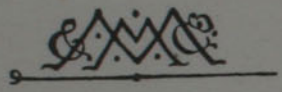
THE IDEA OF PROGRESS



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TORONTO

THE IDEA OF PROGRESS

AN INQUIRY INTO ITS ORIGIN AND GROWTH

BY

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to the memories of

Charles François Castel de Saint-Pierre,

Marie Jean Antoine Nicolas Caritat de Condorcet,

Auguste Comte,

Herbert Spencer,

and other optimists mentioned in this volume.

Tantane uos generis tenuit fiducia uestri ?

PREFACE

We may believe in the doctrine of Progress or we may not, but in either case it is a matter of interest to examine the origins and trace the history of what is now, even should it ultimately prove to be no more than an *idolum saeculi*, the animating and controlling idea of western civilisation. For the earthly Progress of humanity is the general test to which social aims and theories are submitted as a matter of course. The phrase *civilisation and progress* has become stereotyped, and illustrates how we have come to judge a civilisation good or bad according as it is or is not progressive. The ideals of liberty and democracy, which have their own ancient and independent justifications, have sought a new strength by attaching themselves to Progress. The conjunctions of "liberty and progress," "democracy and progress," meet us at every turn. Socialism, at an early stage of its modern development, sought the same aid. The friends of Mars, who cannot bear the prospect of perpetual peace, maintain that war is an indispensable instrument

of Progress. It is in the name of Progress that the doctrinaires who established the present reign of terror in Russia profess to act. All this shows the prevalent feeling that a social or political theory or programme is hardly tenable if it cannot claim that it harmonises with this controlling idea.

In the Middle Ages Europeans followed a different guiding star. The idea of a life beyond the grave was in control, and the great things of this life were conducted with reference to the next. When men's deepest feelings reacted more steadily and powerfully to the idea of saving their souls than to any other, harmony with this idea was the test by which the opportuneness of social theories and institutions was judged. Monasticism, for instance, throve under its aegis, while liberty of conscience had no chance. With a new idea in control, this has been reversed. Religious freedom has thriven under the aegis of Progress; monasticism can make no appeal to it.

For the hope of an ultimate happy state on this planet to be enjoyed by future generations—or of some state, at least, that may relatively be considered happy—has replaced, as a social power, the hope of felicity in another world. Belief in personal immortality is still very widely entertained, but may we not fairly say that it has ceased to be a central and guiding idea of collective life, a

criterion by which social values are measured? Many people do not believe in it; many more regard it as so uncertain that they could not reasonably permit it to affect their lives or opinions. Those who believe in it are doubtless the majority, but belief has many degrees; and one can hardly be wrong in saying that, as a general rule, this belief does not possess the imaginations of those who hold it, that their emotions react to it feebly, that it is felt to be remote and unreal, and has comparatively seldom a more direct influence on conduct than the abstract arguments to be found in treatises on morals.

Under the control of the idea of Progress the ethical code recognised in the Western world has been reformed in modern times by a new principle of far-reaching importance which has emanated from that idea. When Isocrates formulated the rule of life, "Do unto others," he probably did not mean to include among "others" slaves or savages. The Stoics and the Christians extended its application to the whole of living humanity. But in late years the rule has received a vastly greater extension by the inclusion of the unborn generations of the future. This principle of duty to posterity is a direct corollary of the idea of Progress. In the recent war that idea, involving the moral obligation of making sacrifices for the sake of future

ages, was constantly appealed to; just as in the Crusades, the most characteristic wars of our medieval ancestors, the idea of human destinies then in the ascendant lured thousands to hardship and death.

The present attempt to trace the genesis and growth of the idea in broad outline is a purely historical inquiry, and any discussion of the great issue which is involved lies outside its modest scope. Occasional criticisms on particular forms which the creed of Progress assumed, or on arguments which were used to support it, are not intended as a judgment on its general validity. I may, however, make two observations here. The doubts which Mr. Balfour expressed nearly thirty years ago, in an Address delivered at Glasgow, have not, so far as I know, been answered. And it is probable that many people, to whom six years ago the notion of a sudden decline or break-up of our western civilisation, as a result not of cosmic forces but of its own development, would have appeared almost fantastic, will feel much less confident to-day, notwithstanding the fact that the leading nations of the world have instituted a league of peoples for the prevention of war, the measure to which so many high priests of Progress have looked forward as meaning a long stride forward on the road to Utopia.

The preponderance of France's part in develop-

ing the idea is an outstanding feature of its history. France, who, like ancient Greece, has always been a nursing-mother of ideas, bears the principal responsibility for its growth; and if it is French thought that will persistently claim our attention, this is not due to an arbitrary preference on my part or to neglect of speculation in other countries.

J. B. BURY.

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INTRODUCTION

When we say that ideas rule the world, or exercise a decisive power in history, we are generally thinking of those ideas which express human aims and depend for their realisation on the human will, such as liberty, toleration, equality of opportunity, socialism. Some of these have been partly realised, and there is no reason why any of them should not be fully realised, in a society or in the world, if it were the united purpose of a society or of the world to realise it. They are approved or condemned because they are held to be good or bad, not because they are true or false. But there is another order of ideas that play a great part in determining and directing the course of man's conduct but do not depend on his will—ideas which bear upon the mystery of life, such as Fate, Providence, or personal immortality. Such ideas may operate in important ways on the forms of social action, but they involve a question of fact and they are accepted or rejected not because they are believed to be useful or injurious, but because they are believed to be true or false.

The idea of the progress of humanity is an idea of this kind, and it is important to be quite clear on the point. We now take it so much for granted,

we are so conscious of constantly progressing in knowledge, arts, organising capacity, utilities of all sorts, that it is easy to look upon Progress as an aim, like liberty or a world-federation, which it only depends on our own efforts and good-will to achieve. But though all increases of power and knowledge depend on human effort, the idea of the Progress of humanity, from which all these particular progresses derive their value, raises a definite question of fact, which man's wishes or labours cannot affect any more than his wishes or labours can prolong life beyond the grave.

This idea means that civilisation has moved, is moving, and will move in a desirable direction. But in order to judge that we are moving in a desirable direction we should have to know precisely what the destination is. To the minds of most people the desirable outcome of human development would be a condition of society in which all the inhabitants of the planet would enjoy a perfectly happy existence. But it is impossible to be sure that civilisation is moving in the right direction to realise this aim. Certain features of our "progress" may be urged as presumptions in its favour, but there are always offsets, and it has always been easy to make out a case that, from the point of view of increasing happiness, the tendencies of our progressive civilisation are far from desirable. In short, it cannot be proved that the unknown destination towards which man is advancing is desirable. The movement may be Progress, or it may be in an undesirable direction and therefore not Progress. This is a question of fact, and one which is at present as insoluble as the question of

personal immortality. It is a problem which bears on the mystery of life.

Moreover, even if it is admitted to be probable that the course of civilisation has so far been in a desirable direction, and such as would lead to general felicity if the direction were followed far enough, it cannot be proved that ultimate attainment depends entirely on the human will. For the advance might at some point be arrested by an insuperable wall. Take the particular case of knowledge, as to which it is generally taken for granted that the continuity of progress in the future depends altogether on the continuity of human effort (assuming that human brains do not degenerate). This assumption is based on a strictly limited experience. Science has been advancing without interruption during the last three or four hundred years; every new discovery has led to new problems and new methods of solution, and opened up new fields for exploration. Hitherto men of science have not been compelled to halt, they have always found means to advance further. But what assurance have we that they will not one day come up against impassable barriers? The experience of four hundred years, in which the surface of nature has been successfully tapped, can hardly be said to warrant conclusions as to the prospect of operations extending over four hundred or four thousand centuries. Take biology or astronomy. How can we be sure that some day progress may not come to a dead pause, not because knowledge is exhausted, but because our resources for investigation are exhausted—because, for instance, scientific instruments have reached the limit of perfection

beyond which it is demonstrably impossible to improve them, or because (in the case of astronomy) we come into the presence of forces of which, unlike gravitation, we have no terrestrial experience? It is an assumption, which cannot be verified, that we shall not soon reach a point in our knowledge of nature beyond which the human intellect is unqualified to pass.

But it is just this assumption which is the light and inspiration of man's scientific research. For if the assumption is not true, it means that he can never come within sight of the goal which is, in the case of physical science, if not a complete knowledge of the cosmos and the processes of nature, at least an immeasurably larger and deeper knowledge than we at present possess.

Thus continuous progress in man's knowledge of his environment, which is one of the chief conditions of general Progress, is a hypothesis which may or may not be true. And if it is true, there remains the further hypothesis of man's moral and social "perfectibility," which rests on much less impressive evidence. There is nothing to show that he may not reach, in his psychical and social development, a stage at which the conditions of his life will be still far from satisfactory, and beyond which he will find it impossible to progress. This is a question of fact which no willing on man's part can alter. It is a question bearing on the mystery of life.

