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THE DISCOVERY OF THE FUTURE

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THE DISCOVERY OF THE FUTURE

BY

H. G. WELLS

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THE DISCOVERY OF THE FUTURE*

By H. G. Wells

IT will lead into my subject most conveniently to contrast and separate two divergent types of mind, types which are to be distinguished chiefly by their attitude toward time, and more particularly by the relative importance they attach and the relative amount of thought they give to the future.

The first of these two types of mind, and it is, I think, the predominant type, the type of the majority of living people, is that which seems scarcely to think of the future at all, which regards it as a sort of blank non-existence upon which the ad-

*A discourse delivered at the Royal Institution.

vancing present will presently write events. The second type, which is, I think, a more modern and much less abundant type of mind, thinks constantly and by preference of things to come, and of present things mainly in relation to the results that must arise from them. The former type of mind, when one gets it in its purity, is retrospective in habit, and it interprets the things of the present, and gives value to this and denies it to that, entirely with relation to the past. The latter type of mind is constructive in habit, it interprets the things of the present and gives value to this or that, entirely in relation to things designed or foreseen.

While from that former point of view our life is simply to reap the consequences of the past, from this our life is to prepare the future. The former type one might speak of as the legal or submissive type of mind, because the business, the practice, and the training of a lawyer dispose him

toward it; he of all men must constantly refer to the law made, the right established, the precedent set, and consistently ignore or condemn the thing that is only seeking to establish itself. The latter type of mind I might for contrast call the legislative, creative, organizing, or masterful type, because it is perpetually attacking and altering the established order of things, perpetually falling away from respect for what the past has given us. It sees the world as one great workshop, and the present is no more than material for the future, for the thing that is yet destined to be. It is in the active mood of thought, while the former is in the passive; it is the mind of youth, it is the mind more manifest among the western nations, while the former is the mind of age, the mind of the oriental.

Things have been, says the legal mind, and so we are here. The creative mind says we are here because things have yet to be.

Now I do not wish to suggest that the

great mass of people belong to either of these two types. Indeed, I speak of them as two distinct and distinguishable types mainly for convenience and in order to accentuate their distinction. There are probably very few people who brood constantly upon the past without any thought of the future at all, and there are probably scarcely any who live and think consistently in relation to the future. The great mass of people occupy an intermediate position between these extremes, they pass daily and hourly from the passive mood to the active, they see this thing in relation to its associations and that thing in relation to its consequences, and they do not even suspect that they are using two distinct methods in their minds.

But for all that they are distinct methods, the method of reference to the past and the method of reference to the future, and their mingling in many of our minds no more abolishes their difference than the

existence of piebald horses proves that white is black.

I believe that it is not sufficiently recognized just how different in their consequences these two methods are, and just where their difference and where the failure to appreciate their difference takes one. This present time is a period of quite extraordinary uncertainty and indecision upon endless questions—moral questions, æsthetic questions, religious and political questions—upon which we should all of us be happier to feel assured and settled; and a very large amount of this floating uncertainty about these important matters is due to the fact that with most of us these two insufficiently distinguished ways of looking at things are not only present together, but in actual conflict in our minds, in unsuspected conflict; we pass from one to the other heedlessly without any clear recognition of the fundamental difference in conclusions that exists between the two, and

we do this with disastrous results to our confidence and to our consistency in dealing with all sorts of things.

But before pointing out how divergent these two types or habits of mind really are, it is necessary to meet a possible objection to what has been said. I may put that objection in this form: Is not this distinction between a type of mind that thinks of the past and a type of mind that thinks of the future a sort of hair-splitting, almost like distinguishing between people who have left hands and people who have right? Everybody believes that the present is entirely determined by the past, you say; but then everybody believes also that the present determines the future. Are we simply separating and contrasting two sides of everybody's opinion? To which one replies that we are not discussing what we know and believe about the relations of past, present, and future, or of the relation of cause and effect to each other in time.

We all know the present depends for its causes on the past, and the future depends for its causes upon the present. But this discussion concerns the way in which we approach things upon this common ground of knowledge and belief. We may all know there is an east and a west, but if some of us always approach and look at things from the west, if some of us always approach and look at things from the east, and if others again wander about with a pretty disregard of direction, looking at things as chance determines, some of us will get to a westward conclusion of this journey, and some of us will get to an eastward conclusion, and some of us will get to no definite conclusion at all about all sorts of important matters. And yet those who are travelling east, and those who are travelling west, and those who are wandering haphazard, may be all upon the same ground of belief and statement and amid the same assembly of proven facts. Precisely the same thing, divergence

of result, will happen if you always approach things from the point of view of their causes, or if you approach them always with a view to their probable effects. And in several very important groups of human affairs it is possible to show quite clearly just how widely apart the two methods, pursued each in its purity, take those who follow them.

