow, someone, something;  $\tau\iota$ . The Gospel innovates on this by placing the direct interrogative,  $\tau\acute{\iota}$ , wherever Plato would have had his  $\tau\iota$ . Plato's gods are answers put in the form of questions to effect exchange of thoughts; the God of the Gospel is the great question put in the form of an answer in the exchange of lack of understanding for the understanding of the truth.

Dialectics has been misunderstood already from before Marx, but the most significant misunderstanding insofar as it has cost the most lives is Marx's. Dialectics was not explained by the ancients because to them it was a thing obviously given, and became misunderstood by the moderns on account of two things:

1 our contempt for deity in result of the Reformation, when it turned out that just anyone can have opinions about God, and somehow God continually accepts this, never putting in a word to make the people cut it out;

2 our solipsism, or reverse-idolatry of refusing to see sentient life in wood and word and stone, when reading, come of the printing press, when we have acquired the assumption, which would have been insane in antiquity, that when we read a book it speaks to us but we do not speak to it, changing its mind if we speak well no less than the book might change our own. Anyone who takes Chaucer seriously will know his way of talking to the books he reads; but this has changed by Shakespeare's time, when books speak only words, words, words.

Since the moderns have misunderstood dialectics, they have defined this science of five-step exchange, where the middle step is guaranteed by intervention of the god and is in Christian terms a miracle (but a miracle of the old order, the Greeks sharing with Israel the need to hear: a heard, and not a seen, coming forth of the divinity), as what it is *not*: not linear logic, not Western thought<sup>3</sup>, not this and not that.

But if I tell you I am not a fish, is that enough to tell you what I am exactly?

The same difficulty has entered into the relationships of man and woman ever since it had occurred to people to define a man as not a woman, and a woman as not a man. That is a new development, newer by at least a century than Shakespeare.

Plato has five steps.

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<sup>3</sup> This comedy is known to anyone who has read about China or heard the self-styled representatives of Chinese thought speak: Not Western thought, they say; but that still does not tell us what it is exactly, since we now only know that Western thought, which in the past was Russian and French, English and American, and full of opposites of its own, is a block of mass perfectly uniform in being the opposite of Chinese thought.



Marx explaining money only four; Strauss explaining Plato, only four.

4

The theory of relativity applied to ethics would not give relative morality, as this has been understood in the last hundred years or so. Einstein says:

If two coordinate systems are in uniform parallel translational motion relative to each other, the laws according to which the states of a physical system change do not depend on which of the two systems these changes are related to. [Annalen der Physik 17, 1905]

Paraphrased in moral terms, this gives: the moral law applies in exactly the same way in both directions, no matter where you start. Which is exactly the opposite of how relativity has been understood as touching knowledge of the right and the wrong in the past hundred years or so; and is exactly the way in which the nature of space is understood in the parable of the good Samaritan in Luke's Gospel.

The story of the good Samaritan in the Gospel of Luke is the beginning of relativity in Einstein's sense of things: no matter where the changes come from in a pair of system which are in relation to one another, the changes affect both systems in an equal way. The Samaritan makes himself the neighbor of the man he helps simply by putting himself in a neighborly relation with him. That this is purely irrational, being applied to unchangeable God, is exactly the point of the matter: it is difficult to be unselfish in this way, having love for those whom you cannot yet understand why or how they should love you, at the moment when you do your works of love.

What would be the use of the theory of relativity if it could not be put to relating any pair of systems to each other, their coordinates being properly described? But I ask to be disproven in this, as I well grant that my ignorance and arrogance play their usual trick of making get all things wrong again, exactly for the reason that I feel I cannot be mistaken in the use of words. From this it invariably follows that space and time themselves, as well as unitary matter, are all purely irrational, being taken on their own terms in Einstein's later, fully elaborated theory, being the physical substratum to a metaphysical, moral account given two thousand years before

5

The clock at the center of the coordinate system in pre-relativity physics is also a coordinate system. This explains the tendency of Einstein's thought: not to adding new things which to think about, but to minimizing the number of dimensions which might enter thought. Thus, to be reduced to a physical quantity, the metaphysical quality of time must first be made to order transformations on the Cartesian plane. But this is to return to the most metaphysical definition possible of all, that time is order of events in logic. Whatever the logical order of events should be, that will be time. Hence, time is simplified and unified from a function of thought plus something else more practical, to a function of practical reason. Will it be said that this is Maxwell and Lorenz, and not Einstein? But it is Einstein's exposition, nonetheless.

Famous anecdote everybody knows: asked once about his clothes, why always the white shirt and always the black pants, Einstein answered that he always buys clothes in sets of one same color; and asked why he does that, answered that if he had to think about the color of his clothes, he would not have had time to think about his theories. It is enough to put a strong man in a bad mood, and I am not exceptionally strong by any definition I can think of, to think that these words must be searched out and quoted to the source before they might enter into serious thought. But thought differs from thought, and if only one kind will be considered serious, what must the others do? In that first American lecture the great man says time fits man like a set of clothes, having to conform to his body. Much that would mean to a furrier, who can make even a stick-shaped woman have a shape, or a maker of suits who could fit even a plum-shaped man to look, and what is more than that to feel, like a hero and a giant! It is an old saying that clothes make the man, and to those who have thought on the matter seriously, as, for one, Gogol, and Shakespeare for another, as well as Plato, Moses and Confucius in among the ancients, the clothes we wear fit rather our own bodies to the world; and more than that, our minds. Einstein's time and space are colorless by definition; or, to carry on the story with the black pants and the white shirts, space is always only of one color, time always of another. This is done in order to simplify thought. About simplified things we can think distinctly. But is the simplification really there in nature? My feeling has always been instead that in nature we see God's simplicity, which indeed need be simplified before it can be studied. But in the simplifying we betray our human motive, that what we do is study not the world before us, but a child's game we have made from the small set of the available materials at our hand's reach. If now and then we cause what seems to us like terrible destruction, children, too, might now and then, playing with things they do not understand, or even those they do, maliciously, cause hurt and bring on death to one another's doorstep.

Reduction of space to one color and time to another, with light somehow their unity in one, is surely well for physics, the most objective of all the experimental sciences insofar as removed the furthest off from the experiences of any given individual man and taking up the neutral place between us in the things none of us could fail to have observed in common; but just as surely, because by the exact same logic working in reverse, it is ill for the physicists, themselves human beings with all the needs for personal experience of human beings without which their thoughts cannot become differentiated in unusual structures in order then to supply the material of what should be reduced into the neat, strict formulas. What have the last fifty years, since Schrodinger and Einstein, products of that most expansive age which brought forth into birth the twentieth century with all its troubles, added of significance to physics, I, a vulgar uninitiate, would not know how to tell. But for a certainty, if Schrodinger and Darwin are authorities worthy of being trusted, the standardization of experience which has been the mark of the twentieth century and has become the very trademark of the 21<sup>st</sup>, means lower and not higher organization for the human being as a

life-form; and, hence, for all our smart phones, lower standards of intelligence. The pushing out of personality from out of daily life will not make daily life more scientific, but only more primitive.

Nor is the vaunted multiculturalism a way towards there being more of human personality in daily life, but less. What does it mean that we are forbidden to compare our experiences in any other way except to say that yours are just as good as mine; I wonder verily, has anyone considered? If it makes no difference between us whether I have been born in Soviet Russia in the year 1984, and you in Somalia in 1990, and a third friend still in 1997 in America, then that is to say not indeed that our experiences are too different to be compared, but that indeed they are too much alike, making impossible between us an order of comparative degrees. But that is even lower on the scale of life than oak trees! So that if out of thirty years of the victory of multiculturalism that had dissolved the Soviet Union and installed America as the Western Empire of the human world, the natural outgrowths have been the most primitive resurgences of nationalist feeling, as the merely fascist public policy in Putin's Russia, the swift turn to Han-nationalism in China, and any set of African states, where it is the intellectuals themselves perfectly disposed to discount Socrates as Europe, it should be no wonder that America, too, has succumbed to this disease, which has just as surely produced the Islamic State as it had given forth the popularity of Mr. Trump; but indeed, that these things did not happen sooner than they did. Why wonder that reactionary movements away from internationalism and away from the notion of shared human dignity rise up now as if newest discoveries in the field of ethics, when for no fewer than thirty years we have been compelled by our own world-wide ideology to keep our moral thinking something on the level of the biological development of grass?

What the so-called multicultural variety adds up to is the principle of the GULag: You die today, I die tomorrow. But the thing escapes notice because it is colored in reverse: I do well today, so long as everybody else does well tomorrow. Well, and when will the tomorrow come, if all the others are being done well at their own expense today? Tomorrow and tomorrow and tomorrow never comes, so long as it is still today, today, today with those who get to do well and to stay in power. And somehow these have not changed much, for all the revolutions; but the terms on which we speak, the depth and the variety of words in which we might address each other, becomes reduced with every generation. So that even those in power have good reason to envy the 19<sup>th</sup> century bourgeois who produced out of his flesh and blood both Marx and Darwin, Einstein and a world of thought and feeling we have done little but to have consumed.

Is the word primitive a fighting word, despite the multicultural view of things? As, after all, it should be no offense to us that, even though the means for making online of all the ancient books, be they the Chinese or the Greek and Roman classics, have grown to perfection, the ability to understand those classics has decreased. Not only is there Willamowitz around nowadays, but not even a Dodds. This much is admitted, that, if thought is *not* to be considered as the speed of thought (so that if we should

hear Schrodenger's answer to Einstein in the 1950 letters, at the very least, if we do not listen to my voice on my own authority to see things clearly for myself), but as the depth of thought instead, the number of scholars able to speak directly with the ancients through the works has decreased even as the technology that should enable the conversation, if speed of reading had been depth of understanding, has improved. If our technology allows us to think so rapidly that we decrease the actual interval of thought, then that means we think less at a time, not more, than in the past. That is all I mean by primitive; indeed, I might well be misunderstood in the wrong direction. Nature's primitives, the ancient mankind of some ten thousand years ago, invented writing and mathematics. To understand that one cow is the same one as one man and one cloud and one anything you like, takes greater genius than Plato's, Newton's, Einstein's. In any case, the interval of thought it must have taken to have seen this exceeds ours by as much longer as six months is longer than six seconds. In China, this meant sitting all day long to watch the direction of the sunrise in relation to the direction of the first stars in the evening, at the very least; and other experiments took months and years, described as they are in the ancient sources. Whereas we, our own man-made and self-domesticated primitives, know only one thing: to consume. So that indeed, it is the primitive who is disparaged by the rude comparison, not we are.