Enough has been said to show that the Progress of humanity belongs to the same order of ideas as Providence or personal immortality. It is true or it is false, and like them it cannot be proved either true or false. Belief in it is an act of faith.

The idea of human Progress then is a theory which involves a synthesis of the past and a prophecy of the future. It is based on an interpretation of history which regards men as slowly advancing—*pedetemtim progredientes*—in a definite and desirable direction, and infers that this progress will continue indefinitely. And it implies that, as

> The issue of the earth's great business,

a condition of general happiness will ultimately be enjoyed, which will justify the whole process of civilisation; for otherwise the direction would not be desirable. There is also a further implication. The process must be the necessary outcome of the psychical and social nature of man; it must not be at the mercy of any external will; otherwise there would be no guarantee of its continuance and its issue, and the idea of Progress would lapse into the idea of Providence.

As time is the very condition of the possibility of Progress, it is obvious that the idea would be valueless if there were any cogent reasons for supposing that the time at the disposal of humanity is likely to reach a limit in the near future. If there were good cause for believing that the earth would be uninhabitable in A.D. 2000 or 2100 the doctrine of Progress would lose its meaning and would automatically disappear. It would be a delicate question to decide what is the minimum period of time which must be assured to man for his future development, in order that Progress should possess value and appeal to the emotions. The recorded history of civilisation covers 6000 years or so, and

if we take this as a measure of our conceptions of time-distances, we might assume that if we were sure of a period ten times as long ahead of us the idea of Progress would not lose its power of appeal. Sixty thousand years of *historical* time, when we survey the changes which have come to pass in six thousand, opens to the imagination a range vast enough to seem almost endless.

This psychological question, however, need not be decided. For science assures us that the stability of the present conditions of the solar system is certified for many myriads of years to come. Whatever gradual modifications of climate there may be, the planet will not cease to support life for a period which transcends and flouts all efforts of imagination. In short, the *possibility* of Progress is guaranteed by the high probability, based on astro-physical science, of an immense time to progress in.

It may surprise many to be told that the notion of Progress, which now seems so easy to apprehend, is of comparatively recent origin. It has indeed been claimed that various thinkers, both ancient (for instance, Seneca) and medieval (for instance, Friar Bacon), had long ago conceived it. But sporadic observations—such as man's gradual rise from primitive and savage conditions to a certain level of civilisation by a series of inventions, or the possibility of some future additions to his knowledge of nature—which were inevitable at a certain stage of human reflection, do not amount to an anticipation of the idea. The value of such observations was determined, and must be estimated, by the whole context of ideas in which they occurred. It is from its bearings on the future that Progress derives its

value, its interest, and its power. You may conceive civilisation as having gradually advanced in the past, but you have not got the idea of Progress until you go on to conceive that it is destined to advance indefinitely in the future. Ideas have their intellectual climates, and I propose to show briefly in this Introduction that the intellectual climates of classical antiquity and the ensuing ages were not propitious to the birth of the doctrine of Progress. It is not till the sixteenth century that the obstacles to its appearance definitely begin to be transcended and a favourable atmosphere to be gradually prepared.

I

It may, in particular, seem surprising that the Greeks, who were so fertile in their speculations on human life, did not hit upon an idea which seems so simple and obvious to us as the idea of Progress. But if we try to realise their experience and the general character of their thought we shall cease to wonder. Their recorded history did not go back far, and so far as it did go there had been no impressive series of new discoveries suggesting either an indefinite increase of knowledge or a growing mastery of the forces of nature. In the period in which their most brilliant minds were busied with the problems of the universe men might improve the building of ships, or invent new geometrical demonstrations, but their science did little or nothing to transform the conditions of life or to open any vista into the future. They were

in the presence of no facts strong enough to counteract that profound veneration of antiquity which seems natural to mankind, and the Athenians of the age of Pericles or of Plato, though they were thoroughly, obviously "modern" compared with the Homeric Greeks, were never self-consciously "modern" as we are.

I

The indications that human civilisation was a gradual growth, and that man had painfully worked his way forward from a low and savage state, could not, indeed, escape the sharp vision of the Greeks. For instance, Aeschylus represents men as originally living at hazard in sunless caves, and raised from that condition by Prometheus, who taught them the arts of life. In Euripides we find a similar recognition of the ascent of mankind to a civilised state, from primitive barbarism, some god or other playing the part of Prometheus. In such passages as these we have, it may be said, the idea that man has progressed; and it may fairly be suggested that belief in a natural progress lay, for Aeschylus as well as for Euripides, behind the poetical fiction of supernatural intervention. But these recognitions of a progress were not incompatible with the widely-spread belief in an initial degeneration of the human race; nor did it usually appear as a rival doctrine. The old legend of a "golden age" of simplicity, from which man had fallen away, was generally accepted as truth, and leading thinkers combined it with the doctrine of a gradual sequence of social and material improve-

ments[1] during the subsequent period of decline. We find the two views thus combined, for instance, in Plato's *Laws*, and in the earliest reasoned history of civilisation written by Dicaearchus, a pupil of Aristotle.[2] But the simple life of the first age, in which men were not worn with toil, and war and disease were unknown, was regarded as the ideal state to which man would be only too fortunate if he could return. He had indeed at a remote time in the past succeeded in ameliorating some of the conditions of his lot, but such ancient discoveries as fire or ploughing or navigation or law-giving did not suggest the guess that new inventions might lead ultimately to conditions in which life would be more complex but as happy as the simple life of the primitive world.

But, if some relative progress might be admitted, the general view of Greek philosophers was that they were living in a period of inevitable degeneration and decay—inevitable because it was prescribed by the nature of the universe. We have only an imperfect knowledge of the influential speculations of Heraclitus, Pythagoras, and Empedocles, but we may take Plato's tentative philosophy of history to illustrate the trend and the prejudices of Greek thought on this subject. The world was created and set going by the Deity, and, as his work, it was perfect; but it was not immortal and had in it

[1] In the masterly survey of early Greek history which Thucydides prefixed to his work, he traces the social progress of the Greeks in historical times, and finds the key to it in the increase of wealth.

[2] Aristotle's own view is not very clear. He thinks that all arts, sciences, and institutions have been repeatedly, or rather an infinite number of times (ἀπειράκις) discovered in the past and again lost. *Metaphysics*, xi. 8 *ad fin.*; *Politics*, iv. 10, cp. ii. 2. An infinite number of times seems to imply the doctrine of cycles.

the seeds of decay. The period of its duration is 72,000 solar years. During the first half of this period the original uniformity and order, which were impressed upon it by the Creator, are maintained under his guidance; but then it reaches a point from which it begins, as it were, to roll back; the Deity has loosened his grip of the machine, the order is disturbed, and the second 36,000 years are a period of gradual decay and degeneration. At the end of this time, the world left to itself would dissolve into chaos, but the Deity again seizes the helm and restores the original conditions, and the whole process begins anew. The first half of such a world-cycle corresponds to the Golden Age of legend in which men lived happily and simply; we have now unfortunately reached some point in the period of decadence.

Plato applies the theory of degradation in his study of political communities. He conceives his own utopian aristocracy as having existed somewhere towards the beginning of the period of the world's relapse, when things were not so bad,[1] and exhibits its gradual deterioration, through the successive stages of timocracy, oligarchy, democracy, and despotism. He explains this deterioration as primarily caused by a degeneration of the race, due to laxity and errors in the State regulation of marriages, and the consequent birth of biologically inferior individuals.

The theories of Plato are only the most illustrious

[1] Similarly he places the ideal society which he describes in the *Critias* 9000 years before Solon. The state which he plans in the *Laws* is indeed imagined as a practicable project in his own day, but then it is only a second-best. The ideal state of which Aristotle sketched an outline (*Politics*, iv. v.) is not set either in time or in place.

example of the tendency characteristic of Greek philosophical thinkers to idealise the immutable as possessing a higher value than that which varies. This affected all their social speculations. They believed in the ideal of an absolute order in society, from which, when it is once established, any deviation must be for the worse. Aristotle, considering the subject from a practical point of view, laid down that changes in an established social order are undesirable, and should be as few and slight as possible.[1] This prejudice against change excluded the apprehension of civilisation as a progressive movement. It did not occur to Plato or any one else that a perfect order might be attainable by a long series of changes and adaptations. Such an order, being an embodiment of reason, could be created only by a deliberate and immediate act of a planning mind. It might be devised by the wisdom of a philosopher or revealed by the Deity. Hence the salvation of a community must lie in preserving intact, so far as possible, the institutions imposed by the enlightened lawgiver, since change meant corruption and disaster. These *a priori* principles account for the admiration of the Spartan state entertained by many Greek philosophers, because it was supposed to have preserved unchanged for an unusually long period a system established by an inspired legislator.

2

Thus time was regarded as the enemy of humanity. Horace's verse,

Damnosa quid non imminuit dies?

[1] *Politics*, ii. 5.

"time depreciates the value of the world," expresses the pessimistic axiom accepted in most systems of ancient thought.