I suppose that three hundred years ago all people who thought at all about moral questions, about questions of Right and Wrong, deduced their rules of conduct absolutely and unreservedly from the past, from some dogmatic injunction, some finally settled decree. The great mass of people do so to-day. It is written, they say. "Thou shalt not steal," for example—that is the sole, complete, sufficient reason why you should not steal, and even to-day there is a strong aversion to admit that there is any relation between the actual consequences of acts and the imperatives of

right and wrong. Our lives are to reap the fruits of determinate things, and it is still a fundamental presumption of the established morality that one must do right though the heavens fall. But there are people coming into this world who would refuse to call it Right if it brought the heavens about our heads, however authoritative its sources and sanctions, and this new disposition is, I believe, a growing one. I suppose in all ages people in a timid, hesitating, guilty way have tempered the austerity of a dogmatic moral code by small infractions to secure obviously kindly ends, but it was, I am told, the Jesuits who first deliberately sought to qualify the moral interpretation of acts by a consideration of their results. To-day there are few people who have not more or less clearly discovered the future as a more or less important factor in moral considerations. To-day there is a certain small proportion of people who frankly regard morality as a means to an

end, as an overriding of immediate and personal considerations out of regard to something to be attained in the future, and who break away altogether from the idea of a code dogmatically established forever.

Most of us are not so definite as that, but most of us are deeply tinged with the spirit of compromise between the past and the future; we profess an unbounded allegiance to the prescriptions of the past, and we practise a general observance of its injunctions, but we qualify to a vague, variable extent with considerations of expediency. We hold, for example, that we must respect our promises. But suppose we find unexpectedly that for one of us to keep a promise, which has been sealed and sworn in the most sacred fashion, must lead to the great suffering of some other human being, must lead, in fact, to practical evil? Would a man do right or wrong if he broke such a promise? The practical decision most modern people would make

would be to break the promise. Most would say that they did evil to avoid a greater evil. But suppose it was not such very great suffering we were going to inflict, but only some suffering? And suppose it was a rather important promise? With most of us it would then come to be a matter of weighing the promise, the thing of the past, against this unexpected bad consequence, the thing of the future. And the smaller the overplus of evil consequences the more most of us would vacillate. But neither of the two types of mind we are contrasting would vacillate at all. The legal type of mind would obey the past unhesitatingly, the creative would unhesitatingly sacrifice it to the future. The legal mind would say, "they who break the law at any point break it altogether," while the creative mind would say, "let the dead past bury its dead."

It is convenient to take my illustration from the sphere of promises, but it is in the

realm of sexual morality that the two methods are most acutely in conflict.

And I would like to suggest that until you have definitely determined either to obey the real or imaginary imperatives of the past, or to set yourself toward the demands of some ideal of the future, until you have made up your mind to adhere to one or other of these two types of mental action in these matters, you are not even within hope of a sustained consistency in the thought that underlies your acts, that in every issue of principle that comes upon you, you will be entirely at the mercy of the intellectual mood that happens to be ascendent at that particular moment in your mind.

In the sphere of public affairs also these two ways of looking at things work out into equally divergent and incompatible consequences. The legal mind insists upon treaties, constitutions, legitimacies, and charters; the legislative incessantly assails

these. Whenever some period of stress sets in, some great conflict between institutions and the forces in things, there comes a sorting out of these two types of mind. The legal mind becomes glorified and transfigured in the form of hopeless loyalty, the creative mind inspires revolutions and reconstructions. And particularly is this difference of attitude accentuated in the disputes that arise out of wars. In most modern wars there is no doubt quite traceable on one side or the other a distinct creative idea, a distinct regard for some future consequence; but the main dispute even in most modern wars and the sole dispute in most mediæval wars will be found to be a reference, not to the future, but to the past; to turn upon a question of fact and right. The wars of Plantagenet and Lancastrian England with France, for example, were based entirely upon a dummy claim, supported by obscure legal arguments, upon the crown of France.

And the arguments that centered about the late war in South Africa ignored any ideal of a great united South African state almost entirely, and quibbled this way and that about who began the fighting and what was or was not written in some obscure revision of a treaty a score of years ago. Yet beneath the legal issues the broad creative idea has been apparent in the public mind during this war. It will be found more or less definitely formulated beneath almost all the great wars of the past century, and a comparison of the wars of the nineteenth century with the wars of the middle ages will show, I think, that in this field also there has been a discovery of the future, an increasing disposition to shift the reference and values from things accomplished to things to come.