And, once more again, to make the matter clearest as can be, by more primitive I mean only less organized on the scale of the individual life-form. Thought today is more primitive than in the past because, thanks to our tools we lean on for organizing thoughts, we ourselves have minds less perfectly organized than the people of a 100 years ago. This shows itself in everything, but in nothing more than the loss of preference for rhyming poetry and the reduction of grammar, world around: we do not enjoy verbal order for its own sake anymore. But the case may be presented better and more clearly, one willing.

Darwin's theory gained acceptance originally not because of overwhelming evidence, which Darwin himself continually explains that he does not have, but on the force of persuasion in a community of world thought, on a scale lower down indeed among the common people than where the professional biologist and geologist stand today: what carries Darwin is Darwin's own voice, pleading and persuading to suspend doubt long enough in order to consider the elegance of the system he proposes. This can be proven from the text.

Einstein's relativity is not purely Einstein's own, but of a whole, and at that time a very open, circle of physicists not limited to Germany only, who had the generosity, the openness of mind, and most of all the time to stage interesting new experiments and to listen to opinions not voiced before, from persons without more credentials to have voiced them than that had something of their own to say. Try submitting a paper to a scientific journal today! That Einstein expects more respect for his personality than doubt of his right to speak, too, can be shown even from his scientific papers, where he speaks at least as much on personal authority of one who thinks he has a

good idea in the truth, as on the authority of learned men before him. There is hardly the paralyzing fear of making a mistake there which characterizes all scientific writing now, and simply all of writing. Language has not become more scientific, but more strained.

But if one should still remain unconvinced only on account of having found a hard word that grates against the ear, I answer that I mean the more primitive conditions of modern life, as compared with those a hundred and two hundred years ago, in the same way as Darwin means the word in speaking of species becoming beautifully adapted to simpler and more primitive conditions of life. We have no reason to be able now to understand Confucius, do not need him, are better off without him: so who should take offense at not mine, but the author of the Handbook on Chinese Culture, writing that in the last twenty years there has been a rise in the materials available, being collated in print and in computer form, on ancient Chinese culture, and a coordinate, if not perhaps codeterminate, fall in the ability of scholars to understand these ancient sources further than the computer's own ability to recognize with ever-faster speed, that this is Laozi, that is Confucius, and that other thing still is Huainanzi.. Our life has been made simple by computers, and we are adapting gently and beautifully to living with computers at our hand. Who should feel insulted when I say it this way? Or is it not in its own way a more primitive development, that in becoming human the pithecanthropus became got a simpler, and in its own way a more primitive, organization for its jaws, no longer obliged to eat tough leaves and raw bulbs on a daily basis?

Why should primitive organization insult us, for our hearts and minds? Would it be better to be complicated like the Puritans, who would kill each other for a new thought, or maybe like the old Confucian scholars who knew too many thoughts in order to treat seriously any new ones? Were we not, in any case, promised, already some hundred and fifty years ago, a great return to a more primitive level of social organization, but in a new way, with greatly simplified new feelings which would let us open our minds freely and simply to embracing love and to the love of knowledge? All of what is new appears in a shell of the dark irrational before it has become the broad daylight of the present things. So it is best to keep hope and not be scandalized in single words, which would then be a stumbling-block before us to the future.

6

I was wrong to put my hopes on Einstein, that he would equate space to the Universe, so that space would not be what holds the Universe, nor time what it is unfolded through, but both space and time *be* the Universe itself. Einstein slips off the hook of language by a trick of equally immeasurable bracket words, as any scholar might have pushing forward a view which he has not the instruments to defend, nor quite the sincerity to own it indefensible: speech, says the great man, can, to a certain extent, let different individuals compare their experiences. But:

1 speech is itself the experience of speech, and that is indivisible from any represented

thoughts, so that even in the very act of sharing my experience with you, I nonetheless (taking the mental-picture view of things Einstein would have, from Kant, in order to preserve his point as the unanalyzed spectator in all systems) get to have yet a still new experience, impossible to share with you, because in sharing it I would have a third new experience of trying to share my experience of my experience of talking with you, with you, and so forth;

2 how exactly is this certain extent ascertained, except in if in the logic of the situation, that we decide our mathematical symbols to be certain enough in order to be sure of our own certainty between each other, but then we first make sick in order to have cured, agreed not to understand at all in order then to understand a little;

3 it seems that space and time can only then be reduced to instruments of expression when language becomes reduced to an instrument of expression, and nothing but an instrument of expression (which, putting apart all question of that language is an action in poetry, and an affirmation in faith, still leaves us with that this is a profoundly anti-evolutionary view of bodily functions: no organ can be solely fitted to its part in nature, but always only more or less; whereas reducing language to an instrument of expression, we say the same thing as the old naturalists, who assured their students that feet are for walking and the muscles in the face for smiling, being the instruments by which these actions are all done), but if in order to make space and time be what holds nature in, so that the abstract box of things might first be studied before the concrete things themselves are set in it, we must first do a violence to our language, then it remains to ask what science might have been, or might yet be, if to become a scientist or a scholar I did not need to learn to perform a laceration or commit a rape.

In short, Einstein, too, first produces a box for the Universe and then packs the Universe into the box. The box has more room for thought than the falling cube of Epicurus, and (perhaps) requires fewer executions than did Augustine's spiritual matter, but nonetheless, for all that, this is still a toy box, not the world.

In order for atheism not to be insanity under the principle of non-contradiction, which Einstein for sure does not abandon and which I am yet to meet an atheist who does, as the gentlemen insist firmly enough that to believe is not the same thing as not to believe, the world must have a way to begin, since it is here. Now this means allowing either time and space themselves to have world-generative power (and then we are, with only a little allegory, in the world of the heaven and earth of ancient China; but Laotsu, in any case, assures us that the Way comes first: and that is an impersonal creator-deity, a principle and not a Prince, but all the same so, something) or else we must allow that the old weight of tradition in our language, no matter what language we do speak, makes it difficult to account for the observed things thoroughly. Put differently, the work of Moses is not done, but a new great heresy is still forthcoming. Either the deified principle of motion must produce both time and space, or a deified

compound of space and time must produce motion; or somehow, impersonally but deserving veneration (or else not only our being human but our being here at all would be nothing to us but to consume, and that surely is neither faith nor science) what is explained as time and space and motion in it would still have to be not the nature of the world in logical expression (which is where Einstein's thought must stop, so long as he would have us trust in mathematics for the sole reason of its clarity; we never having been assured except by circular arguments that the world is logical and does partake of clarity in the first place), and so not what the Universe is *in*, but the nature of the world itself, and so what the Universe itself *is*.

Now in my terms all this simply is that God, in his loneliness, lit for himself a candle, which is crowned with light. Lonely in the night of his own darkness, God is talking to the candle, and the candle talks back in his imagination: the Universe is the candle and the talking back is what we do in the imagination. Therefore I put imagination not above but besides reason. Without the imagination to give it color, interest and taste, the work of reason would be dull and tasteless, whereas now it excites all the powers of the body and the mind. Half of my model is translatable into physical terms, not exactly outdated by Einstein but perhaps made old-fashioned by the later physicists; a part fits in no scheme at all (I mean the talking to the candle), but sits well with my own feeling about how things are. I could explain the whole thing metaphysically, denying that even the light in the imagination is the real light, because even there slowed down by its relationship to other thoughts, as I do elsewhere. But in the plainest of simplicity, I mean the light we see each day, the physical light in nature, which in escaping to the far parts of the Universe, makes for a shell or crown of light of growing thickness. And that is God's candle, who alone can see it from the outside. To us that light is perfectly invisible and undetectable by any means at all, unless we should find any way at all to send off signals at above the speed of light. And I am in free, in settling down to what I can believe, to leave out of thought what I am ignorant about completely. Far as I know, superluminal velocities cannot exist in nature so long as it is still Einstein's toy box we must call our Universe.

As to the matter of the Judgment, I see it this way, that whoever answers God from out of the candle's flame with love without resentment and interest without fear, even though this is impossible on the one hand, because we are all only the one single flame, and unreasonable of God to expect on the other hand, when all he has given us is a burning world in which we are to live and consequently die all only for his loneliness, such a one is saved; all others, who make of this world nothing but a satisfaction of the body's desires (I include in this the mystic's prayers and the thinker's thoughts, when these are only for their own sake), are punished by themselves. In any case, they burn up as the body of the world, which is the nature of the world: a flame. But if we consider what this candle-Universe must look like from the outside, we might not be so inclined to judge God for it as we are, when everything in this world proceeds according to irrevocable necessity and most of it is either not what pleases us, or outright evil in our sight. From where God looks it is

just as impossible, except in the imagination, to know just where in his candle's flame the, feelings, thoughts and words and images that answer his come from: just somewhere in the flame. The only way to know that these are there at all, is to want to know it. And so God puts himself near our world because he wants to be near it; not that in reason's possibility, whether in his world or in ours, he can in any way be of help to us, or in justice, should. And yet, there is always the matter of wanting it to be so, and it is so.

I have not meddled with the properties of Einstein's toy box of space. I have only expanded it a little to include the whole room that the box of space is in: expanded the work that can be done by the imagination just a little, in order for there to be just a little more there I myself have room to think. Because if Einstein's box were all there is to think to about, on those terms, then, I would not be able to read his lectures and to learn from him, but would continually think about the box's limits. But if the old physicist should be dismissed from the task of having to describe the limits, then the contexts of the box are welcome to my thought. That this is a serious philosophical position will be seen by anyone who takes a day or two being angry enough at me for it, to think through with an open mind.