The theory of world-cycles was so widely current that it may almost be described as the orthodox theory of cosmic time among the Greeks, and it passed from them to the Romans. According to some of the Pythagoreans each cycle repeated to the minutest particular the course and events of the preceding. If the universe dissolves into the original chaos, there appeared to them to be no reason why the second chaos should produce a world differing in the least respect from its predecessor. The n^{th} cycle would be indeed numerically distinct from the first, but otherwise would be identical with it, and no man could possibly discover the number of the cycle in which he was living. As no end seems to have been assigned to the whole process, the course of the world's history would contain an endless number of Trojan Wars, for instance; an endless number of Platos would write an endless number of *Republics*. Virgil uses this idea in his Fourth Eclogue, where he meditates a return of the Golden Age:

> Alter erit tum Tiphys, et altera quae uehat Argo
> Delectos heroas; erunt etiam altera bella,
> Atque iterum ad Troiam magnus mittetur Achilles.

The periodic theory might be held in forms in which this uncanny doctrine of absolute identity was avoided; but at the best it meant an endless monotonous iteration, which was singularly unlikely to stimulate speculative interest in the future. It must be remembered that no thinker had any means of knowing how near to the end of his cycle

the present hour might be. The most influential school of the later Greek age, the Stoics, adopted the theory of cycles, and the natural psychological effect of the theory is vividly reflected in Marcus Aurelius, who frequently dwells on it in his *Meditations*. "The rational soul," he says, "wanders round the whole world and through the encompassing void, and gazes into infinite time, and considers the periodic destructions and rebirths of the universe, and reflects that our posterity will see nothing new, and that our ancestors saw nothing greater than we have seen. A man of forty years, possessing the most moderate intelligence, may be said to have seen all that is past and all that is to come; so uniform is the world."[1]

3

And yet one Stoic philosopher saw clearly, and declared emphatically, that increases in knowledge must be expected in the future.

"There are many peoples to-day," Seneca wrote, "who are ignorant of the cause of eclipses of the moon, and it has only recently been demonstrated among ourselves. The day will come when time and human diligence will clear up problems which are now obscure. We divide the few years of our lives unequally between study and vice, and it will therefore be the work of many generations to explain such phenomena as comets. One day our posterity will marvel at our ignorance of causes so clear to them.

[1] xi. 1. The cyclical theory was curiously revived in the nineteenth century by Nietzsche, and it is interesting to note his avowal that it took him a long time to overcome the feeling of pessimism which the doctrine inspired.

"How many new animals have we first come to know in the present age? In time to come men will know much that is unknown to us. Many discoveries are reserved for future ages, when our memory will have faded from men's minds. We imagine ourselves initiated in the secrets of nature; we are standing on the threshold of her temple."

But these predictions are far from showing that Seneca had the least inkling of a doctrine of the Progress of humanity. Such a doctrine is sharply excluded by the principles of his philosophy and his profoundly pessimistic view of human affairs. Immediately after the passage which I have quoted he goes on to enlarge on the progress of vice. "Are you surprised to be told that human knowledge has not yet completed its whole task? Why, human wickedness has not yet fully developed."

Yet, at least, it may be said, Seneca believed in a progress of knowledge and recognised its value. Yes, but the value which he attributed to it did not lie in any advantages which it would bring to the general community of mankind. He did not expect from it any improvement of the world. The value of natural science, from his point of view, was this, that it opened to the philosopher a divine region, in which, "wandering among the stars," he could laugh at the earth and all its riches, and his mind "delivered as it were from prison could return to its original home." In other words, its value lay not in its results, but simply in the intellectual activity; and therefore it concerned not mankind at large but a few chosen individuals who, doomed to live in a miserable world, could thus deliver their souls from slavery.

For Seneca's belief in the theory of degeneration and the hopeless corruption of the race is uncompromising. Human life on the earth is periodically destroyed, alternately by fire and flood; and each period begins with a golden age in which men live in rude simplicity, innocent because they are ignorant not because they are wise. When they degenerate from this state, arts and inventions promote deterioration by ministering to luxury and vice.

Interesting, then, as Seneca's observations on the prospect of some future scientific discoveries are, and they are unique in ancient literature,[1] they were far from adumbrating a doctrine of the Progress of man. For him, as for Plato and the older philosophers, time is the enemy of man.

4

There was however a school of philosophical speculation, which might have led to the foundation of a theory of Progress, if the historical outlook of the Greeks had been larger and if their temper had been different. The Atomic theory of Democritus seems to us now, in many ways, the most wonderful achievement of Greek thought, but it had a small range of influence in Greece, and would have had less if it had not convinced the brilliant mind of Epicurus. The Epicureans developed it, and it may be that the views which they put forward as to the history of the human race are mainly their own superstructure. These philosophers rejected

[1] They are general and definite. This distinguishes them, for instance, from Plato's incidental hint in the *Republic* as to the prospect of the future development of solid geometry.

entirely the doctrine of a Golden Age and a subsequent degeneration, which was manifestly incompatible with their theory that the world was mechanically formed from atoms without the intervention of a Deity. For them, the earliest condition of men resembled that of the beasts, and from this primitive and miserable condition they laboriously reached the existing state of civilisation, not by external guidance or as a consequence of some initial design, but simply by the exercise of human intelligence throughout a long period.[1] The gradual amelioration of their existence was marked by the discovery of fire and the use of metals, the invention of language, the invention of weaving, the growth of arts and industries, navigation, the development of family life, the establishment of social order by means of kings, magistrates, laws, the foundation of cities. The last great step in the amelioration of life, according to Lucretius, was the illuminating philosophy of Epicurus, who dispelled the fear of invisible powers and guided man from intellectual darkness to light.

But Lucretius and the school to which he belonged did not look forward to a steady and continuous process of further amelioration in the future. They believed that a time would come when the universe would fall into ruins,[2] but the intervening period did not interest them. Like

[1] Lucretius v. 1448 *sqq.* (where the word *progress* is pronounced):

> Usus et impigrae simul experientia mentis
> Paulatim docuit pedetemtim *progredientis*.
> Sic unum quicquid paulatim protrahit aetas
> In medium ratioque in luminis erigit oras.
> Namque alid ex alio clarescere et ordine debet
> Artibus, ad summum donec uenere cacumen.

[2] *Ib.* 95.

many other philosophers, they thought that their own philosophy was the final word on the universe, and they did not contemplate the possibility that important advances in knowledge might be achieved by subsequent generations. And, in any case, their scope was entirely individualistic; all their speculations were subsidiary to the aim of rendering the life of the individual as tolerable as possible here and now. Their philosophy, like Stoicism, was a philosophy of resignation; it was thoroughly pessimistic and therefore incompatible with the idea of Progress. Lucretius himself allows an underlying feeling of scepticism as to the value of civilisation occasionally to escape.[1]

Indeed, it might be said that in the mentality of the ancient Greeks there was a strain which would have rendered them indisposed to take such an idea seriously, if it had been propounded. No period of their history could be described as an age of optimism. They were never, by their achievements in art or literature, in mathematics or philosophy, exalted into self-complacency or lured into setting high hopes on human capacity. Man has resourcefulness to meet everything—*ἄπορος ἐπ' οὐδὲν ἔρχεται*, —they did not go further than that.

This instinctive pessimism of the Greeks had a religious tinge which perhaps even the Epicureans found it hard entirely to expunge. They always felt that they were in the presence of unknown incalculable powers, and that subtle dangers lurked in human achievements and gains. Horace has taken this feeling as the *motif* of a criticism on

[1] His *eadem sunt omnia semper* (iii. 945) is the constant refrain of Marcus Aurelius.

man's inventive powers. A voyage of Virgil suggests the reflection that his friend's life would not be exposed to hazards on the high seas if the art of navigation had never been discovered—if man had submissively respected the limits imposed by nature. But man is audacious :

Nequiquam deus abscidit
Prudens oceano dissociabili
Terras.
In vain a wise god sever'd lands
By the dissociating sea.

Daedalus violated the air, as Hercules invaded hell. The discovery of fire put us in possession of a forbidden secret. Is this unnatural conquest of nature safe or wise? *Nil mortalibus ardui est* :

Man finds no feat too hard or high ;
Heaven is not safe from man's desire.
Our rash designs move Jove to ire,
He dares not lay his thunder by.

The thought of this ode[1] roughly expresses what would have been the instinctive sense of thoughtful Greeks if the idea of Progress had been presented to them. It would have struck them as audacious, the theory of men unduly elated and perilously at ease in the presence of unknown incalculable powers.

This feeling or attitude was connected with the idea of Moira. If we were to name any single idea as generally controlling or pervading Greek thought from Homer to the Stoics,[2] it would perhaps be Moira, for which we have no equivalent. The

[1] i. 3.
[2] The Stoics identified Moira with *Pronoia*, in accordance with their theory that the universe is permeated by thought.

common rendering "fate" is misleading. Moira meant a fixed order in the universe; but as a fact to which men must bow, it had enough in common with fatality to demand a philosophy of resignation and to hinder the creation of an optimistic atmosphere of hope. It was this order which kept things in their places, assigned to each its proper sphere and function, and drew a definite line, for instance, between men and gods. Human progress towards perfection—towards an ideal of omniscience, or an ideal of happiness, would have been a breaking down of the bars which divide the human from the divine. Human nature does not alter; it is fixed by Moira.