Yet though foresight creeps into our politics and a reference to consequence into our morality, it is still the past that dominates our lives. But why? Why are we so

bound to it? It is into the future we go, to-morrow is the eventful thing for us. There lies all that remains to be felt by us and our children and all those that are dear to us. Yet we marshal and order men into classes entirely with regard to the past; we draw shame and honor out of the past; against the rights of property, the vested interests, the agreements and establishments of the past the future has no rights. Literature is for the most part history or history at one remove, and what is culture but a mold of interpretation into which new things are thrust, a collection of standards, a sort of bed of King Og, to which all new expressions must be lopped or stretched? Our conveniences, like our thoughts, are all retrospective. We travel on roads so narrow that they suffocate our traffic; we live in uncomfortable, inconvenient, life-wasting houses out of a love of familiar shapes and familiar customs and a dread of strangeness; all our public af-

fairs are cramped by local boundaries impossibly restricted and small. Our clothing, our habits of speech, our spelling, our weights and measures, our coinage, our religious and political theories, all witness to the binding power of the past upon our minds. Yet we do not serve the past as the Chinese have done. There are degrees. We do not worship our ancestors or prescribe a rigid local costume; we dare to enlarge our stock of knowledge, and we qualify the classics with occasional adventures into original thought. Compared with the Chinese we are distinctly aware of the future. But compared with what we might be, the past is all our world.

The reason why the retrospective habit, the legal habit, is so dominant, and always has been so predominant, is of course a perfectly obvious one. We follow a fundamental human principle and take what we can get. All people believe the past is certain, defined, and knowable, and only a

few people believe that it is possible to know anything about the future. Man has acquired the habit of going to the past because it was the line of least resistance for his mind. While a certain variable portion of the past is serviceable matter for knowledge in the case of everyone, the future is, to a mind without an imagination trained in scientific habits of thought, non-existent. All our minds are made of memories. In our memories each of us has something that without any special training whatever will go back into the past and grip firmly and convincingly all sorts of workable facts, sometimes more convincingly than firmly. But the imagination, unless it is strengthened by a very sound training in the laws of causation, wanders like a lost child in the blankness of things to come and returns empty.

Many people believe, therefore, that there can be no sort of certainty about the future. You can know no more about the

future, I was recently assured by a friend, than you can know which way a kitten will jump next. And to all who hold that view, who regard the future as a perpetual source of convulsive surprises, as an impenetrable, incurable, perpetual blankness, it is right and reasonable to derive such values as it is necessary to attach to things from the events that have certainly happened with regard to them. It is our ignorance of the future and our persuasion that that ignorance is absolutely incurable that alone gives the past its enormous predominance in our thoughts. But through the ages, the long unbroken succession of fortune-tellers—and they flourish still—witnesses to the perpetually smoldering feeling that after all there may be a better sort of knowledge—a more serviceable sort of knowledge than that we now possess.

On the whole there is something sympathetic for the dupe of the fortune-teller in the spirit of modern science; it is one of

the persuasions that come into one's mind, as one assimilates the broad conception of science, that the adequacy of causation is universal; that in absolute fact—if not in that little bubble of relative fact which constitutes the individual life—in absolute fact the future is just as fixed and determinate, just as settled and inevitable, just as possible a matter of knowledge as the past. Our personal memory gives us an impression of the superior reality and trustworthiness of things in the past, as of things that have finally committed themselves and said their say, but the more clearly we master the leading conceptions of science the better we understand that this impression is one of the results of the peculiar conditions of our lives, and not an absolute truth. The man of science comes to believe at last that the events of the year A.D. 4000 are as fixed, settled, and unchangeable as the events of the year 1600. Only about the latter he has some

material for belief and about the former practically none.

And the question arises how far this absolute ignorance of the future is a fixed and necessary condition of human life, and how far some application of intellectual methods may not attenuate even if it does not absolutely set aside the veil between ourselves and things to come. And I am venturing to suggest to you that along certain lines and with certain qualifications and limitations a working knowledge of things in the future is a possible and practicable thing. And in order to support this suggestion I would call your attention to certain facts about our knowledge of the past, and more particularly I would insist upon this, that about the past our range of absolute certainty is very limited indeed. About the past I would suggest we are inclined to overestimate our certainty, just as I think we are inclined to underestimate the certainties of the future. And such a knowledge of the past as we

have is not all of the same sort or derived from the same sources.

Let us consider just what an educated man of to-day knows of the past. First of all he has the realest of all knowledge—the knowledge of his own personal experiences, his memory. Uneducated people believe their memories absolutely, and most educated people believe them with a few reservations. Some of us take up a critical attitude even toward our own memories; we know that they not only sometimes drop things out, but that sometimes a sort of dreaming or a strong suggestion will put things in. But for all that, memory remains vivid and real as no other knowledge can be, and to have seen and heard and felt is to be nearest to absolute conviction. Yet our memory of direct impressions is only the smallest part of what we know. Outside that bright area comes knowledge of a different order—the knowledge brought to us by other people. Outside our imme-

diate personal memory there comes this wider area of facts or quasi facts told us by more or less trustworthy people, told us by word of mouth or by the written word of living and of dead writers. This is the past of report, rumor, tradition, and history—the second sort of knowledge of the past. The nearer knowledge of this sort is abundant and clear and detailed, remoter it becomes vaguer, still more remotely in time and space it dies down to brief, imperfect inscriptions and enigmatical traditions, and at last dies away, so far as the records and traditions of humanity go, into a doubt and darkness as blank, just as blank, as futurity.