7

Thinking on Dale Riepe's harangue of the Zen, in service, that, of his own Marxists superstition, I tell myself: Surely, I have gone native altogether, when I think that in all things we must distinguish Use and Meaning. What becomes useful loses meaning. Meaning must always and by definition remain its own use, as the purpose that we see in things. When these two reproductive organs on the flower of the human soul, to put the thing poetically and biologically at once, are brought into too constant an interpollination, the result is Weber's peak in suicides. Let this be a subjective position, the world will pass before the truth of this subjective view of mine will pass away for human beings living in the world. The why of what we do must always have a different rational account from the how to be convincing; and best of all, an irrational account, that.

74 Yet without logic, how can anything imply anything? Implication takes its meaning from the context of rational, hence logical, thought.

Dale should rather have said, to express his meaning: Without rhetoric, how can anything imply anything? The man as obviously as anyone holding the position does not understand the difference in the words he writes with, thinking them to be something like cogs and gears of variegated colors. Logic is a little darker, being Greek; Rationality a little lighter, being Latin. That kind of stuff. But that is neither logic nor reason, but only the pouring of emotions into words.

8

I like well the thought propagated recently by NASA that the material for organic life might have its first origins not in the seas of Earth, or any other Earth-resembling world, but in the hearts of the red giants. Taken on these terms, the Universe either is



a self-pollinating plant with separate stems and pistils in God's garden, or is a garden of loosely non-hermaphroditic flowers. My knowledge of the flower world is even more a mess than is my understanding of the world of matter. But even so, the mental image towards which and in which the world of being might be gathered efficiently and simply with due veneration to respect ourselves, as part of it, must change with the angle of the science or the form of knowledge that we look through. God is a dreaming child as to psychology and history, a man talking to his candle in the night as to physics, a gardener as to botany and biology and much of chemistry, and a King and a friend as to the uses of religion. I do not mean that these are things that are, but these are modes of thought useful to collect a scattered set of givens into a coherent whole, which is at all times a healthy operation.

Time is not had, but taken; faith is not found, but made: our laziness betrays us to our ignorance if we think that anything in the world at all, whether faith or time or knowledge, is there ready-made for us, when not even a piece of candy from a factory is ready-made, but first it must be bought and then I have to eat. Only when I eat it is it candy, and then only insofar as I have made it to become an object of desire, by the work of my imagination. The imagination is the gathering-instrument of feeling in the sense of sense-sensation, feelings in the sense of the emotions and of thought. Put differently, the imagination is the substance of experience we really work with, which is for that reason difficult to formulate in words. But neither is there any way to formulate the thing more clearly using formulas.

In short, I agree with Nietzsche almost to a word in that we create for ourselves our own gods. The word I disagree on is the word missing in this formulation, and the word gods. I create for ourselves my faith in my own God. I do this each time I take faith in things, that they are really so as I understand them. This was postulated first by Socrates, proven first by Jesus, made use of first by Augustine and perfected into a self-useful tool of thought by Descartes. Even so, without its leading to the full elaboration, or the full development of powers, in which the imagination brings me to a unity of my considered facts in what I find I can believe to be God, as my worthy conversation partner in the Universe, which may well be a child of six or twelve, as with the breakers of the DNA code, or a dead friend, as it was with Augustine, or even the world-wide community of fellow men, co-determinate with the trade routes and possessions of the British Empire, at the height of Queen Victoria's sway, as was the case with Darwin; still and still, no branch of knowledge is completely useful to me as an individual. I write this "me" specifically: to no individual of the human species, is any branch of knowledge ever fully useful, in the opening of the whole human being to the utmost exercise of powers as a human being, when it does not lead to conversation with a face of God, imagined in the unity of the collected data, as what brings it all together and what makes it good.

The creation of the gods can be done healthily and wisely, or it can be done unwisely, in a way that scatters me. Because it is a face of God that brings all I have thought

together and makes it all good, for this reason it is, in the sense that it relates me to my knowledge and all else to me, not a face but the face of God I speak to, and I know no other. Only, this doctrine ought to be understood to be the introduction to no personal fanaticism, which would be a concern with other people's gods. The face I speak to is the one that matters to me; and if you are troubled by my seeing what I see, it is well understood that you have not looked for your own self-worthy understanding, not enough.

On this teleologically theurgic function of the imagination I predicate in hindsight my rule to follow out the lead of the imagination always, no matter where it leads me, how or why or when. It is absolutely hidden from prior understanding what the following out of the work of the imagination will lead to, because this is not a thing discovered that it leads to, but a thing produced. Knowledge is not gained, but produced; in which the recollection of knowledge, insofar as it takes work, in Plato's theory, is nearer to my meaning than the way this thing is looked upon today, as if there were a supermarket there in being with things called thoughts on shelves to choose from. Not a single thought exists before I will have thought it, which naturally puts my way of looking at things in apparent conflict with Freud's structures for the mind. But the conflict is only apparent, if it will be understood that the structures are all there in possibility, something in the way that the body is all there in possibility in the first clumps of DNA, or a road I have not yet walked is all there in possibility before my eyes; but still I have to walk the road, and could be stopped along the way by any number of events I have no way of seeing ahead of time, for the very reason that they are not events (in the sense of two events, in Einstein's sense, colliding: two points in space-time somehow falling into one) at all yet, and I do not know about them even in possibility, or else they would have been events in the imagination. Whereas it is exactly the events in the imagination which most often interrupt all of our paths and doings, no matter what we do, and go ignored because our lazy superstition takes them for the content, rather than the product, of our selves.

God is knowledge teleologically considered. Knowledge considered as to what it leads to, leads to God. For this reason all we know to understand in the word God today we must take not for our conclusion but at most for the beginning, or a part along the way, of our own way to knowledge. But in the end, or towards its productive end, knowledge must lead to a face of God because, once my knowledge becomes a living structure, it is only a measure of my love for it (that is, of its ability to make me grow, taking Spinoza's definition, and hence of its own high form of organization, taking Schrodinger's), that I should then deify the knowledge in myself. All I speak about is the wisdom to put a line of difference, telling myself not that it is not my knowledge that I deify (which would be a deification of my theory, hence myself), nor is it myself in knowledge I make out to be God (as I would not repeat Empedocles in claiming myself to have become a god, and then throw my body away into a volcano to erase the evidence; Jesus, in any case, had the good decency to put his experiment out in the open, where all could see and know by personal experience,

the one or the other), but indeed that what is deified in knowledge is my conversation with the source of truth, understood by me, naturally, as the spirit in the structure of my knowledge. Therefore, God is my conversation with God; hence, God's conversation with me is the teleological purpose of the Universe, taking this "Me" specifically: any self-respecting human being.

9

Logic is an imprint of the irrational structure of the imagination. Where there are more irrational restraints on thought, there logic will take on more developed new forms. This is why Jews have been quite as fruitful as they have been in the last two thousand years in the development of new things, having on the one hand in traditional Jewish culture a mechanism at least as powerful as is the Catholic Church for producing irrational restraints in superstition, and on the other hand the social mechanism in the irrational restraints surrounding the Jews in Europe and the Middle East, causing the restraints to be a structure both inside and outside. By the same token, China and Africa have more claim to the future of science than either do America or Europe, for the reason that the Chinese and the Africans have more irrational restraints, having received in their turn less the processing of human life which has transformed the West into what it is today. According to my earlier note, it is the European and the American who is primitive compared with the man from the Mozambique and another from Hangzhou.

I will be thought to be picking out fighting words, but I am not picking fighting words. Primitive I mean, only insofar as that this is a term of Darwin's, for a simpler biological organization, adapted to, as he calls it, simpler and more primitive conditions of life. Schrodinger took the same thing up again in defining organic life as highly organized matter that keeps up its organization by sucking up order from its environment, something like the passing of water from an empty glass into a full one by a thread. But with the difference that living things suck in order from the environment and reduce other highly organized things to a less organized form, so that each living thing is its own black hole that would suck up all of life from its environment and finally reduce itself to a non-living, lower-ordered thing, by its own natural function. I eat meat, and put out fertilizer. I listen to Bach, and whistle. Of course, it is also true that I drink beer and put out a compound not less highly structured, and breathe in air but breathe out a more complex molecule, but I leave that item of debate to those who know their chemistry far better than I do.

Again, I will be thought to mean the thing metaphorically but I do not mean the thing in metaphor exactly, although I will be taken to mean the thing in metaphor. I mean that there is at any given time a whole unactuated shadow-structure of the imagination looming over every thought and action we might take, so that no matter what we do we must be followed by our shadow. But I do not mean that we are led by our shadow: that is an illusion. The moment I take a step, the meaning of that step for me is shaped by the structure of my imagination, much as the shape of my body is shaped from the outside by my shadow.

The scientists ate up the complex European civilization and produced the multicultural, barely differentiated, mass everyone knows well enough about, in which so boring a set of individuals as the terrorists or so unconvincing a set of rulers as Trump, Putin and their likes, come off as unusual persons with ends difficult to understand. In the 19<sup>th</sup> century, the first would be nothing but narrow-minded brutes, and the second only so many bullies hiding at the feet of the thrones of their enlightened Monarchs. I hardly mean to praise, much less idealize the past. Science had sucked out the high order of organization inherited by the West from its sixteen ages of Christian culture, and now the West needs to rest in its own new superstitions in order to rebuild its structure of irrational restraints, which does not preclude even great new things being discovered now and then. Rest for about a thousand years, six hundred at the shortest. If this pains me, disappointing my dreams at scientific immortality, then were not there the people hunting for the amulets in the late days of Rome Dodds writes about?

From where I see things, it makes sense for Science to go East and South, to Africa and Asia, while the West rests in its new superstitions and develops a sufficient structure of irrational restraints again. There must be a point of balance, as what Europe struck about a hundred fifty years, having by then already dissolved much of the medieval structure into a fluid and unstable form. That is, having developed a good deal of give there at the axis, so that the wheels of that fine carriage could go smoothly.

10

Einstein wants the mathematical coordinate box itself, not Euclid's straight-lined box which had served the Epicureans but old Dr. Lorentz's and his own curved-line box of space, to be the nature of space itself, by inference the first material of matter itself. In this curved-line box of space there are only two forces that act on the speed of transformations (which must mean movements) and the length of lines: inertia and gravity, as I understand these. Inertia in a vacuum is a constant, where I am much troubled with the vacuum, which, too, must be plotted in the curved-line box and so must partake of the first material of matter, unless of course it is defined as the materials of matter so unbuilt-up as to be negligible in all calculations for their real effect, the more so that space is not claimed to be infinite, so that their infinitesimal effect would not therefore add up to any integrated ponderable mass. Gravity, on the other hand, is determined by the presence of ponderable mass. Now, by Einstein's own reformulations, mass is energy differently expressed. It follows that all ponderable masses are to be expressed otherwise as mighty knots and turnip-bulbs of light, in the sense of luminous energy.