5

We can see now how it was that speculative Greek minds never hit on the idea of Progress. In the first place, their limited historical experience did not easily suggest such a synthesis; and in the second place, the axioms of their thought, their suspiciousness of change, their theories of Moira, of degeneration and cycles, suggested a view of the world which was the very antithesis of progressive development. Epicurean philosophers made indeed what might have been an important step in the direction of the doctrine of Progress, by discarding the theory of degeneration, and recognising that civilisation had been created by a series of successive improvements achieved by the effort of man alone. But here they stopped short. For they had their eyes fixed on the lot of the individual here and now, and their study of the history of humanity was strictly subordinate to this personal

interest. The value of their recognition of human progress in the past is conditioned by the general tenor and purpose of their theory of life. It was simply one item in their demonstration that man owed nothing to supernatural intervention and had nothing to fear from supernatural powers. It is however no accident that the school of thought which struck on a path that might have led to the idea of Progress was the most uncompromising enemy of superstition that Greece produced.

It might be thought that the establishment of Roman rule and order in a large part of the known world, and the civilising of barbarian peoples, could not fail to have opened to the imagination of some of those who reflected on it in the days of Virgil or of Seneca, a vista into the future. But there was no change in the conditions of life likely to suggest a brighter view of human existence. With the loss of freedom pessimism increased, and the Greek philosophies of resignation were needed more than ever. Those whom they could not satisfy turned their thoughts to new mystical philosophies and religions, which were little interested in the earthly destinies of human society.

II

1

The idea of the universe which prevailed throughout the Middle Ages, and the general orientation of men's thoughts were incompatible with some of the fundamental assumptions which are required by

the idea of Progress. According to the Christian theory which was worked out by the Fathers, and especially by St. Augustine, the whole movement of history has the purpose of securing the happiness of a small portion of the human race in another world; it does not postulate a further development of human history on earth. For Augustine, as for any medieval believer, the course of history would be satisfactorily complete if the world came to an end in his own lifetime. He was not interested in the question whether any gradual amelioration of society or increase of knowledge would mark the period of time which might still remain to run before the day of Judgment. In Augustine's system the Christian era introduced the last period of history, the old age of humanity, which would endure only so long as to enable the Deity to gather in the predestined number of saved people. This theory might be combined with the widely-spread belief in a millennium on earth, but the conception of such a dispensation does not render it a theory of Progress.

Again, the medieval doctrine apprehends history not as a natural development but as a series of events ordered by divine intervention and revelations. If humanity had been left to go its own way it would have drifted to a highly undesirable port, and all men would have incurred the fate of everlasting misery from which supernatural interference rescued the minority. A belief in Providence might indeed, and in a future age would, be held along with a belief in Progress, in the same mind; but the fundamental assumptions were incongruous, and so long as the doctrine of

Providence was undisputedly in the ascendant, a doctrine of Progress could not arise. And the doctrine of Providence, as it was developed in Augustine's *City of God*, controlled the thought of the Middle Ages.

There was, moreover, the doctrine of original sin, an insuperable obstacle to the moral amelioration of the race by any gradual process of development. For since, so long as the human species endures on earth, every child will be born naturally evil and worthy of punishment, a moral advance of humanity to perfection is plainly impossible.

2

But there are certain features in the medieval theory of which we must not ignore the significance. In the first place, while it maintained the belief in degeneration, endorsed by Hebrew mythology, it definitely abandoned the Greek theory of cycles. The history of the earth was recognised as a unique phenomenon in time; it would never occur again, or anything resembling it. More important than all is the fact that Christian theology constructed a synthesis which for the first time attempted to give a definite meaning to the whole course of human events, a synthesis which represents the past as leading up to a definite and desirable goal in the future. Once this belief had been generally adopted and prevailed for centuries men might discard it along with the doctrine of Providence on which it rested, but they could not be content to return again to such views as satisfied the ancients, for whom human history, apprehended as a whole,

was a tale of little meaning.[1] They must seek for some new synthesis to replace it.

Another feature of the medieval theory, pertinent to our inquiry, was an idea which Christianity took over from Greek and Roman thinkers. In the later period of Greek history, which began with the conquests of Alexander the Great, there had emerged the conception of the whole inhabited world as a unity and totality, the idea of the whole human race as one. We may conveniently call it the ecumenical idea—the principle of the *ecumene* or inhabited world, as opposed to the principle of the *polis* or city. Promoted by the vast extension of the geographical limits of the Greek world resulting from Alexander's conquests, and by his policy of breaking down the barriers between Greek and barbarian, the idea was reflected in the Stoic doctrine that all men are brothers, and that a man's true country is not his own particular city, but the *ecumene*.[2] It soon became familiar, popularised by the most popular of the later philosophies of Greece; and just as it had been implied in the imperial aspiration and polity of Alexander, so it was implied, still more clearly, in the imperial theory of Rome. The idea of the

[1] It may be observed that Augustine (*De Civ. Dei*, x. 14) compares the teaching (*recta eruditio*) of the people of God, in the gradual process of history, to the education of an individual. Prudentius has a similar comparison for a different purpose (*c. Symmachum*, ii. 315 *sqq.*):

> Tardis semper processibus aucta
> Crescit vita hominis et longo proficit usu.
> Sic aevi mortalis habet se mobilis ordo,
> Sic variat natura vices, infantia repit, etc.

Florus (*Epitome, ad init.*) had already divided Roman history into four periods corresponding to infancy, adolescence, manhood, and old age.

[2] Plutarch long ago saw the connection between the policy of Alexander and the cosmopolitan teaching of Zeno. *De Alexandri Magni virtute*, i. § 6.

Roman Empire, its theoretical justification, might be described as the realisation of the unity of the world by the establishment of a common order, the unification of mankind in a single world-embracing political organism. The term "world," *orbis* (*terrarum*), which imperial poets use freely in speaking of the Empire, is more than a mere poetical or patriotic exaggeration; it expresses the idea, the unrealised ideal of the Empire. There is a stone from Halicarnassus in the British Museum, on which the idea is formally expressed from another point of view. The inscription is of the time of Augustus, and the Emperor is designated as "saviour of the community of mankind." There we have the notion of the human race apprehended as a whole, the ecumenical idea, imposing upon Rome the task described by Virgil as *regere imperio populos*, and more humanely by Pliny as the creation of a single fatherland for all the peoples of the world.

This idea, which in the Roman Empire and in the Middle Ages took the form of a universal State and a universal Church, passed afterwards into the conception of the intercohesion of peoples as contributors to a common pool of civilisation — a principle which, when the idea of Progress at last made its appearance in the world, was to be one of the elements in its growth.

3

One remarkable man, the Franciscan friar Roger Bacon,[1] who stands on an isolated pinnacle of his

[1] *c.* A.D. 1210–92.

own in the Middle Ages, deserves particular consideration. It has been claimed for him that he announced the idea of Progress; he has even been compared to Condorcet or Comte. Such claims are based on passages taken out of their context and indulgently interpreted in the light of later theories. They are not borne out by an examination of his general conception of the universe and the aim of his writings.

His aim was to reform higher education and introduce into the universities a wide, liberal, and scientific programme of secular studies. His chief work, the *Opus Majus*, was written for this purpose, to which his exposition of his own discoveries was subordinate. It was addressed and sent to Pope Clement IV., who had asked Bacon to give him an account of his researches, and was designed to persuade the Pontiff of the utility of science from an ecclesiastical point of view, and to induce him to sanction an intellectual reform, which without the approbation of the Church would at that time have been impossible. With great ingenuity and resourcefulness he sought to show that the studies to which he was devoted—mathematics, astronomy, physics, chemistry—were indispensable to an intelligent study of theology and Scripture. Though some of his arguments may have been urged simply to capture the Pope's good-will, there can be no question that Bacon was absolutely sincere in his view that theology was the mistress (*dominatrix*) of the sciences and that their supreme value lay in being necessary to it.

It was, indeed, on this principle of the close interconnection of all branches of knowledge that

Bacon based his plea and his scheme of reform. And the idea of the "solidarity" of the sciences, in which he anticipated a later age, is one of his two chief claims to be remembered. It is the motif of the *Opus Majus*, and it would have been more fully elaborated if he had lived to complete the encyclopaedic work, *Scriptum Principale*, which he had only begun before his death. His other title to fame is well-known. He realised, as no man had done before him, the importance of the experimental method in investigating the secrets of nature, and was an almost solitary pioneer in the paths to which his greater namesake, more than three hundred years later, was to invite the attention of the world.