And now let me remind you that this second zone of knowledge outside the bright area of what we have felt and witnessed and handled for ourselves—this zone of hearsay and history and tradition —completed the whole knowledge of the past that was accessible to Shakespeare, for

example. To these limits man's knowledge of the past was absolutely confined, save for some inklings and guesses, save for some small, almost negligible beginnings, until the nineteenth century began. Besides the correct knowledge in this scheme of hearsay and history a man had a certain amount of legend and error that rounded off the picture in a very satisfactory and misleading way, according to Bishop Ussher, just exactly 4004 years B.C. And that was man's universal history—that was his all—until the scientific epoch began. And beyond those limits—? Well, I suppose the educated man of the sixteenth century was as certain of the non-existence of anything before the creation of the world as he was, and as most of us are still, of the practical non-existence of the future, or at any rate he was as satisfied of the impossibility of knowledge in the one direction as in the other.

But modern science, that is to say the

relentless systematic criticism of phenomena, has in the past hundred years absolutely destroyed the conception of a finitely distant beginning of things; has abolished such limits to the past as a dated creation set, and added an enormous vista to that limited sixteenth century outlook. And what I would insist upon is that this further knowledge is a new kind of knowledge, obtained in a new kind of way. We know to-day, quite as confidently and in many respects more intimately than we know Sargon or Zenobia or Caractacus, the form and the habits of creatures that no living being has ever met, that no human eye has ever regarded, and the character of scenery that no man has ever seen or can ever possibly see; we picture to ourselves the labyrinthodon raising its clumsy head above the water of the carboniferous swamps in which he lived, and we figure the pterodactyls, those great bird lizards, flapping their way athwart the forests of

the Mesozoic age with exactly the same certainty as that with which we picture the rhinoceros or the vulture. I doubt no more about the facts in this farther picture than I do about those in the nearest. I believe in the megatherium which I have never seen as confidently as I believe in the hippopotamus that has engulfed buns from my hand. A vast amount of detail in that farther picture is now fixed and finite for all time. And a countless number of investigators are persistently and confidently enlarging, amplifying, correcting, and pushing farther and farther back the boundaries of this greater past—this prehuman past—that the scientific criticism of existing phenomena has discovered and restored and brought for the first time into the world of human thought. We have become possessed of a new and once unsuspected history of the world—of which all the history that was known, for example, to Dr. Johnson is only the brief concluding chapter;

and even that concluding chapter has been greatly enlarged and corrected by the exploring archæologists working strictly upon the lines of the new method—that is to say, the comparison and criticism of suggestive facts.

I want particularly to insist upon this, that all this outer past—this non-historical past—is the product of a new and keener habit of inquiry, and no sort of revelation. It is simply due to a new and more critical way of looking at things. Our knowledge of the geological past, clear and definite as it has become, is of a different and lower order than the knowledge of our memory, and yet of a quite practicable and trustworthy order—a knowledge good enough to go upon; and if one were to speak of the private memory as the personal past, of the next wider area of knowledge as the traditional or historical past, then one might call all that great and inspiring back-

ground of remoter geological time the inductive past.

And this great discovery of the inductive past was got by the discussion and rediscussion and effective criticism of a number of existing facts, odd-shaped lumps of stone, streaks and bandings in quarries and cliffs, anatomical and developmental detail that had always been about in the world, that had been lying at the feet of mankind so long as mankind had existed, but that no one had ever dreamed before could supply any information at all, much more reveal such astounding and enlightening vistas. Looked at in a new way they became sources of dazzling and penetrating light. The remoter past lit up and became a picture. Considered as effects, compared and criticised, they yielded a clairvoyant vision of the history of interminable years.

And now, if it has been possible for men by picking out a number of suggestive and significant looking things in the present, by

comparing them, criticising them, and discussing them, with a perpetual insistence upon "Why?" without any guiding tradition, and indeed in the teeth of established beliefs, to construct this amazing searchlight of inference into the remoter past, is it really, after all, such an extravagant and hopeless thing to suggest that, by seeking for operating causes instead of for fossils, and by criticising them as persistently and thoroughly as the geological record has been criticised, it may be possible to throw a searchlight of inference forward instead of backward, and to attain to a knowledge of coming things as clear, as universally convincing, and infinitely more important to mankind than the clear vision of the past that geology has opened to us during the nineteenth century?

Let us grant that anything to correspond with the memory, anything having the same relation to the future that memory has to the past, is out of the question. We

cannot imagine, of course, that we can ever know any personal future to correspond with our personal past, or any traditional future to correspond with our traditional past; but the possibility of an inductive future to correspond with that great inductive past of geology and archæology is an altogether different thing.