Now, how does it happen that in this box of curved space, where all coordinate systems are as good as all others, and any given part of space must by definition be of equal qualities with any other, except perhaps its geometric shape (since it is a curved box, after all), would any light become held up in the first place by any ponderable

mass, if the ponderable masses can only be explained as aggregates of light?

My question in creative paraphrase,  
meaning that I have created this new way of phrasing things,  
and therefore this new way of thinking about things:

If there should be any number of cats running for their lives from a sudden threat, and the speed of each cat's running for its own life was a constant shared by all the cats alike on their home-ground, where they know the lie of the land (this corresponding to the inertia of light in a vacuum), and the only cause of a cat's slowing-down would be if it smelled other cats, the more densely that it smelled them, the more slowing down (hence the density of ponderable mass producing gravity), then wherever a given cat smelled a cat-toilet, it would indeed slow down and thus become attracted to it, wanting to go investigate and forgetting its propelling fear to the amount that the smell was thicker than its fear. Now in this case there is a pre-history, when the cat toilet might have been already formed. But if we take a bunch of cats completely new to their environment, and then they all run, and do not stop running for any other reason that they should smell cats in some thick proportion, what should cause the first cats to slow down at all, if there is no cat-toilet yet on this new territory?

This is a way of asking questions, but it can also be a way of making answers, answers directly open to the imagination without the ponderous use of mathematics. I propose thus to myself, and any who would try together with me, a new kind of logic, following Descartes' simplification of logic to geometric thought, but in a new direction. Descartes became deep in the practice of ten years and more of lying down at each day's end and imagining that day's thoughts, persons, feelings and events as lines and patterns in geometry, following out in imagination each line to its logical conclusions as he saw these, mixing them together and pulling them again apart, all without bothering to write out the logic in any formal way, but only practicing these things in thought.

Now I propose to do the same thing with objects in the imagination. Whatever reading Einstein or another causes me to imagine in the very moment when I read, I lie down and revolve the picture, beautiful or not, in my imagination, and then follow out its strand, exactly as a picture in the mind, not as a line unless it happens to be a line. If I were a musician or a painter, or again a poet, and thought in sounds or colors or in words, I would have written, to follow out the sounds or colors or the words. But what I think in most habitually are mental pictures, which properly are not pictures but are dreams. So that the first step with me is to treat each daydream as a hinge of time: it must be turned in order to go forward. Then, in the evening, I recollect my daydreams, and thereby go on.

The second of my useful tools that goes together with this is the keeping of notebooks. There are work books and books for reflection. Work books are like this. I write out

Einstein's formula for gravity in an inertial system, and then write out the givens and the things assumed, and add to these things assumed at least two more: 1) Assuming that I understand this (I usually write: I pretend I understand this) and 2) Given that I understand the meaning of such and another specific term. In this way I isolate all, or enough, of the things I really do not understand, taking these as irrational givens. (All givens are irrational because they are the facts, which do not change with thought, so long as they remain the givens, and are given in the first place in order to relieve thought of the over-burden of at least some things). I say isolate enough because both in the exercise of *having* to follow out the naughtiness of the imagination, as in this exercise of, as you might think not knowing me, exposing in a monkish way my ignorance to shame, both ways I follow, and teach you to follow, the principle of Descartes' light of nature: the moment I begin to have a feeling that my thought has lightened somewhat, and I feel a kind of light in the midst of these very dark formulas, I take myself to be on the right path, treat this lightening as a hinge of thought (that is, as if I understood completely; which, in any case, is never in the world: to understand completely is to die, and so stop understanding more, as understanding is that which is made, not which is found), and go on, looking for what Einstein says in how he says it, not for ways to poke at how he speaks the while pretending that I know, and everybody knows, exactly what the great mean is then saying to me; which second is the usual way with all scientific and all academic writing, loosely considered, but it is not mine.

Now experience shows me that this way of isolating formulas for thought works, and works best on two kinds of material: physics and poetry. What that means, further than my personal martyrdom in truth in bearing witness to that Plato really did not lie when he said that there is an old quarrel between poetry and philosophy, and did not qualify at all for that the early scientists in Greece were all invariably poets. One way or another, philosophy and theology both work against the imagination, to make the mind pass out of the realm of sensible, and hence also of imaginable things, or of at the most focusing the imagination on some one set image. Poetry and science likewise alike practice the imagination to become flexible and rich. That in poetry there are lines and stanzas, and in science there are formulas and theorems, is only a matter of expression. But I leave this to another day.

There is only one answer I can think of to the problem of the cat toilet, on my own terms. If all space-time should be as good as all other space-time (hence, the land plus the cats' habit: they are in an equal distribution over every single least traversable unit for a cat of the land they run along, as to what they know and like), then their starting-point where a dog fell out of the sky in the middle of their night choir will itself not define the direction of their motion. Since the starting point does not define the direction of the cats' motion, all relevant paths being equal, the starting point, too, will not define the location of the gathering points where the cats will feel a little more comfortable, being nearer to one another, since we must assume, all paths being equal, that they fled in a perfectly uniform spherical fan out from the center. The only

determining point in this system I can think of, is the point outside it: of the one who looks. But how this should determine where the cat toilet will be in the cats' space, just as how the location of the stars should be determined by the direction these are looked at from outside the physicist's so-called real space, is a something rather strange to thought. Unless of course I say that the Universe, treated as a closed system and united thoroughly with thought, has no definite locations because no point of view from anywhere outside of the locations. Einstein reserves thought itself for the point of view, making the basis of the fabric of all things a mathematical representation. But that representation implies in its own very concept one to whom things are represented. Because we imagine ourselves as the faithful pupils of Einstein, even when we most oppose him still leaning on his authority, the problem that the basic substance of the world should be a chart in the imagination of one on one of the world's planets, does not occur to us so long as we try to represent to ourselves the chart Einstein represented to himself, and, in short, in his own phrase, study the theory of relativity, rather than what it is supposed to represent: the world. In all which I take a giant's leap upon the back of a mouse (my own mind is the mouse, and the giant's leap is what you will make for me, disproving this wild proposition) that the imagination does indeed stand outside of the Universe, in conversation with God, and because of this looking from the outside in onto the inside all of the spherical and the sphere-like things can have their point of origin: something in the manner of medieval icons, with the point of perspective outside of the icon's frame. Or, if you like, God is on this side of the Universe and the distrustful human soul on that other side, which is why the world looks like a mighty sphere in times of our distrust, but like a flat saucer and a picture in the times of faith. But these again are deeper matters than my surface folly gives me to understand either the one way or the other.

11

A mental exercise: imagine if Einstein and Lorentz had not explained the theory of relativity from the Michelson-Morley experiment and other observations on the nature of the light, neither Newton nor Galileo nor anyone like them had gathered the observations of that age into a theory of the Earth's rotation round the Sun, nor Boyle explained the application of Boyle's Law, nor Plato the mathematical paradoxes of his teacher Socrates into a theory of the mental forms, separate from the world of actions and impossible to act upon even by the act of imagining them what they should be like but not perhaps the act of thought, since you could grasp them, and so be changed by them by the very understanding that you can never change them, after thought. Would the observed experimental facts still have had the meaning that they do for explaining things? This mental exercise should teach me not to take for granted the things I think I know about, as if these follow without the effort of an individual human life from the facts themselves. Or else I would be still inclined to treat the world of thought like a cold supermarket, with shelves and shelves with goods produced by no one in particular. And that would help my laziness. Rather, it is the love of human beings whose lives produced the things of knowledge, which ought to inspire me with the love of knowledge.

Psalm 35, verse 21. Yea, they opened their mouth wide against me, and said, Aha, aha, our eye hath seen it. That is, the enemies of Kind David, of whom he does have rather more than what a reasonable person ought to, have confounded the evidence with the judgment; or, in Greek terms, the observed phenomena with the rational account. The judging civilization of the Jews and the rhetorical civilization of the Greeks both came to this paradox, and both drew to one same point in Jesus, where the judgment and the rational account had to be admitted identical with the evidence and the observed facts. We do not much believe that evidence anymore, as touching Jesus, but that is not my point. My point is that the rhetorically judging civilization of Europe between the fifteenth and the nineteenth centuries did feel that evidence, to a rhetorically balanced rational account's extent, worthy of belief. I do not agree that Darwin pays only lip service, as the ugly saying goes, to the revealed religion. There is much too much concern in him with the properly pious view of the Creator, running a factory and not working as a single master-worker, for that later, and deeply Marxist view. Whereas what makes Marx deep is exactly his fusion of rhetoric with judgment, that whatever can be said to have its own proper term in history, that really does have it. In short, in recent times, over the last hundred years or so, the giving of the rational accounts from first principles has fallen rather out of view. This has helped make many rational accounts and steps of judgment which could not have been made from first principles, including, as I take it, the genetic theory in its modern form, and also the GULag and the Holocaust. Now I am hardly one to weep over the past. But I do propose to try to start again, embracing in a concise, and therefore a psychologically healthy, structure the existing rational accounts by going a step further back in the first principles in order to account for the pyramid effect of receding time. The first principles I mean are further back than either Plato's or the Bible's. as both Plato and Moses have put forward their first principles *ad hoc*, that is to say, learning to eat the rice dish by looking at the rice dish. But we have now eaten the rice dish longer ages than ever the Empire of the Son of Heaven lasted in the East. So, I say, we might think a little deeply for the once about the rice and, consequently, the rice planter, the rice strains as a vegetable thing, and the cook, all there behind the rice dish for us.