But, although Roger Bacon was inspired by these enlightened ideas, although he cast off many of the prejudices of his time and boldly revolted against the tyranny of the prevailing scholastic philosophy, he was nevertheless in other respects a child of his age and could not disencumber himself of the current medieval conception of the universe. His general view of the course of human history was not materially different from that of St. Augustine. When he says that the practical object of all knowledge is to assure the safety of the human race, he explains this to mean "things which lead to felicity in the next life."

It is pertinent to observe that he not only shared in the belief in astrology, which was then universal, but considered it one of the most important parts of "mathematics." It was looked upon with disfavour by the Church as a dangerous study; Bacon defended its use in the interests of the Church itself. He maintained, like Thomas Aquinas, the

physiological influence of the celestial bodies, and regarded the planets as signs telling us what God has decreed from eternity to come to pass either by natural processes or by acts of human will or directly at his own good pleasure. Deluges, plagues, and earthquakes were capable of being predicted; political and religious revolutions were set in the starry rubric. The existence of six principal religions was determined by the combinations of Jupiter with the other six planets. Bacon seriously expected the extinction of the Mohammedan religion before the end of the thirteenth century, on the ground of a prediction by an Arab astrologer.

One of the greatest advantages that the study of astrological lore will bring to humanity is that by its means the date of the coming of Anti-Christ may be fixed with certainty, and the Church may be prepared to face the perils and trials of that terrible time. Now the arrival of Anti-Christ meant the end of the world, and Bacon accepted the view, which he says was held by all wise men, that "we are not far from the times of Anti-Christ." Thus the intellectual reforms which he urged would have the effect, and no more, of preparing Christendom to resist more successfully the corruption in which the rule of Anti-Christ would involve the world. "Truth will prevail," by which he meant science will make advances, "though with difficulty, until Anti-Christ and his forerunners appear;" and on his own showing the interval would probably be short.

The frequency with which Bacon recurs to this subject, and the emphasis he lays on it, show that the appearance of Anti-Christ was a fixed point in his mental horizon. When he looked forward

into the future, the vision which confronted him was a scene of corruption, tyranny, and struggle under the reign of a barbarous enemy of Christendom; and after that, the end of the world. It is from this point of view that we must appreciate the observations which he made on the advancement of knowledge. "It is our duty," he says, "to supply what the ancients have left incomplete, because we have entered into their labours, which, unless we are asses, can stimulate us to achieve better results"; Aristotle corrected the errors of earlier thinkers; Avicenna and Averroes have corrected Aristotle in some matters and have added much that is new; and so it will go on till the end of the world. And Bacon quotes passages from Seneca's *Physical Inquiries* to show that the acquisition of knowledge is gradual. Attention has been already called to those passages, and it was shown how perverse it is, on the strength of such remarks, to claim Seneca as a teacher of the doctrine of Progress. The same claim has been made for Bacon with greater confidence, and it is no less perverse. The idea of Progress is glaringly incongruous with his vision of the world. If his programme of revolutionising secular learning had been accepted—it fell completely dead, and his work was forgotten for many ages,—he would have been the author of a progressive reform; but how many reformers have there been before and after Bacon on whose minds the idea of Progress never dawned?

4

Thus Friar Bacon's theories of scientific reform, so far from amounting to an anticipation of the idea

of Progress, illustrate how impossible it was that this idea could appear in the Middle Ages. The whole spirit of medieval Christianity excluded it. The conceptions which were entertained of the working of divine Providence, the belief that the world, surprised like a sleeping household by a thief in the night, might at any moment come to a sudden end, had the same effect as the Greek theories of the nature of change and of recurring cycles of the world. Or rather, they had a more powerful effect, because they were not reasoned conclusions, but dogmas guaranteed by divine authority. And medieval pessimism as to man's mundane condition was darker and sterner than the pessimism of the Greeks. There was the prospect of happiness in another sphere to compensate, but this, engrossing the imagination, only rendered it less likely that any one should think of speculating about man's destinies on earth.

III

I

The civilised countries of Europe spent about three hundred years in passing from the mental atmosphere of the Middle Ages into the mental atmosphere of the modern world. These centuries were one of the conspicuously progressive periods in history, but the conditions were not favourable to the appearance of an idea of Progress, though the intellectual *milieu* was being prepared in which that idea could be born.

This progressive period, which is conveniently called the Renaissance, lasted from the fourteenth into the seventeenth century. The great results, significant for our present purpose, which the human mind achieved at this stage of its development were two. Self-confidence was restored to human reason, and life on this planet was recognised as possessing a value independent of any hopes or fears connected with a life beyond the grave.

But in discarding medieval *naïveté* and superstition, in assuming a freer attitude towards theological authority, and in developing a new conception of the value of individual personality, men looked to the guidance of Greek and Roman thinkers, and called up the spirit of the ancient world to exorcise the ghosts of the dark ages. Their minds were thus directed backwards to a past civilisation which, in the ardour of new discovery, and in the reaction against medievalism, they enthroned as ideal; and a new authority was set up, the authority of ancient writers. In general speculation the men of the Renaissance followed the tendencies and adopted many of the prejudices of Greek philosophy. Although some great discoveries, with far-reaching, revolutionary consequences, were made in this period, most active minds were engaged in rediscovering, elaborating, criticising, and imitating what was old. It was not till the closing years of the Renaissance that speculation began to seek and feel its way towards new points of departure. It was not till then that a serious reaction set in against the deeper influences of medieval thought.

2

To illustrate the limitations of this period let us take Machiavelli, one of the most original thinkers that Italy ever produced.

There are certain fundamental principles underlying Machiavelli's science of politics, which he has indicated incidentally in his unsystematic way, but which are essential to the comprehension of his doctrines. The first is that at all times the world of human beings has been the same, varying indeed from land to land, but always presenting the same aspect of some societies advancing towards prosperity, and others declining. Those which are on the upward grade will always reach a point beyond which they cannot rise further, but they will not remain permanently on this level, they will begin to decline; for human things are always in motion and therefore must go up or down. Similarly, declining states will ultimately touch bottom and then begin to ascend. Thus a good constitution or social organisation can last only for a short time.

It is obvious that in this view of history Machiavelli was inspired and instructed by the ancients. And it followed from his premisses that the study of the past is of the highest value because it enables men to see what is to come; since to all social events at any period there are correspondences in ancient times. "For these events are due to men, who have and always had the same passions, and therefore of necessity the effects must be the same."

Again, Machiavelli follows his ancient masters

in assuming as evident that a good organisation of society can be effected only by the deliberate design of a wise legislator. Forms of government and religions are the personal creations of a single brain; and the only chance for a satisfactory constitution or for a religion to maintain itself for any length of time is constantly to repress any tendencies to depart from the original conceptions of its creator.

It is evident that these two assumptions are logically connected. The lawgiver builds on the immutability of human nature; what is good for one generation must be good for another. For Machiavelli, as for Plato, change meant corruption. Thus his fundamental theory excluded any conception of a satisfactory social order gradually emerging by the impersonal work of successive generations, adapting their institutions to their own changing needs and aspirations. It is characteristic, and another point of resemblance with ancient thinkers, that he sought the ideal state in the past —republican Rome.

These doctrines, the sameness of human nature and the omnipotent lawgiver, left no room for anything resembling a theory of Progress. If not held afterwards in the uncompromising form in which Machiavelli presented them, yet it has well been pointed out that they lay at the root of some of the most famous speculations of the eighteenth century.

3

Machiavelli's sameness of human nature meant that man would always have the same passions and desires, weaknesses and vices. This assumption

was compatible with the widely prevailing view that man had degenerated in the course of the last fifteen hundred years. From the exaltation of Greek and Roman antiquity to a position of unattainable superiority, especially in the field of knowledge, the degeneration of humanity was an easy and natural inference. If the Greeks in philosophy and science were authoritative guides, if in art and literature they were unapproachable, if the Roman republic, as Machiavelli thought, was an ideal state, it would seem that the powers of Nature had declined, and she could no longer produce the same quality of brain. So long as this paralysing theory prevailed, it is manifest that the idea of Progress could not appear.

But in the course of the sixteenth century men began here and there, somewhat timidly and tentatively, to rebel against the tyranny of antiquity, or rather to prepare the way for the open rebellion which was to break out in the seventeenth. Breaches were made in the proud citadel of ancient learning. Copernicus undermined the authority of Ptolemy and his predecessors; the anatomical researches of Vesalius injured the prestige of Galen; and Aristotle was attacked on many sides by men like Telesio, Cardan, Ramus, and Bruno. In particular branches of science an innovation was beginning which heralded a radical revolution in the study of natural phenomena, though the general significance of the prospect which these researches opened was but vaguely understood at the time. The thinkers and men of science were living in an intellectual twilight. It was the twilight of dawn. At one extremity we have

mysticism which culminated in the speculations of Bruno and Campanella; at the other we have the scepticism of Montaigne, Charron, and Sanchez. The bewildered condition of knowledge is indicated by the fact that while Bruno and Campanella accepted the Copernican astronomy, it was rejected by one who in many other respects may claim to be reckoned as a modern—I mean Francis Bacon.