I must confess that I believe quite firmly that an inductive knowledge of a great number of things in the future is becoming a human possibility. I believe that the time is drawing near when it will be possible to suggest a systematic exploration of the future. And you must not judge the practicability of this enterprise by the failures of the past. So far nothing has been attempted, so far no first-class mind has ever focused itself upon these issues; but suppose the laws of social and political development, for example, were given as many brains, were given as much attention, criticism, and discussion as we have given to the

laws of chemical combination during the last fifty years, what might we not expect?

To the popular mind of to-day there is something very difficult in such a suggestion, soberly made. But here, in this institution (the Royal Institution of London) which has watched for a whole century over the splendid adolescence of science, and where the spirit of science is surely understood, you will know that as a matter of fact prophecy has always been inseparably associated with the idea of scientific research.

The popular idea of scientific investigation is a vehement, aimless collection of little facts, collected as a bower bird collects shells and pebbles, in methodical little rows, and out of this process, in some manner unknown to the popular mind, certain conjuring tricks—the celebrated "wonders of science"—in a sort of accidental way emerge. The popular conception of all discovery is accident. But you will know

that the essential thing in the scientific process is not the collection of facts, but the analysis of facts. Facts are the raw material and not the substance of science. It is analysis that has given us all ordered knowledge, and you know that the aim and the test and the justification of the scientific process is not a marketable conjuring trick, but prophecy. Until a scientific theory yields confident forecasts you know it is unsound and tentative; it is mere theorizing, as evanescent as art talk or the phantoms politicians talk about. The splendid body of gravitational astronomy, for example, establishes itself upon the certain forecast of stellar movements, and you would absolutely refuse to believe its amazing assertions if it were not for these same unerring forecasts. The whole body of medical science aims, and claims the ability, to diagnose. Meteorology constantly and persistently aims at prophecy, and it will never stand in a place of honor until it can certainly fore-

tell. The chemist forecasts elements before he meets them—it is very properly his boast—and the splendid manner in which the mind of Clerk Maxwell reached in front of all experiments and foretold those things that Marconi has materialized is familiar to us all.

All applied mathematics resolves into computation to foretell things which otherwise can only be determined by trial. Even in so unscientific a science as economics there have been forecasts. And if I am right in saying that science aims at prophecy, and if the specialist in each science is in fact doing his best now to prophesy within the limits of his field, what is there to stand in the way of our building up this growing body of forecast into an ordered picture of the future that will be just as certain, just as strictly science, and perhaps just as detailed as the picture that has been built up within the last hundred years of the geological past? Well, so far and until we bring

the prophecy down to the affairs of man and his children, it is just as possible to carry induction forward as back; it is just as simple and sure to work out the changing orbit of the earth in the future until the tidal drag hauls one unchanging face at last toward the sun as it is to work back to its blazing and molten past. Until man comes in, the inductive future is as real and convincing as the inductive past. But inorganic forces are the smaller part and the minor interest in this concern. Directly man becomes a factor the nature of the problem changes, and our whole present interest centers on the question whether man is, indeed, individually and collectively incalculable, a new element which entirely alters the nature of our inquiry and stamps it at once as vain and hopeless, or whether his presence complicates, but does not alter, the essential nature of the induction. How far may we

hope to get trustworthy inductions about the future of man?

Well, I think, on the whole, we are inclined to underrate our chance of certainties in the future, just as I think we are inclined to be too credulous about the historical past. The vividness of our personal memories, which are the very essence of reality to us, throws a glamor of conviction over tradition and past inductions. But the personal future must in the very nature of things be hidden from us so long as time endures, and this black ignorance at our very feet—this black shadow that corresponds to the brightness of our memories behind us—throws a glamor of uncertainty and unreality over all the future. We are continually surprising ourselves by our own will or want of will; the individualities about us are continually producing the unexpected, and it is very natural to reason that as we can never be precisely sure before the time comes what we are go-

ing to do and feel, and if we can never count with absolute certainty upon the acts and happenings even of our most intimate friends, how much the more impossible is it to anticipate the behavior in any direction of states and communities.

In reply to which I would advance the suggestion that an increase in the number of human beings considered may positively simplify the case instead of complicating it; that as the individuals increase in number they begin to average out. Let me illustrate this point by a comparison. Angular pit-sand has grains of the most varied shapes. Examined microscopically, you will find all sorts of angles and outlines and variations. Before you look you can say of no particular grain what its outline will be. And if you shoot a load of such sand from a cart you cannot foretell with any certainty where any particular grain will be in the heap that you make; but you can tell—you can tell pretty defi-

nitely—the form of the heap as a whole. And further, if you pass that sand through a series of shoots and finally drop it some distance to the ground, you will be able to foretell that grains of a certain sort of form and size will for the most part be found in one part of the heap and grains of another sort of form and size will be found in another part of the heap. In such a case, you see, the thing as a whole may be simpler than its component parts, and this I submit is also the case in many human affairs. So that because the individual future eludes us completely that is no reason why we should not aspire to, and discover and use, safe and serviceable, generalizations upon countless important issues in the human destiny.