12

In religion as a form of social structure the only thing that interests me is ritual propriety, as being useful to structure my individual self. At the edges of physics (broadly taken in the ancient sense, as the whole set of all the all the arts and sciences that deal with what can at least be imagined, that taken again in the broadest and postmodern sense as the single collective organ of experience) there must stand a metaphysics in something of the way that the shore stands at the edges of the sea. I do not mean any established metaphysics. My whole project would fall down the first cliff if it should be thought that I give the authority for forcing people. But here there is an emotional thought mechanism, inherited from old Moses, in the power to command love for God, which would take rather more elaboration than I am prepared to make right now. I am, in any case, writing a book about it. The right and power to force myself into a personally useful structure (in the broadest biological sense, of giving myself the greatest possible extension and expansion of my powers as a living



thing) is the only gift that I would take from Moses in this world.

Now the ritual propriety goes this way. It is ritually right for the metaphysics, that is for the irrational structure of restraints in everything I do not know about and do not know just at this moment how to want, to be set outside on the boundaries of physics, the study of all the possible irrational restraints which brings order to the world.

Because if these two are made to fight, then either science must become metaphysical and so purely irrational in a joggling of proofs without explanations at all what these prove, so that Evolution, Gravity and Relativity become deified as idols in language which seem to explain things just by their being named, without any rational account in dialogue being given to us, or else metaphysics must become physical and give us explanations for Noah's Ark by atmospheric pressure and such likewise nonsense.

Since physics is the thing we study at near hand and metaphysics is the thing we say we do not understand because, somehow, just now, we do not want to, it is therefore wise in models of the Universe to draw, outside the perfectly rational bent-space maps, God holding up the Universe like a candle, or looking at it like into a flower in his garden. In this way the rational will continue to be fed, in friendship and in love and simple understanding, by the irrational. Otherwise, the simple tendency of all rational activity is, in simplifying, to reduce mental structures of greater complexity to those of lesser, and so in short, to lead to entropy.

In any case, such maps would teach us to look on ourselves as what we really are, at most, in knowledge, when really worthy of the work of thought: children playing at the shore, as Newton put it. Much as science itself is the work largely of limiting doubts that what seems to be, really is, yet the push to see more, think more openly and accept one another more simply and more deeply, forgetting the emotional momentum, to put this way, of our past trajectories as thoroughly as we can, and in the measure that we do becoming smarter, all comes from our looking on ourselves as children in simplicity, having doubts that can be answered and not doubts that can never be resolved. This child-like confidence requires a grown-up mechanism of faith, which children do not need as long as they remain children, putting faith in the love of parents and their older generation; but which an adult mind must come back to, achieving, as I think, a simplicity in seeing possibilities even more simple than a child. Because a child is limited to his one set of parents and of grown-ups, and in generalizing the sets loses the innocence of childhood. But mature thought builds a mechanism by which these many people, all going in their dissimilar directions and all with their tendency to undesired emotional response, are, for all that, the very friends and guardians of our thinking.

That is, around the world of rational or rationalizable experience there must still and still be recognized a world of dreams, from which the rational experience is broken off in pieces, as the sea breaks off its pieces of the land from the land, increasing over time its own salinity, but not without the land's help. Otherwise there can be no sincerity towards ourselves and no truly scientific understanding of thought as a growing structure, with its own laws independent quite of what is understood to be the individual thinker, except that insofar as that in thinking I am the one who actuates the

structure, and so the process becomes focused on myself. That myself is only my own shadow, but it is disrespect to a man even to stomp upon his shadow, all things well considered.

13

In no set order for the first and second, because the order is not set well in my mind:

α Einstein's nearest debt, both for his cosmology and his psychology alike, is not to Kant but Nietzsche. The iron-circle finite cosmos in infinite time which closes the Will to Power is the moral predecessor of the mathematical deduction of the most elegant possible Universe at the end of the 1921 Lectures at Princeton as a finite sphere drawn out into a tube into the time-dimension. If, moreover, time should be found not perfectly straight but somehow elliptical, even to a very slight degree (since even the dimensions would have to be a statistical notion in physics, I do not know but that this should be possible, at least in thought), then under the assumption of infinite time which Einstein never dismisses in dismissing infinity of space the perfect sphere would become a perfect spherical ring as to the curved time-dimension, holding in the world from both the outside contact and the point within. By these last two I mean that Einstein's cosmology is, too, even as Nietzsche, an exercise of the will to power, exactly as defined by Nietzsche in his transformation of Spinoza and Kant: the moral responsibility to please oneself in the understanding that gives me pleasure makes me grow. There is no argument on which Einstein dismisses the improbability of the infinite, but therefore zero-mean-density Universe in the last paragraph of the fourth lecture, except that it is less probable than the beautiful perfectly elliptical thing he works out over the seven pages come before. Put differently, then, what is less probable about the infinite Universe is that, having a zero mean density, and therefore no gravity field to pull it into a shape, it would have no shape at all, be wholly closed to being imagined, and so be less beautiful to the imagination (in the narrow sense loved by the 19<sup>th</sup> century: the power to think in images) than the neat sphere-cylinder characterized by the most beautiful formula in the whole book,

$$\alpha = \frac{M\kappa}{4\pi^2}$$

where the alpha is the radius of the Universe, the M is its total mass, the kappa its mean gravitational constant (if I understand this, this is the thing reduced to 0 if the radius equals infinity) and  $4\pi$  the condition for the radius of a sphere in three dimensions. One way or another, that the Universe should be so is given by Einstein purely as an exercise of his will to power. Granting that it is power over his own theory, which he is ever careful to explain is the real object of his investigations not the Universe itself, but the theory is a means of exerting power over the Universe, and of excluding thoroughly from all its processes that God reputed to have had the power to create it. If this need be proven in more detail, it is well to consider that the whole last section of the lectures, on the lowercase kappa being the mean gravitational constant for the whole Universe, is given purely under the aspect of eternity and in the light of reason, as what would make thought on the total structure of the theory (not

the Universe itself) clearer to the mind and more permanent in the understanding, even though the kappa is too small a value ever to be made accessible to experiment: this is Einstein's way of putting things, not mine, and he does it twice, making a bracket around Mach's ideas. Put differently and simply, Einstein wants to have things his own way, and thinks accordingly. That makes his physics by definition an exercise of the will to power.

β As to the famous observer effect, I must add here what will seem a quibble but will nonetheless bind me to the next three notes in order to explain the quibble. My quibble is that reflection upon a system in thought is also the exercise of a power over that system, if only to form it into a system to be reflected on in thought. Now this compels me to explain how Einstein's space-time, which as I understand is a property of matter with him rather than what holds matter in itself, is a kind of thing that acts on all other things but is acted on by none itself, is a marvelous return to Augustine's spiritual matter, by which the theologian meant God, whereas the physicist means an irrational property of matter. Next, to show that where Augustine closed his spiritual matter even to the action of thought, so that God cannot be understood by thought or grasped in feeling, but always acts upon all feelings and all thoughts, so in fact is the unit-definition of a unit of space and a unit of time for Einstein completely circular, with an angel with a turning sword of flame circling round the circle in a constant pejoration against the loose-minded philosophers who would reach to the why of time and space, thus making a useful definition of the what difficult to get at; but without the why neither the unit of time nor the unit of space, taken in itself and not in a comparison with other things, can be defined as anything: so the result is the shutting off of the space-time to thought, even as was the old spiritual matter. Third is my question about the possible effect of the observer in imagination upon any given system, which seems to me to make possible an infinite Universe which will nonetheless have exactly the same size as Einstein's finite one, have shape, and be established in every item, without damaging in any part the theory of relativity, under the aspect of eternity.

14

I must work rapidly and go at a fast pace in order not to lose my own momentum: since I mean to take Einstein as a fellow warrior against the old conception of space and time which made all kinds of overrational violence to simple understanding necessary, I must first subject him to a strict critique. As strict, then, as my powers let me.

The spiritual matter is discovered towards the end of the book of Augustine's Confessions. The reformed Manichean wants to get rid of the dualism in his own thoughts, where all of God is spirit and is good, and all of the devil is matter and is therefore evil. Augustine's trick, a characteristic trick of his which I study under the name of Catholic Pejoration elsewhere, is to call the people he means to steal from by a bad name, and then say the same thing using different words. So now we have a unified world-view, where all mater is uniquely bad. There is no good matter from

God and no bad matter from the devil: all matter is bad. But unlike those nasty, nasty Manicheans, we have now a perfectly good Christian explanation: God is spiritual matter, distinct from physical matter. The reason why you cannot understand this difference, is that the spiritual matter is completely closed to receiving action from the direction of physical matter, but acts on all physical matter at all times. Now for a practiced Roman rhetorician there was no difficulty in the least in establishing convincingly the awful sleight of hand that the infinite spiritual matter is shut off *completely* to action from the finite world of matter, which included the action of thought itself: the reason why you cannot understand it, is because it is shut off from all action of the body as the mind. Which leaves the question how in the world Augustine could ever know about it. But that was taken care of neatly by the dungeon and the burning stake, which had replaced thenceforth the burning bush of Moses for the most basic miracle needed in proof of all the axioms necessary to establish faith.

Now short my foolishness with language, Einstein opens the third of his lectures at Princeton with these words:

All of the previous considerations have been based upon the assumption that all inertial systems are equivalent for the description of physical phenomena, but that they are preferred, for the formulation of the laws of nature, to spaces of reference in a different state of motion. We can think of no cause for this preference for definite states of motion to all others, according to our previous considerations, either in the perceptible bodies or in the concept of motion; on the contrary, it must be regarded as an independent property of the space-time continuum. The principle of inertia, in particular, seems to compel us to ascribe physically objective properties to the space-time continuum. Just as it was necessary from the Newtonian standpoint to make both the statements, *tempus est absolutum*, *spatium est absolutum*, so from the standpoint of the special theory of relativity we must say, *continuum spatii et temporis est absolutum*. In this latter statement *absolutum* means not only “physically real,” but also “independent in its physical properties, having a physical effect, but not itself influenced by physical conditions.” As long as the principle of inertia is regarded as the keystone of physics, this standpoint is certainly the only one which is justified. But there are two serious criticisms of the ordinary conception. In the first place, it is contrary to the mode of thinking in science to conceive of a thing (the space-time continuum) which acts itself, but which cannot be acted upon.