But the growing tendency to challenge the authority of the ancients does not sever this period from the spirit which informed the Renaissance. For it is subordinate or incidental to a more general and important interest. To rehabilitate the natural man, to claim that he should be the pilot of his own course, to assert his freedom in the fields of art and literature had been the work of the early Renaissance. It was the problem of the later Renaissance to complete this emancipation in the sphere of philosophical thought. The bold metaphysics of Bruno, for which he atoned by a fiery death, offered the solution which was most unorthodox and complete. His deification of nature and of man as part of nature involved the liberation of humanity from external authority. But other speculative minds of the age, though less audacious, were equally inspired by the idea of freely interrogating nature, and were all engaged in accomplishing the programme of the Renaissance—the vindication of this world as possessing a value for man independent of its relations to any supermundane sphere. The raptures of Giordano Bruno and the sobrieties of Francis Bacon are here on common ground. The whole movement was a

necessary prelude to a new age of which science was to be the mistress.

It is to be noted that there was a general feeling of complacency as to the condition of learning and intellectual pursuits. This optimism is expressed by Rabelais. Gargantua, in a letter to Pantagruel, studying at Paris, enlarges to his son on the vast improvements in learning and education which had recently, he says, been brought about. "All the world is full of savants, learned teachers, large libraries; and I am of opinion that neither in the time of Plato nor of Cicero nor of Papinian were there such facilities for study as one sees now." It is indeed the study of the ancient languages and literatures that Gargantua considers in a liberal education, but the satisfaction at the present diffusion of learning, with the suggestion that here at least contemporaries have an advantage over the ancients, is the significant point. This satisfaction shines through the observation of Ramus that "in one century we have seen a greater progress in men and works of learning than our ancestors had seen in the whole course of the previous fourteen centuries."[1]

In this last stage of the Renaissance, which includes the first quarter of the seventeenth

[1] Guillaume Postel observed in his *De magistratibus Atheniensium liber* (1541) that the ages are always progressing (*secula semper proficere*), and every day additions are made to human knowledge, and that this process would only cease if Providence by war, or plague, or some catastrophe were to destroy all the accumulated stores of knowledge which have been transmitted from antiquity in books (*Praef.*, B verso). What is known of the life of this almost forgotten scholar has been collected by G. Weill (*De Gulielmi Postelli vita et indole*, 1892). He visited the East, brought back oriental MSS., and was more than once imprisoned on charges of heresy. He dreamed of converting the Mohammedans, and of uniting the whole world under the empire of France.

century, soil was being prepared in which the idea of Progress could germinate, and our history of its origin definitely begins with the work of two men who belong to this age, Bodin, who is hardly known except to special students of political science, and Bacon, who is known to all the world. Both had a more general grasp of the significance of their own time than any of their contemporaries, and though neither of them discovered a theory of Progress, they both made contributions to thought which directly contributed to its subsequent appearance.

CHAPTER I

SOME INTERPRETATIONS OF UNIVERSAL HISTORY: BODIN AND LE ROY

I

It is a long descent from the genius of Machiavelli to the French historian, Jean Bodin, who published his introduction to historical studies[1] about forty years after Machiavelli's death. His views and his method differ widely from those of that great pioneer, whom he attacks. His readers were not arrested by startling novelties or immoral doctrine; he is safe, and dull.

But Bodin had a much wider range of thought than Machiavelli, whose mind was entirely concentrated on the theory of politics; and his importance for us lies not in the political speculations by which he sought to prove that monarchy is the best form of government,[2] but in his attempt to substitute a new theory of universal history for that which prevailed in the Middle Ages. He rejected the popular conception of a golden age and a subsequent degeneration of mankind; and he refuted the view, generally current among medieval theologians, and based on the prophecies

[1] *Methodus ad facilem historiarum cognitionem*, 1566.
[2] *Les six livres de la République*, 1576.

of Daniel, which divided the course of history into four periods corresponding to the Babylonian, Persian, Macedonian, and Roman monarchies, the last of which was to endure till the day of Judgement. Bodin suggests a division into three great periods: the first, of about two thousand years, in which the South-Eastern peoples were predominant; the second, of the same duration, in which those whom he calls the Middle (Mediterranean) peoples came to the front; the third, in which the Northern nations who overthrew Rome became the leaders in civilisation. Each period is stamped by the psychological character of the three racial groups. The note of the first is religion, of the second practical sagacity, of the third warfare and inventive skill. This division actually anticipates the synthesis of Hegel.[1] But the interesting point is that it is based on anthropological considerations, in which climate and geography are taken into account; and, notwithstanding the crudeness of the whole exposition and the intrusion of astrological arguments, it is a new step in the study of universal history.

I have said that Bodin rejected the theory of the degeneration of man, along with the tradition of a previous age of virtue and felicity. The reason which he alleged against it is important. The powers of nature have always been uniform. It is illegitimate to suppose that she could at one time produce the men and conditions postulated by the theory of the golden age, and not produce them at another. In other words, Bodin asserts the

[1] Hegel's division is (1) the Oriental, (2) *a*, the Greek, *b*, the Roman, and (3) the Germanic worlds.

principle of the permanent and undiminishing capacities of nature, and, as we shall see in the sequel, this principle was significant. It is not to be confounded with the doctrine of the immutability of human things assumed by Machiavelli. The human scene has vastly changed since the primitive age of man; "if that so-called golden age could be revoked and compared with our own, we should consider it iron."[1] For history largely depends on the will of men, which is always changing; every day new laws, new customs, new institutions, both secular and religious, come into being, and new errors.[2]

But in this changing scene we can observe a certain regularity, a law of oscillation. Rise is followed by fall, and fall by rise; it is a mistake to think that the human race is always deteriorating.[3] If that were so, we should long ago have reached the lowest stage of vice and iniquity. On the contrary, there has been, through the series of oscillations, a gradual ascent. In the ages which have been foolishly designated as gold and silver men lived like the wild beasts; and from that state they have slowly reached the humanity of manners and the social order which prevail to-day.[4]

Thus Bodin recognises a general progress in the past. That is nothing new; it was the view, for instance, of the Epicureans. But much had passed in the world since the philosophy of

1 *Methodus*, cap. VII. p. 353.

2 *Ib.* cap. I. p. 12.

3 *Ib.* cap. VII. p. 361: "cum aeterna quadam lege naturae conversio rerum omnium velut in orbem redire videatur, ut aeque vitia virtutibus, ignoratio scientiae, turpe honesto consequens sit, atque tenebrae luci, fallunt qui genus hominum semper deterius seipso evadere putant."

4 *Ib.* p. 356.

Epicurus was alive, and Bodin had to consider twelve hundred years of new vicissitudes. Could the Epicurean theory be brought up to date?

2

Bodin deals with the question almost entirely in respect to human knowledge. In definitely denying the degeneration of man, Bodin was only expressing what many thinkers of the sixteenth century had been coming to feel, though timidly and obscurely. The philosophers and men of science, who criticised the ancients in special departments, did not formulate any general view on the privileged position of antiquity. Bodin was the first to do so.

Knowledge, letters, and arts have their vicissitudes, he says; they rise, increase, and flourish, and then languish and die. After the decay of Rome there was a long fallow period; but this was followed by a splendid revival of knowledge and an intellectual productivity which no other age has exceeded. The scientific discoveries of the ancients deserve high praise; but the moderns have not only thrown new light on phenomena which they had incompletely explained, they have made new discoveries of equal or indeed greater importance. Take, for instance, the mariner's compass which has made possible the circumnavigation of the earth and a universal commerce, whereby the world has been changed, as it were, into a single state.[1] Take

[1] Cardan had already signalised the compass, printing, and gunpowder as three modern inventions, to which "the whole of antiquity has nothing equal to show." He adds, "I pass over the other inventions of this age which, though wonderful, form rather a development of ancient arts than surpass the intellects of our ancestors." *De subtilitate*, lib. 3 *ad init.* (*Opera*, iii. p. 609).

the advances we have made in geography and astronomy; the invention of gunpowder; the development of the woollen and other industries. The invention of printing alone can be set against anything that the ancients achieved.[1]

An inference from all this, obvious to a modern reader, would be that in the future there will be similar oscillations, and new inventions and discoveries as remarkable as any that have been made in the past. But Bodin does not draw this inference. He confines himself to the past and present, and has no word to say about the vicissitudes of the future. But he is not haunted by any vision of the end of the world, or the coming of Antichrist; three centuries of humanism lay between him and Roger Bacon.

3

And yet the influence of medievalism, which it had been the work of those three centuries to overcome, was still pervasively there. Still more the authority of the Greeks and Romans, which had been set up by the revival of learning, was, without their realising it, heavy even upon thinkers like Bodin, who did not scruple freely to criticise ancient authors. And so, in his thoughtful attempt to find a clew to universal history, he was hampered by theological and cosmic theories, the legacy of the past. It is significant of the trend of his mind that when he is discussing the periodic decline of science and letters, he suggests that it may be due

[1] *Methodus*, cap. VII., pp. 359-61. Bodin also points out that there was an improvement, in some respects, in manners and morals since the early Roman Empire; for instance, in the abolition of gladiatorial spectacles (p. 359).

to the direct action of God, punishing those who misapplied useful sciences to the destruction of men.