But there is a very grave and important-looking difference between a load of sand and a multitude of human beings, and this I must face and examine. Our thoughts and wills and emotions are contagious. An

exceptional sort of sand grain, a sand grain that was exceptionally big and heavy, for example, exerts no influence worth considering upon any other of the sand grains in the load. They will fall and roll and heap themselves just the same whether that exceptional grain is with them or not; but an exceptional man comes into the world, a Cæsar or a Napoleon or a Peter the Hermit, and he appears to persuade and convince and compel and take entire possession of the sand heap—I mean the community—and to twist and alter its destinies to an almost unlimited extent. And if this is indeed the case, it reduces our project of an inductive knowledge of the future to very small limits. To hope to foretell the birth and coming of men of exceptional force and genius is to hope incredibly, and if, indeed, such exceptional men do as much as they seem to do in warping the path of humanity, our utmost prophetic limit in human affairs is a con-

ditional sort of prophecy. If people do so and so, we can say, then such and such results will follow, and we must admit that that is our limit.

But everybody does not believe in the importance of the leading man. There are those who will say that the whole world is different by reason of Napoleon. There are those who will say that the world of to-day would be very much as it is now if Napoleon had never been born. Other men would have arisen to make Napoleon's conquests and codify the law, redistribute the worn-out boundaries of Europe and achieve all those changes which we so readily ascribe to Napoleon's will alone. There are those who believe entirely in the individual man and those who believe entirely in the forces behind the individual man, and for my own part I must confess myself a rather extreme case of the latter kind. I must confess I believe that if by some juggling with space and time

Julius Cæsar, Napoleon, Edward IV., William the Conqueror, Lord Rosebery, and Robert Burns had all been changed at birth it would not have produced any serious dislocation of the course of destiny. I believe that these great men of ours are no more than images and symbols and instruments taken, as it were, haphazard by the incessant and consistent forces behind them; they are the pen-nibs Fate has used for her writing, the diamonds upon the drill that pierces through the rock. And the more one inclines to this trust in forces the more one will believe in the possibility of a reasoned inductive view of the future that will serve us in politics, in morals, in social contrivances, and in a thousand spacious ways. And even those who take the most extreme and personal and melodramatic view of the ways of human destiny, who see life as a tissue of fairy godmother births and accidental meetings and promises and jealousies, will, I suppose, admit

there comes a limit to these things—that at last personality dies away and the greater forces come to their own. The great man, however great he be, cannot set back the whole scheme of things; what he does in right and reason will remain, and what he does against the greater creative forces will perish. We cannot foresee him; let us grant that. His personal difference, the splendor of his effect, his dramatic arrangement of events will be his own—in other words, we cannot estimate for accidents and accelerations and delays; but if only we throw our web of generalization wide enough, if only we spin our rope of induction strong enough, the final result of the great man, his ultimate surviving consequences, will come within our net.

Such, then, is the sort of knowledge of the future that I believe is attainable and worth attaining. I believe that the deliberate direction of historical study and of economic and social study toward the fu-

ture and an increasing reference, a deliberate and courageous reference, to the future in moral and religious discussion, would be enormously stimulating and enormously profitable to our intellectual life. I have done my best to suggest to you that such an enterprise is now a serious and practicable undertaking. But at the risk of repetition I would call your attention to the essential difference that must always hold between our attainable knowledge of the future and our existing knowledge of the past. The portion of the past that is brightest and most real to each of us is the individual past—the personal memory. The portion of the future that must remain darkest and least accessible is the individual future. Scientific prophecy will not be fortune-telling, whatever else it may be. Those excellent people who cast horoscopes, those illegal fashionable palm-reading ladies who abound so much today, in whom nobody is so foolish as to

believe, and to whom everybody is foolish enough to go, need fear no competition from the scientific prophets. The knowledge of the future we may hope to gain will be general and not individual; it will be no sort of knowledge that will either hamper us in the exercise of our individual free will or relieve us of our personal responsibility.

And now, how far is it possible at the present time to speculate on the particular outline the future will assume when it is investigated in this way?

It is interesting, before we answer that question, to take into account the speculations of a certain sect and culture of people who already, before the middle of last century, had set their faces toward the future as the justifying explanation of the present. These were the positivists, whose position is still most eloquently maintained and displayed by Mr. Frederic Harrison,

in spite of the great expansion of the human outlook that has occurred since Comte.