When I first read this, I had been surprised that a man so far respected by me as is Einstein should have gone there at all, even to touch upon the property of Augustine, that great enemy of human thought and deifier of his own irrational envy, which let him send children more innocent than he himself to hell and men more learned and of deeper understanding than himself to the stake and thence to hell, too; a man whom I have never yet been able to respect. At this first moment I looked for a justification for old Einstein in that Augustine, thought I, thought up his spiritual matter in order to shut the curtain upon rational knowledge of the world, if he could have had his way

about it, forever; whereas Einstein uses his as a basic tool for raising up the curtain by not letting his own mind, and our minds with his, stray off into possibilities impossible to formulate concretely. In short, I was convinced that this space-time continuum of Einstein's must not be shut off to human thought. But I was wrong to think so. On Einstein's own terms, the space-time continuum is perfectly outside not just of the usual habit of scientific thought, but of the very power of human understanding.

The case expressed very simply and without both the supporting evidence and the insupportable enthusiasm I would have filled this with if it were a matter of rigorous proof, which I yet pray to do, time and money not exhausted and God willing, is that time is reduced by Einstein from the very first words of the very first of the Princeton lectures to certain moments earlier and later in a subjective I-time, as he calls it, and this in itself is not measurable. I quote directly so here is the whole passage:

The theory of relativity is intimately connected with the theory of space and time. I shall therefore begin with a brief investigation of the origin of our ideas of space and time, although in doing so I know that I introduce a controversial subject. The object of all science, whether natural science or psychology, is to co-ordinate our experiences and to bring them into a logical system. How are our customary ideas of space and time related to the character of our experiences? The experiences of an individual appear to us arranged in a series of events; in this series the single events which we remember appear to be ordered according to the criterion of "earlier" and "later," which cannot be analysed further. There exists, therefore, for the individual, an I-time, or subjective time. This in itself is not measurable. I can, indeed, associate numbers with the events, in such a way that a greater number is associated with the later event than with an earlier one; but the nature of this

association may be quite arbitrary. This association I can define by means of a clock by comparing the order of events furnished by the clock with the order of the given series of events. We understand by a clock something which provides a series of events which can be counted, and which has other properties of which we shall speak later.

These clocks as simultaneous series of events are come back to in the second lecture, where a footnote gives what the great man and my sought-for shield-companion in this, thinks a sufficient definition of simultaneity (same-timeness) in time. This:

Strictly speaking, it would be more correct to define simultaneity first, somewhat as follows: two events taking place at the points A and B of the system K are simultaneous if they appear at the same instant when observed from the middle point, M, of the interval AB. Time is then defined as the ensemble of the indications of similar clocks, at rest relatively to K, which register the same simultaneously. It ought to be obvious, at least I must assume it is because I am now in a hurry to complete the thought and so not lose it, that to one who reads well and thinks cautiously, time is reduced to *instants* but the instants are just another word for moments, and so the thing is translated into a scientific-sounding word, but is by no

means thus defined. Put differently, unitary time becomes perfectly irrational for Einstein: as there is no way to understand the movements of the atomic chaos, only to accept them, so also there is no now way to understand what time is in the essence of the thing, only to accept it in its useful function at above the level of its philosophical, or metaphysical, or simple, significance. Above or below, that is only words; what is not only words is that we are from now on given Einstein's authority to think about how time *works*, but not about what time *is*.

I would have to be at some more pains than I have actually been at to understand the contents of the individual formulas in these lectures, to be able to trace out in any detail at all the traits of unitary space which Einstein gives to his non-Euclidean curved-space coordinates, but it should, again, be clear enough from that above, that a unit of space can no more have claim to individual significance than a unit of time in a theory of *relativity*, which concerns itself solely and thoroughly with the *relationship* between already established units of space-time, which relationship is the first step of what in the theory is considered to be open to rational comparison, hence thought. This, again, agrees thoroughly with the proposition of the atomic chaos. In a randomly dancing atomic chaos, to define a unit of space would be to commit a contradiction in terms. The unit of space is for that very reason indefinable, that atomic matter is random in its unitary actions. Thus, each unit of space-time (each event, as Einstein calls it), is absolutely irrational, that is, shut to thought.

Now on these terms, it should be clear that the whole of space-time becomes just as shut to thought as was Augustine's spiritual matter, only in a different direction. With the spiritual matter we were all about not asking *how* and instead asking *why*; with the space-time we take it for a lame old way of being hazy-headed to ask *why* and are instead all about asking *how exactly and to what degree of approximation*. Now, indeed, this results from a change in thought which was the greatest introduction to philosophy since the parable of the Good Samaritan in the Gospel of Luke. Einstein asserts that space and time are a quality of matter, and not indeed is matter held in space and time. This means that there really is no room for any outside intelligence, because there is no outside, in this Universe. Judaeo-Christian conceptions of space and time will not be useful to find any place for either God or reason whatever in this Universe. It will likewise be seen that not only is C.S. Lewis stricken down by me, thinking in this strange new manner by nature, although well clarified in it by the actual reading of the source texts, but also Darwin, in the same quarter from which neither one of them expects any criticism: Darwin is fabulous with his places in nature, occupied like vacant jobs by new employees or the good jobs of the men on strike taken by the scabs; and C.S. Lewis is just as fabulous with his Christian multi-verse, rotating his worlds in space-time and without space-time like the horses on a carousel, anysomuch you like. But if what is called physical matter is not *in* space and time, but *is* space and time itself, in one of its necessary qualities, this quite excludes the possibility, or indeed the logical necessity, of its Creation, or of anything being strictly outside such a material world, matter being so defined. But it is often the case with

prophets that they do not see to their own implications, and so I find it was with Einstein: he was, as Spinoza, a man drunk with God, and so did not understand how people could be dissatisfied with a world that leaves no place for God's indignity in having either to create it, or redeem it, or do anything at all to it, except to know it in the mind of man. But what I mean by this will take another meditation, so I save it for the next note.

15

This must be done even more superficially than the thing before. I admit the fault and leave to who can to have corrected, even if that is myself at some time in the future.

Reading C.S. Lewis' book on Miracles I become more convinced than ever of the truth of my position that not only is modern science the spiritual child of the Christian Middle Ages, but that, more to the point, it is the direct evolutionary product of them, owes its debt of natural piety to its great ancestor the Catholic Church, and, having eaten up and displaced the Church as the positive authority on truth, has nonetheless been unable to destroy it as the negative authority on non-truth; that is to say, the piety it owns the Church is that it has to take its place, and feed on the same intellectual paradoxes as the old thing. Lewis is nowhere more right than that the advances of modern science can in no way disprove the reality of the Christian miracles, as these had been fit into shape by the Catholic Church. This is because science, up to Einstein, had shared the exact same conception of space and time, which I have called the Judaeo-Christian, but think that this Judaeo part of things only goes for what came after Jesus, in adaption to the general flow of things, but that Moses really did have a different view, being far enough from Greek culture to have found a different way around the paradoxes of Zeno and Parmenides. And science after Einstein has not quite caught up yet, so far as I know, with its own ontological presuppositions. The only one to have tried to make this catching-up seriously was Heidegger, and he got caught up in the whirlwind of political events which had prevented him from developing his ideas coolly and without party feeling. The reason philosophy goes East and against Israel both at the same time in Heidegger's thought, is that what is really happening is that philosophy has outlived the implications of the paradoxes about the irreality of motion as these had been solved within the Christian frame by the sequence of great men, beginning with Socrates and Plato who prepared the way, taking its new in turn in Jesus, Peter and Paul who made the great turn from the impossibility of proving the reality of any individual number (hence any individual human being) in itself to the absolute necessity of starting with that fact as proven; thence through the church fathers, headed by Augustine in order of importance although not of time, into the morally (because built up on the proof of the reality of the individual self in an infinite and yet changeable relationship with God) organized social structure of the Middle Ages; and last of all in Descartes and Newton most especially, who had given their Christian self-identity mathematical formulations that became independent (hence, seemingly atheistical) proofs of the reality of change and motion on the one hand, and the reality of mental forms as distinct from physical phenomena, hence allowing for the independent freedom of the mind in rational

experiments, on the other. The last step in this mighty dialectical exchange is in the sequence from Darwin and Marx through Nietzsche to the pair of Freud and Einstein, who between them made possible a unitary, monist world requiring, when understood with due reverence, no transcendence to admit divinity and allowing for no possibility of sin (but only when understood with due reverence for what is really spoken). The men at the latter steps tended towards atheism, because they meant invariably atheism in contrast to what has been said before by European man; and in short were too busy transforming the metaphysical frame to attend to the divinity that fills it.

Now all this aside, I give three quotes from Lewis with my comments to them.

α It is certain that billiard balls will behave in a particular way, just as it is certain that if you divided a shilling unequally between two recipients then A's share must exceed the half and B's share fall short of it by exactly the same amount. Provided, of course, that A does not by sleight of hand steal some of B's pennies at the very moment of the transaction. In the same way, you know what will happen to the two billiard balls - provided nothing interferes. If one ball encounters a roughness in the cloth which the other does not, their motion will not illustrate the law in the way you had expected. Of course what happens as a result of the roughness in the cloth will illustrate the law in some other way, but your original prediction will have been false. Or, again, if I snatch up a cue and give one of the balls a little help, you will get a third result: and that third result will equally illustrate The laws of physics, and equally falsify your prediction.

Now Lewis goes on this way for a while yet, making with words to substitute for formulas, in which the rather he displays his thorough ignorance of the statistical principles on which modern physics actually is built up. The power to paralyze the arguments of science by answering them with arguments of unaccounted *moral* interference (since we do blame the cloth for letting one man cheat over another, even by default) proves only that even though the scientist's understanding of belief in truth has parted ways with the Christian's some time ago, his understanding of belief in the moral nature of man is much as where it was fifteen hundred years ago, that human actions are in principle things random and not to be accounted for except when people will be good, that is, accountable for by the same laws by which we account for nature. Which is to say that moral nature is understood as somehow an irruption into physical nature. This is how Lewis finishes the thought:

The arithmetician, as an arithmetician, does not know how likely A is to steal some of B's pennies when the shilling is being divided; you had better ask a criminologist. The physicist, as a physicist, does not know how likely I am to catch up a cue and "spoil" his experiment with the billiard ball: you had better ask someone who knows *me*. In the same way the physicist, as such, does not know how likely it is that some supernatural power is going to interfere with them [the billiard balls]: you had better ask a metaphysician. But the physicist does know, just because he is a physicist, that if the billiard balls are tampered with by any agency, natural or supernatural, which he has not taken into account, then their behaviour must differ from what he expected. Not because the law is false, but because it is true. The more certain we are of the law the more clearly we know that if new



factors have been introduced the result will vary accordingly. What we do not know, as physicists, is whether the Supernatural power might be one of the new factors.