But his speculations were particularly compromised by his belief in astrology, which, notwithstanding the efforts of humanists like Petrarch, Aeneas Sylvius, and Pico to discredit it, retained its hold over the minds of many eminent, otherwise emancipated, thinkers throughout the period of the Renaissance. Here Bodin is in the company of Machiavelli and Lord Bacon. But not content with the doctrine of astral influence on human events, he sought another key to historical changes in the influence of numbers, reviving the ideas of Pythagoras and Plato, but working them out in a way of his own. He enumerates the durations of the lives of many famous men, to show that they can be expressed by powers of 7 and 9, or the product of these numbers. Other numbers which have special virtues are the powers of 12, the perfect number[1] 496, and various others. He gives many examples to prove that these mystic numbers determine the durations of empires and underlie historical chronology. For instance, the duration of the oriental monarchies from Ninus to the Conquest of Persia by Alexander the Great was 1728 ($=12^3$) years. He gives the Roman republic from the foundation of Rome to the battle of Actium 729 ($=9^3$) years.

4

From a believer in such a theory, which illustrates the limitations of men's outlook on the world in the Renaissance period, we could perhaps

[1] *I.e.* a number equal to the sum of all its factors.

hardly expect a vision of Progress. The best that can be said for it is that, both here and in his astrological creed, Bodin is crudely attempting to bring human history into close connection with the rest of the universe, and to establish the view that the whole world is built on a divine plan by which all the parts are intimately interrelated. He is careful, however, to avoid fatalism. He asserts, as we have seen, that history depends largely on the will of men. And he comes nearer to the idea of Progress than any one before him; he is on the threshold.

For if we eliminate his astrological and Pythagorean speculations, and various theological parentheses which do not disturb his argument, his work announces a new view of history which is optimistic regarding man's career on earth, without any reference to his destinies in a future life. And in this optimistic view there are three particular points to note, which were essential to the subsequent growth of the idea of Progress. In the first place, the decisive rejection of the theory of degeneration, which had been a perpetual obstacle to the apprehension of that idea. Secondly, the unreserved claim that his own age was fully equal, and in some respects superior, to the age of classical antiquity, in respect of science and the arts. He leaves the ancients reverently on their pedestal, but he erects another pedestal for the moderns, and it is rather higher. We shall see the import of this when we come to consider the intellectual movement in which the idea of Progress was afterwards to emerge. In the third place, he had a conception of the common interest of all the peoples of the

earth, a conception which corresponded to the old ecumenical idea of the Greeks and Romans,[1] but had now a new significance through the discoveries of modern navigators. He speaks repeatedly of the world as a universal state, and suggests that the various races, by their peculiar aptitudes and qualities, contribute to the common good of the whole. This idea of the "solidarity" of peoples was to be an important element in the growth of the doctrine of Progress.

These ideas were in the air. Another Frenchman, the classical scholar, Louis Le Roy, translator of Plato and Aristotle, put forward similar views in a work of less celebrity, *On the Vicissitude or Variety of the Things in the Universe.*[2] It contains a survey of great periods in which particular peoples attained an exceptional state of dominion and prosperity, and it anticipates later histories of civilisation by dwelling but slightly on political events and bringing into prominence human achievements in science, philosophy, and the arts. Beginning with the advance of man from primitive rudeness to ordered society—a sketch based on the conjectures of Plato in the *Protagoras*—Le Roy reviews the history, and estimates the merits, of the Egyptians, Assyrians and Persians, the Greeks, Romans and Saracens, and finally of the modern age. The facts, he thinks, establish the proposition that the art of warfare, eloquence, philosophy, mathematics, and the fine arts, generally flourish and decline together.

[1] See above, p. 23.

[2] *De la vicissitude ou variété des choses en l'univers*, 1577, 2nd ed. (which I have used), 1584.

But they do decline. Human things are not perpetual; all pass through the same cycle—beginning, progress, perfection, corruption, end. This, however, does not explain the succession of empires in the world, the changes of the scene of prosperity from one people or set of peoples to another. Le Roy finds the cause in providential design. God, he believes, cares for all parts of the universe and has distributed excellence in arms and letters now to Asia, now to Europe, again to Africa, letting virtue and vice, knowledge and ignorance travel from country to country, that all in their turn may share in good and bad fortune, and none become too proud through prolonged prosperity.

But what of the modern age in Western Europe? It is fully the equal, he assevers, of the most illustrious ages of the past, and in some respects it is superior. Almost all the liberal and mechanical arts of antiquity, which had been lost for about 1200 years, have been restored, and there have been new inventions, especially printing, and the mariner's compass, and "I would give the third place to gunnery but that it seems invented rather for the ruin than for the utility of the human race." In our knowledge of astronomy and cosmography we surpass the ancients. "We can affirm that the whole world is now known, and all the races of men; they can interchange all their commodities and mutually supply their needs, as inhabitants of the same city or world-state." And hence there has been a notable increase of wealth.

Vice and suffering, indeed, are as grave as ever, and we are afflicted by the trouble of heresies; but

this does not prove a general deterioration of morals. If that inveterate complaint, the refrain chanted by old men in every age, were true, the world would already have reached the extreme limit of wickedness, and integrity would have disappeared utterly. Seneca long ago made the right criticism. *Hoc maiores nostri questi sunt, hoc nos querimur, hoc posteri nostri querentur, eversos esse mores. . . . At ista stant loco eodem.* Perhaps Le Roy was thinking particularly of that curious book the *Apology for Herodotus*, in which the eminent Greek scholar, Henri Estienne, exposed with Calvinistic prejudice the iniquities of modern times and the corruption of the Roman Church.[1]

But if we are to judge by past experience, does it not follow that this modern age must go the same way as the great ages of the past which it rivals or even surpasses? Our civilisation, too, having reached perfection, will inevitably decline and pass away: is not this the clear lesson of history? Le Roy does not shirk the issue; it is the point to which his whole exposition has led and he puts it vividly.

"If the memory of the past is the instruction of the present and the premonition of the future, it is to be feared that having reached so great excellence, power, wisdom, studies, books, industries will decline, as has happened in the past, and disappear —confusion succeeding to the order and perfection of to-day, rudeness to civilisation, ignorance to knowledge. I already foresee in imagination

[1] *L'Introduction au traité de la conformité des merveilles anciennes avec les modernes, ou traité préparatif à l'Apologie pour Hérodote*, ed. Ristelhuber, 2 vols., 1879. The book was published in 1566.

nations, strange in form, complexion, and costume, overwhelming Europe — like the Goths, Huns, Vandals, Lombards, Saracens of old—destroying our cities and palaces, burning our libraries, devastating all that is beautiful. I foresee in all countries wars, domestic and foreign, factions and heresies which will profane all things human and divine; famines, plagues, and floods; the universe approaching an end, world-wide confusion, and the return of things to their original chaos." [1]

But having conducted us to this pessimistic conclusion Le Roy finds it repugnant, and is unwilling to acquiesce in it. Like an embarrassed dramatist he escapes from the knot which he has tied by introducing the *deus ex machina*.

"However much these things proceed according to the fatal law of the world, and have their natural causes, yet events depend principally on Divine Providence which is superior to nature and alone knows the predetermined times of events." That is to say, it depends, after all, on Providence whether the argument from past experience is valid. Who knows whether the modern age may not prove the exception to the law which has hitherto prevailed? Let us act as if it would.

This is the practical moral that Le Roy enforces in the last book of his dissertation. We must not allow ourselves to be paralysed or dismayed by the destinies of past civilisations, but must work hard to transmit to posterity all that has been achieved, and augment the discoveries of the past by new

[1] It is characteristic of the age that in the last sentence the author goes beyond the issue and contemplates the possibility which still haunted men's minds that the end of the world might not be far off.

researches. For knowledge is inexhaustible. "Let us not be so simple as to believe that the ancients have known and said everything and left nothing to their successors. Or that nature gave them all her favours in order to remain sterile ever after." Here Le Roy lays down Bodin's principle which was to be asserted more urgently in the following century —the permanence of natural forces. Nature is the same now as always, and can produce as great intellects as ever. The elements have the same power, the constellations keep their old order, men are made of the same material. There is nothing to hinder the birth in this age of men equal in brains to Plato, Aristotle, or Hippocrates.

Philosophically, Le Roy's conclusion is lame enough. We are asked to set aside the data of experience and act on an off-chance. But the determination of the optimist to escape from the logic of his own argument is significant. He has no conception of an increasing purpose or underlying unity in the history of man, but he thinks that Providence — the old Providence of St. Augustine, who arranged the events of Roman history with a view to the coming of Christ—may, for some unknown reason, prolong indefinitely the modern age. He is obeying the instinct of optimism and confidence which was already beginning to create the appropriate atmosphere for the intellectual revolution of the coming century.