If you read Mr. Harrison, and if you are also, as I presume your presence here indicates, saturated with that new wine of more spacious knowledge that has been given the world during the last fifty years, you will have been greatly impressed by the peculiar limitations of the positivist conception of the future. So far as I can gather, Comte was, for all practical purposes, totally ignorant of that remoter past outside the past that is known to us by history, or if he was not totally ignorant of its existence, he was, and conscientiously remained, ignorant of its relevancy to the history of humanity. In the narrow and limited past he recognized men had always been like the men of to-day; in the future he could not imagine that they would be anything more than men like the men of to-day. He perceived, as we all perceive, that the old social order was breaking up,

and after a richly suggestive and incomplete analysis of the forces that were breaking it up he set himself to plan a new static social order to replace it. If you will read Comte, or, what is much easier and pleasanter, if you will read Mr. Frederic Harrison, you will find this conception constantly apparent—that there was once a stable condition of society with humanity, so to speak, sitting down in an orderly and respectable manner; that humanity has been stirred up and is on the move, and that finally it will sit down again on a higher plane, and for good and all, cultured and happy, in the reorganized positivist state. And since he could see nothing beyond man in the future, there, in that millennial fashion, Comte had to end. Since he could imagine nothing higher than man, he had to assert that humanity, and particularly the future of humanity, was the highest of all conceivable things.

All that was perfectly comprehensible

in a thinker of the first half of the nineteenth century. But we of the early twentieth, and particularly that growing majority of us who have been born since the Origin of Species was written, have no excuse for any such limited vision. Our imaginations have been trained upon a past in which the past that Comte knew is scarcely more than the concluding moment. We perceive that man, and all the world of men, is no more than the present phase of a development so great and splendid that beside this vision epics jingle like nursery rhymes, and all the exploits of humanity shrivel to the proportion of castles in the sand. We look back through countless millions of years and see the will to live struggling out of the intertidal slime, struggling from shape to shape and from power to power, crawling and then walking confidently upon the land, struggling generation after generation to master the air, creeping down into the darkness of the

deep; we see it turn upon itself in rage and hunger and reshape itself anew; we watch it draw nearer and more akin to us, expanding, elaborating itself, pursuing its relentless, inconceivable purpose, until at last it reaches us and its being beats through our brains and arteries, throbs and thunders in our battleships, roars through our cities, sings in our music, and flowers in our art. And when, from that retrospect, we turn again toward the future, surely any thought of finality, any millennial settlement of cultured persons, has vanished from our minds.

This fact that man is not final is the great unmanageable, disturbing fact that arises upon us in the scientific discovery of the future, and to my mind, at any rate, the question what is to come after man is the most persistently fascinating and the most insoluble question in the whole world.

Of course we have no answer. Such

imaginations as we have refuse to rise to the task.

But for the nearer future, while man is still man, there are a few general statements that seem to grow more certain. It seems to be pretty generally believed today that our dense populations are in the opening phase of a process of diffusion and aeration. It seems pretty inevitable also that at least the mass of white population in the world will be forced some way up the scale of education and personal efficiency in the next two or three decades. It is not difficult to collect reasons for supposing—and such reasons have been collected—that in the near future, in a couple of hundred years, as one rash optimist has written, or in a thousand or so, humanity will be definitely and consciently organizing itself as a great world state—a great world state that will purge from itself much that is mean, much that is bestial, and much that makes for indi-

vidual dullness and dreariness, grayness and wretchedness in the world of to-day; and although we know that there is nothing final in that world state, although we see it only as something to be reached and passed, although we are sure there will be no such sitting down to restore and perfect a culture as the positivists foretell, yet few people can persuade themselves to see anything beyond that except in the vaguest and most general terms. That world state of more vivid, beautiful, and eventful people is, so to speak, on the brow of the hill, and we cannot see over, though some of us can imagine great uplands beyond and something, something that glitters elusively, taking first one form and then another, through the haze. We can see no detail, we can see nothing definable, and it is simply, I know, the sanguine necessity of our minds that makes us believe those uplands of the future are still more gracious and splendid than we can either hope or im-

agine. But of things that can be demonstrated we have none.

Yet I suppose most of us entertain certain necessary persuasions, without which a moral life in this world is neither a reasonable nor a possible thing. All this paper is built finally upon certain negative beliefs that are incapable of scientific establishment. Our lives and powers are limited, our scope in space and time is limited, and it is not unreasonable that for fundamental beliefs we must go outside the sphere of reason and set our feet upon faith. Implicit in all such speculations as this is a very definite and quite arbitrary belief, and that belief is that neither humanity nor in truth any individual human being is living its life in vain. And it is entirely by an act of faith that we must rule out of our forecasts certain possibilities, certain things that one may consider improbable and against the chances, but

that no one upon scientific grounds can call impossible.