This is where I disagree. Lewis understands his Supernatural power as something like a rapist who has for the very purpose of continually raping his dependant Nature brought her into being and given her a completely normal lifestyle, all so that he could irrupt upon her with his miraculous events whenever and wherever (but within the space and time he gave her) to impregnate her with the inevitable truth that he is more real than she is. Apart from that the billiard-balls physics is a nineteenth century thing, and that the untenable assumption is that physics itself is not, insofar as it is a way of putting trust in truth and leaning on the mathematical procedures that have grown out of the Christian Middle Ages, a way of knowing God perhaps more direct than any open to the theologian, the indignity of the irruptings already were something to put a careful mind on guard. But I take a different, and a more dangerous, road on the offensive, and say thus simply: the new physics makes the supernatural interference absolutely necessary to ratify nature, giving it the power to be equal to itself. Nature in the new conception is not *held* in any independently existing space and time, but itself produces both time and space, and would produce them infinitely if there had been no requirement imposed upon it for shape and beauty. Einstein's final argument why the Universe should be finite rather than infinite is that, according to his formulas, but likewise according to any formulas that could be given within the new frame of thought without the radical introduction I shall propose in the next note, an infinite Universe would have to have no shape. In order for it to have a shape it has to be finite. But in order for it to be finite, it has to have some reason outside of the physics, as the physics has been understood so far, why it should be finite, thus shaped and shapely. As long as will is introduced into the system only hypothetically, in the will of the theorist perfecting his theory, indeed the only thing that can be spoken is that the theory gives a finite, well-shaped Universe, but the reality might be other. I write this in order to unify the theory and the reality, because I find it has been done already, only that the full awareness of it has not come yet.

β But if God comes to work miracles, He comes "like a thief in the night". Miracle is, from the point of view of the scientist, a form of doctoring, tampering, (if you like) cheating. It introduces a new factor into the situation, namely supernatural force, which the scientist had not reckoned on. He calculates what will happen, or what must have happened on a past occasion, in the belief that the situation, at that point in space and time, is or was A. But if supernatural force has been added, then the situation really is or was AB. And no one knows better than the scientist that AB *cannot* yield the same result as A. The necessary truth of the laws, far from making it impossible that miracles should occur, makes it certain that if the Supernatural is operating they must occur. For if the natural situation by itself, and the natural situation *plus* something else, yielded only the same result, it would be then that we should be faced with a lawless and unsystematic universe.

Here I must reply a little obscurely till the next clears things up, thus: things

would be so indeed unless both the natural and the supernatural (as this has been understood so far, except in ancient China, and perhaps by Moses, quite incorrectly as a pair of opposites in conflict) together yielded the finite result which we always actually do find in all of thought and all of observation, always established in infinity. It is the necessary part of the infinite in us and in conversation with us about this Universe, to establish the finite in infinity. I mean a specific operation, which I would that someone would test for me and prove or disprove, but in any case elaborate, who really could. I lack completely all the mathematical apparatus necessary for it. One way or another, this establishing of finite things in infinity would do away both with punishable evil (except insofar as those who do evil are therefore punished by themselves, in having to have done it) and with the desired good of progress, since we will have once for all put behind us the devil of the old belief in *evil*, for now, the evil of the past. That in these words I contradict myself, is a necessity in argument. There is no way of establishing a new faith over against a new one, without at least once making the sacrifices of the old religion.

γ It is therefore inaccurate to define a miracle as something that breaks the laws of nature. If I knock out my pipe I alter the position of a great many atoms: in the long run, and to an infinitesimal degree, of all the atoms that are. Nature digests or assimilates this event with perfect ease and harmonises it in a twinkling with all other events. If God annihilates or creates or deflects a unit of matter He has created a new situation at that point. Immediately all Nature domiciles this new situation, makes it a home in her realm, adapts it to all her laws. If God creates a miraculous spermatozoon in the body of a virgin, it does not proceed to break any laws. The laws at once take it over. Nature is ready. Pregnancy follows, according to all the normal laws, and nine months later a child is born.

In my heart I compare this account to Schrodinger's explanation that human beings suffer a purely vegetable alteration of generations, in which the egg cell and the spermatozoon are a pair of living animals or a short-lived sexually-reproducing generation produced by the long-lived generation of the human body which reproduces itself in the egg cell or the spermatozoon by parthenogenesis, and I find myself both for taste (is not the miraculous spermatozoon in the body of a virgin a perfectly *tasteless* thing to say?) and for the sense of truth throwing in my pebble with Schrodinger and the scientists, against this charming serpent of an eloquent illiteracy, or in short a wilful ignorance and arrogance in ignorance, in which I, too, once shared. But leaving that aside, which let be my self-pejoration of myself, either way, somehow it is that I become reluctant to admit this, and admit all such arguments from total doubt as can be brought against science. Darwin had convinced me that science is rather in the restraint of doubts, so as to be able to see the system of events formed naturally by my thought when once I let the things take shape and place and order, and if this is a seduction, why then he has verily seduced me. My argument against the apparent exclusion of God from the operation of evolutionary change by the perceptual infinity of steps and transitional forms was not indeed in that at any point in a bat's life must God come in to lend it a miraculous spermatozoon to

impregnate the she-bat. But rather my understanding is that Newton's integrals are a mathematical icon, used to overcome Zeno's paradoxes by putting at each step between Achilles and the turtle a face of Christ, who is all truth, and thus will let there be no deception, thus off to infinity; because Christ Jesus, if these words mean anything, must mean infinite self-unitary truth. When this series of icons to infinity, in Newton's thought of necessity impossible even to imagine, but necessary to believe in as it was necessary for him to believe in God in order to be himself, is brought to visible things (whether by the body's eye, or the eye of the imagination), this by no means can exclude the place of God at which the Judge of Ages might ratify a variation's birth or not permit it, because in fact, the very mathematical idea of the perfect chain of things that gives the notion of infinity, is an idea composed of infinite instances of God's presence in any given truth, in any real thing. Now I would only correct myself and say that God thus ratifies the reality of the world, and is wholly present in the action of the ratification of the world into being. The reality of any given thought or thing or feeling, is another way to express God's presence. It is of a sure thing that I will be thought to be saying what I am not, so I may as well continue to what I would say still.

The reasoning from perfect doubt, as the perfect doubt of willful ignorance must have become less attractive to me because now I have had a taste for myself of the real formulas of physics, and the real arguments of Darwin, and feel in this long run and infinitesimal smallness of Lewis's a diminution of my newly-gotten sense of power, where the thing is given without an aim to formulate the changes mathematically, but as a turn away from mathematics. Here I agree with Mandelstam, writing to his friend the biologist in the last year of his life about Shostakovich's music. Maybe art, but not mathematics, not the good. What is not mathematics cannot be trusted to be good. Then, too, if the atomic motions of the new physics really are a chaos with no prehistory and no future because no atom must be influenced in its next position by whatever position it, or any other atom, had held just before (or else it would not be a chaos, having trajectories; which gives a unique place to the light), then indeed why should the atoms knocked out from old Lewis's pipe influence any other atoms in existence? But here we are two ignorances knocking one against the other in a void. Let it be understood, I blame no one, I call no human being anything but good.

16

All things that are at all, are finite things established in infinity. God is the thinker in the night and the warrior in the day of battle, who is embodied wherever he turns his attention to in his own world. The world is neither human will nor God's will, but is made finite and given shape by both together. Therefore God is the shape of the Universe, established in infinity. This does not exclude but necessitates him to be a personal God, because only the exertion of a personal will to power could cause the Universe to have shape at all. Insofar as God is its shape, God is its cause. Insofar as he is anything else but its cause, we are not here for knowing it, and only one who has no love for God would want to know this in the first place, rather than looking to know the God who really is in conversation with himself. If on a late-night train I

meet a man bitter in his loneliness, and the instead of listening to him tell his story I think about what he is like at home, it will hardly be the truth about me, that I have listened with attention, or care about the man who really is there speaking with me, only about my own imagination shaping objects in itself. I step away from the problem of the imagination idly shaping objects in itself, because that is an ocean of a sea to argue through, and instead give in brief, as brief as possible, my explanation for what I mean by a finite Universe being established in infinity.

α Einstein says:

the radius,  $a$ , of the universe is determined in terms of the total mass,  $M$ , of matter, by the equation

$$a = \frac{M\kappa}{4\pi^2}$$

The complete dependence of the geometrical upon the physical properties becomes clearly apparent by means of this equation. Thus we may present the following arguments against the conception of a space-infinite, and for the conception of a spacebounded, universe:— 1. From the standpoint of the theory of relativity, the condition for a closed surface is very much simpler than the corresponding boundary condition at infinity of the quasi-Euclidean structure of the universe. 2. The idea that Mach expressed, that inertia depends upon the mutual action of bodies, is contained, to a first approximation, in the equations of the theory of relativity; it follows from these equations that inertia depends, at least in part, upon mutual actions between masses. As it is an unsatisfactory assumption to make that inertia depends in part upon mutual actions, and in part upon an independent property of space, Mach's idea gains in probability. But this idea of Mach's corresponds only to a finite universe, bounded in space, and not to a quasi-Euclidean, infinite universe. From the standpoint of epistemology it is more satisfying to have the mechanical properties of space completely determined by matter, and this is the case only in a space-bounded universe. 3. An infinite universe is possible only if the mean density of matter in the universe vanishes. Although such an assumption is logically possible, it is less probable than the assumption that there is a finite mean density of matter in the universe.

β Pretending that I understand these things, I say: this formula means that not matter is a property of space and time, as something contained in space and time or actuated in space and time or stuck in it like a spoon into a pot of rice; but rather is the space-time continuum a property of matter, like the body's warmth or like the scent of the sea even at a distance from the ocean.

γ A universe of infinite radius  $\alpha$  would have to be shapeless, and therefore not beautiful; and, again, there would be the mathematical difficulty which I do not pretend to understand but trust Einstein at his word that he does, of having to establish boundaries at infinity in his quasi-Euclidean space. Apparently this thing can be done by the physicists, or could be, a hundred years ago, without any help from the theologian and the metaphysical philosopher. I stretch out my hand, therefore, in an

open handshake: I trust the gentlemen on their authority. But one way or another, mass  $M$  cannot be made infinite in order to solve the difficulty of the shapeless Universe, and therefore one not beautiful, by thus making infinite mass infinitely distributed in infinite space, because even though that would make a perfect sphere as congenial as anything could ever have been both to Thales and Parmenides alike, that sphere would have to have infinite density of matter at any given point, and we do not find that. And in any case, the formula would have become purely tautological, since it would tell us then nothing concrete even in possibility, telling us only that the world is endless and that matter is also endless. If we took those two infinities away as canceling each other out, we would be left with a thing even more ridiculous, since then our Universe would have no radius and no mass at all. In short, there is no solving the problem by going that way. That the finite Universe is indeed a problem I have given to understand above: a finite Universe makes necessary the assumption that space and time, and therefore also matter, can be observed but cannot be understood, being facts irreducible. Be this as congenial as it may be to an existentialist, I am not an existentialist, I am a stubborn and pork-eating Jew. I want answers, and I want a root to moral action, and I intend to get them: if Moses, working with a cosmological system as inferior to Einstein's as the brass helmet is to the atomic bomb, could nonetheless in a single page have mobilized that system to commanding moral action in a way that has done well enough in the succeeding ages at the very least not to prevent altogether Western Humanity from putting off the bronze helmets and in the course of time assuming the destructive powers of the atomic bomb, it would be strange indeed if it were not possible to make a superior system do at least as well as Kant's. A superior system of thought may be more complex in its details but must have a more direct, hence a simpler, relationship of understanding to the reality which it describes. Kant could produce the categorical imperative. How is it that Einstein has not given anything the like?

δ Not that I am not begging the question. My answer is that the moral content of the theory of relativity was given at the beginning of the Christian era, in the parable of the good Samaritan in the Gospel from Luke. That the material content thus far lagged behind in the elaboration should become better known when we have an adequate theoretical understanding of the real course of Western moral philosophy in its relation to the philosophy of nature. My guess, in any case, is that it would have come sooner, if the moral lesson had been understood earlier. That is, if in the moral lesson was seen not only the indefinable change in morality, but also the total reorganization of all space and time, making the morality a perfectly rational conclusion to the physics. Insofar as other philosophers of the Christian era had given a system of moral laws deriving from their accounts of nature, I should say that that is just as far as they have been intermediate towards the physics, and hence of a derivative importance as to the morality: Einstein does not need to give a moral philosophy because he is completing the physical basis for the explanation of the moral philosophy of the Gospels. This is not to say that the Gospels are the highest possible step in the development of human moral thought; although the highest yet: the teaching of the Book of Tao may be on a higher level than anything Western Humanity had ever

produced, but it is not yet morality in the Western sense of the word, as it is a philosophy of life presupposing no physical account of nature and hence capable of binding to no concrete action. Whatever might be the morality of the future, it were well for us to understand the morality we really live by today. And this will not be done until the moral sense of Einstein's relativity is understood completely. One way or another, I come back to this in the next note. Here I am concerned with a different possibility.

ε If we suppose, for no better reason on the one hand than that it was once written in a science fiction novel on the one hand that thought is a counterentropic force that in a billion years will have transformed the Universe, and no worse a syllogism that since Einstein exerts his will to power in turning and shaping his theory to where it pleases him the most, and his theory is in turning and a shaping of the material Universe and so does, in cutting up into the stuff of thought, affect directly that thing called time-space which it postulates as affecting other things but unable to receive any action; that, therefore the concentrated attention of a mind (in order not to become vulgar, I mean Thought, not hazy thoughts, even if it had to be admitted that the one can hardly differ in its raw materials from the other, even if perhaps not in its rational account) is a force, then that force would have to be infinite by definition because we have no way to give it boundaries as long as what we use for giving boundaries and rationing apart both this and that, is thought. In any case, this power we call Thought has not yet been measured; and if what I propose should be accepted, it will be admitted that it never will, anymore so than Einstein's Universal gravity constant  $\kappa$  could have been in his own theory; and yet not be for all that any less a scientific fact, then, letting T equal infinity, we have

$$\infty\alpha = \frac{M\kappa T}{4\pi^2},$$

which, once we had canceled out the two infinities, would again give us the same formula,

$$\alpha = \frac{M\kappa}{4\pi^2},$$

without making either the gravitation constant or the variable mass have to serve us for infinity. Let us next suppose that this observer is God. The Universe, in any case, must be limited by the imagination of the one who holds it in thought and studies upon difficulties in order to remove them. This is an operation that seems to me well worthy of God's dignity. The introduction of God as the active observer whose attention brings in some quantity of energy, because unknown how much exactly therefore infinite (as in, immeasurable), would, I guess, cancel out Einstein's third remark that an infinite Universe must have null density of matter. If the attention was infinite upon each thing, this would result in establishing each infinite thing as a finite thing established in infinity. Infinity would then be understood in every single finite thing, something the way this was thought to be understood in Homer's Greece at the

beginning of the twentieth century. This operation could be done stiffly, as I have just done it, or in a soft way, as the Strugatsky brothers did in that novel of theirs, following Spinoza and Kant in order to let human thought itself take the place of that infinite observer, making it a human thinker in the night, taking this and that law of nature into thought, through endless generations for uncounted ages. If thought were said to have contributed a finite force, all this would be raging nonsense. But if human thought, or the thought of God, or both alike, contribute an infinite force that is wholly canceled out by the establishing of each thing it turns upon, in itself infinite and not a thing at all but of the shapeless infinite, into a finite thing established in infinity, and thus at all times keeping the radius of the Universe both infinite and finite, infinite in unworked reality and finite in the created thing open to all possible experience, including the experience of thought, I think the problem would be solved. The finite volume of all being would not be an illusion, but the reality produced by our attention to these infinite things, and their becoming finite would not be their being reduced, but rather their being established in infinity as what can be spoken of in confidence in dialogue amongst ourselves and in speaking with the Lord.

Thus, again, since there is no complete denying that thought is a power, since it has the power to affect even what it itself teaches us cannot be touched or in any way affected by any force at all, let it be treated as a kind of gravity, which is what Newton wanted for his force of gravity in his own old age. Whether the active observer should be God or man, we say this power of observation produces an infinite attraction to each thing that does come firmly into mind, and those which slip from thought are therefore not established in infinity. This force would thus be wholly canceled out by the real unworked infinity of all in all. The Universe would thus be of any given length of time, or any given size, able to change shape and age and nature exactly as we pay attention to it. God, likewise, would have the power of incarnation and all power, but not the power of making a man do what he does not want to have done, since the mind could at any time be determined into shape, established in infinity, by the stiffnecked stubbornness of human man, even when God would change it; even though God would have power indeed over the human body. In any case, I leave these to the theologians. The Universe would thus be finite in all practical uses, including those of practical reason, but not in absolute reality; which, insofar as it is known by no one, not even God, would exist only indirectly, in the perfect finitude of everything we turn our attention to. Each thing would have to be established in infinity in order not to become lost among the other things, which I understand to be the power of the mind. This power somehow transcends nature. It requires infinite extensions to contain. For the purpose of formulating things, if God is looking, then all things already have been established in infinity; and if man is looking, all things will have been established: in the infinite present, these both amount to one same thing. So that no one's sensibilities as Darwin had once put it, need to be offended by this way of seeing things.

It is obvious that anyone really in conversation with the Lord would know enough in

order to respect the ritual of the exchange. So no two infinite sets of force will ever be brought to bear upon the world, but first it will be the Lord speaking, and then Moses, and then the Lord again, and then Moses. Whereas when people argue, it is known well enough that they limit one another by their very rudeness. And so again, no two infinite set of force are brought to bear upon the Universe, but rather indeed, by the increasing haziness of thoughts, it should be apparent that no force at all is then brought on it. That this means more than one person will be bringing an infinite force to bear upon an infinite world, bringing it to finite size, at any given time, poses again no problem: it will not be an infinite world in the same way for different people, and so likewise the establishing of finite space-time in infinity would only have the result of what happens all the time already, that different people would not see or feel or know the same things. The world is the same, and we have not been mocked by Schrodinger as followers of Kant's extravagance, but it has been cut up by us and rebuilt again in different ways. If you can teach me how to make the things you made of it, if even in a book, then I can read the book and learn to make the same things, or things very like them, across the widest gap of ages.

I could go on for a long time with this, but in any case the last of things I would put down for now is the matter of judgment. Those who do evil would be punished by themselves, and need no further punishment, since they had already cut up their world into one that calls for doing evil. How would we know that they are evil? Why, obviously we would not, nor need to know it, having no need to pass judgment on them for their sins.

θ The difficulty we began with has now been resolved: we have a unitary definition for both time and space, as well as for each smallest unit of matter. Time is a unit of thought. The relativity theory makes space conveniently joined up with time into a single whole: so that the finitely bounded unit of space-time is a unit of thought, thought making the space part of the space-time finite, established in infinity. Matter implies the space-time continuum among its qualities. It is a strange thing in the theory that the space-time continuum is said to act upon matter, but I leave that to who understands these things. A unit of matter, whether large or small, is the object measured out by thought to be bounded in its finite shell of three-dimensional space, being established in infinity. Thought itself is the act of conversation between God, man and the friend of man. What a given act of conversation will mean to them when they understand each other's thoughts, that is what thought will at that moment. Put in our new terms, that is what that unit of thought will be, whatever it should mean that makes it different from the other units. All this implies that the reality of God's conversation with man and man's friend and the simplicity of God himself, produce between them a world of change in which each moment consciously perceived is equal to infinity. Hence it is a running paradox that anything should change at all, resolved only by the dogmatic instrument of God's simplicity. That is for another study.