One must admit that it is impossible to show why certain things should not utterly destroy and end the entire human race and story, why night should not presently come down and make all our dreams and efforts vain. It is conceivable, for example, that some great unexpected mass of matter should presently rush upon us out of space, whirl sun and planets aside like dead leaves before the breeze, and collide with and utterly destroy every spark of life upon this earth. So far as positive human knowledge goes, this is a conceivably possible thing. There is nothing in science to show why such a thing should not be. It is conceivable, too, that some pestilence may presently appear, some new disease, that will destroy, not 10 or 15 or 20 per cent. of the earth's inhabitants as pestilences have done in the past, but 100 per cent.; and so end our race. No one, speak-

ing from scientific grounds alone, can say, "That cannot be." And no one can dispute that some great disease of the atmosphere, some trailing cometary poison, some great emanation of vapor from the interior of the earth, such as Mr. Shiel has made a brilliant use of in his "Purple Cloud," is consistent with every demonstrated fact in the world. There may arise new animals to prey upon us by land and sea, and there may come some drug or a wrecking madness into the minds of men. And finally, there is the reasonable certainty that this sun of ours must radiate itself toward extinction; that, at least, must happen; it will grow cooler and cooler, and its planets will rotate ever more sluggishly until some day this earth of ours, tideless and slow moving, will be dead and frozen, and all that has lived upon it will be frozen out and done with. There surely man must end. That of all such nightmares is the most insistently convincing.

And yet one doesn't believe it.

At least I do not. And I do not believe in these things because I have come to believe in certain other things—in the coherency and purpose in the world and in the greatness of human destiny. Worlds may freeze and suns may perish, but there stirs something within us now that can never die again.

Do not misunderstand me when I speak of the greatness of human destiny.

If I may speak quite openly to you, I will confess that, considered as a final product, I do not think very much of myself or (saving your presence) my fellow-creatures. I do not think I could possibly join in the worship of humanity with any gravity or sincerity. Think of it! Think of the positive facts. There are surely moods for all of us when one can feel Swift's amazement that such a being should deal in pride. There are moods when one can join in the laughter of Democritus; and they

would come oftener were not the spectacle of human littleness so abundantly shot with pain. But it is not only with pain that the world is shot—it is shot with promise. Small as our vanity and carnality make us, there has been a day of still smaller things. It is the long ascent of the past that gives the lie to our despair. We know now that all the blood and passion of our life were represented in the Carboniferous time by something — something, perhaps, cold-blooded and with a clammy skin, that lurked between air and water, and fled before the giant amphibia of those days.

For all the folly, blindness, and pain of our lives, we have come some way from that. And the distance we have travelled gives us some earnest of the way we have yet to go.

Why should things cease at man? Why should not this rising curve rise yet more steeply and swiftly? There are many things to suggest that we are now in a phase

of rapid and unprecedented development. The conditions under which men live are changing with an ever-increasing rapidity, and, so far as our knowledge goes, no sort of creatures have ever lived under changing conditions without undergoing the profoundest changes themselves. In the past century there was more change in the conditions of human life than there had been in the previous thousand years. A hundred years ago inventors and investigators were rare scattered men, and now invention and inquiry are the work of an unorganized army. This century will see changes that will dwarf those of the nineteenth century, as those of the nineteenth dwarf those of the eighteenth. One can see no sign anywhere that this rush of change will be over presently, that the positivist dream of a social reconstruction and of a new static culture phase will ever be realized. Human society never has been quite static, and it will presently cease to attempt to be static.

Everything seems pointing to the belief that we are entering upon a progress that will go on, with an ever-widening and ever more confident stride, forever. The reorganization of society that is going on now beneath the traditional appearance of things is a kinetic reorganization. We are getting into marching order. We have struck our camp forever and we are out upon the roads.

We are in the beginning of the greatest change that humanity has ever undergone. There is no shock, no epoch-making incident—but then there is no shock at a cloudy daybreak. At no point can we say, "Here it commences, now; last minute was night and this is morning." But insensibly we are in the day. If we care to look, we can foresee growing knowledge, growing order, and presently a deliberate improvement of the blood and character of the race. And what we can see and imagine

gives us a measure and gives us faith for what surpasses the imagination.

It is possible to believe that all the past is but the beginning of a beginning, and that all that is and has been is but the twilight of the dawn. It is possible to believe that all that the human mind has ever accomplished is but the dream before the awakening. We cannot see, there is no need for us to see, what this world will be like when the day has fully come. We are creatures of the twilight. But it is out of our race and lineage that minds will spring, that will reach back to us in our littleness to know us better than we know ourselves, and that will reach forward fearlessly to comprehend this future that defeats our eyes.

All this world is heavy with the promise of greater things, and a day will come, one day in the unending succession of days, when beings, beings who are now latent in our thoughts and hidden in our loins, shall

stand upon this earth as one stands upon a footstool, and shall laugh and reach out their hands amid the stars.

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