His book was translated into English, but neither in France nor in England had it the same influence as the speculations of Bodin. But it insinuated, as the reader will have observed, the same three views which Bodin taught, and must

have helped to propagate them: that the world has not degenerated; that the modern age is not inferior to classical antiquity; and that the races of the earth form now a sort of "mundane republic."

CHAPTER II

UTILITY THE END OF KNOWLEDGE: BACON

I

AMONG the great precursors of a new order of thought Francis Bacon occupies a unique position. He drew up a definite programme for a "great Renovation" of knowledge; he is more clearly conscious than his contemporaries of the necessity of breaking with the past and making a completely new start; and his whole method of thought seems intellectually nearer to us than the speculations of a Bruno or a Campanella. Hence it is easy to understand that he is often regarded, especially in his own country, as more than a precursor, as the first philosopher of the modern age, definitely within its precincts.

It is not indeed a matter of fundamental importance how we classify these men who stood on the border of two worlds, but it must be recognised that if in many respects Bacon is in advance of contemporaries who cannot be dissociated from the Renaissance, in other respects, such as belief in astrology and dreams, he stands on the same ground, and in one essential point—which might almost be taken as the test of mental progress at this period—

Bruno and Campanella have outstripped him. For him Copernicus, Kepler, and Galileo worked in vain; he obstinately adhered to the old geocentric system.

It must also be remembered that the principle which he laid down in his ambitious programme for the reform of science—that experiment is the key for discovering the secrets of nature—was not a new revelation. We need not dwell on the fact that he had been anticipated by Roger Bacon; for the ideas of that wonderful thinker had fallen dead in an age which was not ripe for them. But the direct interrogation of nature was already recognised both in practice and in theory in the sixteenth century. What Bacon did was to insist upon the principle more strongly and explicitly, and to formulate it more precisely. He clarified and explained the progressive ideas which inspired the scientific thought of the last period of the European Renaissance, from which he cannot, I think, be dissociated.

But in clearing up and defining these progressive ideas, he made a contribution to the development of human thought which had far-reaching importance and has a special significance for our present subject. In the hopes of a steady increase of knowledge, based on the application of new methods, he had been anticipated by Roger Bacon, and further back by Seneca. But with Francis Bacon this idea of the augmentation of knowledge has an entirely new value. For Seneca the exploration of nature was a means of escaping from the sordid miseries of life. For the friar of Oxford the principal use of increasing knowledge was to prepare for the coming of Antichrist. Francis Bacon sounded the modern note; for him the end of knowledge is utility.

2

The principle that the proper aim of knowledge is the amelioration of human life, to increase men's happiness and mitigate their sufferings—*commodis humanis inservire*—was the guiding star of Bacon in all his intellectual labour. He declared the advancement of "the happiness of mankind" to be the direct purpose of the works he had written or designed. He considered that all his predecessors had gone wrong because they did not apprehend that the *finis scientiarum*, the real and legitimate goal of the sciences, is "the endowment of human life with new inventions and riches"; and he made this the test for defining the comparative values of the various branches of knowledge.

The true object, therefore, of the investigation of nature is not, as the Greek philosophers held, speculative satisfaction, but to establish the reign of man over nature; and this Bacon judged to be attainable, provided new methods of attacking the problems were introduced. Whatever may be thought of his daring act in bringing natural science down from the clouds and assigning to her the function of ministering to the material convenience and comfort of man, we may criticise Bacon for his doctrine that every branch of science should be pursued with a single eye towards practical use. Mathematics, he thought, should conduct herself as a humble, if necessary, handmaid, without any aspirations of her own. But it is not thus that the great progress in man's command over nature since Bacon's age has been effected. Many of the most valuable and surprising things which science has

succeeded in doing for civilisation would never have been performed if each branch of knowledge were not guided by its own independent ideal of speculative completeness.[1] But this does not invalidate Bacon's pragmatic principle, or diminish the importance of the fact that in laying down the utilitarian view of knowledge he contributed to the creation of a new mental atmosphere in which the theory of Progress was afterwards to develop.

3

Bacon's respect for the ancients and his familiarity with their writings are apparent on almost every page he wrote. Yet it was one of his principal endeavours to shake off the yoke of their authority, which he recognised to be a fatal obstacle to the advancement of science. "Truth is not to be sought in the good fortune of any particular conjuncture of time"; its attainment depends on experience, and how limited was theirs. In their age "the knowledge both of time and of the world was confined and meagre; they had not a thousand years of history worthy of that name, but mere fables and ancient traditions; they were not acquainted with but a small portion of the regions and countries of the world." In all their systems and scientific speculation "there is hardly one single experiment that has a tendency to assist mankind." Their theories were founded on opinion, and therefore science has remained stationary for the last two thousand years; whereas mechanical arts, which are founded on nature and experience, grow and increase.

[1] This was to be well explained by Fontenelle, Préface sur l'utilité des mathématiques, in *Œuvres* (ed. 1729), iii. 1 *sqq*.

In this connection, Bacon points out that the word "antiquity" is misleading, and makes a remark which will frequently recur in writers of the following generations. *Antiquitas seculi iuventus mundi*; what we call antiquity and are accustomed to revere as such was the youth of the world. But it is the old age and increasing years of the world—the time in which we are now living—that deserves in truth to be called antiquity. We are really the ancients, the Greeks and Romans were younger than we, in respect to the age of the world. And as we look to an old man for greater knowledge of the world than from a young man, so we have good reason to expect far greater things from our own age than from antiquity, because in the meantime the stock of knowledge has been increased by an endless number of observations and experiments. Time is the great discoverer, and truth is the daughter of time, not of authority.

Take the three inventions which were unknown to the ancients—printing, gunpowder, and the compass. These "have changed the appearance and state of the whole world; first in literature, then in warfare, and lastly in navigation; and innumerable changes have been thence derived, so that no empire, sect, or star appears to have exercised a greater power or influence on human affairs than these mechanical discoveries."[1] It was perhaps the results of navigation and the exploration of unknown lands that impressed Bacon more than all, as they had impressed Bodin. Let me quote one passage.

[1] *Nov. Org.* 129. We have seen that these three inventions had already been classed together as outstanding by Cardan and Le Roy. They also appear in Campanella. Bodin, as we saw, included them in a longer list.

"It may truly be affirmed to the honour of these times, and in a virtuous emulation with antiquity, that this great building of the world had never through-lights made in it till the age of us and our fathers. For although they [the ancients] had knowledge of the antipodes . . . yet that mought be by demonstration, and not in fact; and if by travel, it requireth the voyage but of half the earth. But to circle the earth, as the heavenly bodies do, was not done nor enterprised till these later times: and therefore these times may justly bear in their word . . . *plus ultra* in precedence of the ancient *non ultra*. . . . And this proficience in navigation and discoveries may plant also an expectation of the further proficience and augmentation of all sciences, because it may seem that they are ordained by God to be coevals, that is, to meet in one age. For so the prophet Daniel, speaking of the latter times foretelleth, *Plurimi pertransibunt, et multiplex erit scientia*: as if the openness and through-passage of the world and the increase of knowledge were appointed to be in the same ages; as we see it is already performed in great part: the learning of these later times not much giving place to the former two periods or returns of learning, the one of the Grecians, the other of the Romans."

In all this we have a definite recognition of the fact that knowledge progresses. Bacon did not come into close quarters with the history of civilisation, but he has thrown out some observations which amount to a rough synthesis. Like Bodin, he divided history into three periods—(1) the antiquities of the world; (2) the middle part of time which comprised two sections, the Greek and the Roman;

(3) "modern history," which included what we now call the Middle Ages. In this sequence three particular epochs stand out as fertile in science and favourable to progress—the Greek, the Roman, and our own—"and scarcely two centuries can with justice be assigned to each." The other periods of time are deserts, so far as philosophy and science are concerned. Rome and Greece are "two exemplar States of the world for arms, learning, moral virtue, policy, and laws." But even in those two great epochs little progress was made in natural philosophy. For in Greece moral and political speculation absorbed men's minds; in Rome, meditation and labour were wasted on moral philosophy, and the greatest intellects were devoted to civil affairs. Afterwards, in the third period, the study of theology was the chief occupation of the Western European nations. It was actually in the earliest period that the most useful discoveries for the comfort of human life were made, "so that, to say the truth, when contemplation and doctrinal science began, the discovery of useful works ceased."

So much for the past history of mankind, during which many things conspired to make progress in the subjugation of nature slow, fitful, and fortuitous. What of the future? Bacon's answer is: if the errors of the past are understood and avoided there is every hope of steady progress in the modern age.

But it might be asked, Is there not something in the constitution of things which determines epochs of stagnation and vigour, some force against which man's understanding and will are impotent? Is it not true that in the revolutions of ages there are

floods and ebbs of the sciences, which flourish now and then decline, and that when they have reached a certain point they can proceed no further? This doctrine of Returns or *ricorsi*[1] is denounced by Bacon as the greatest obstacle to the advancement of knowledge, creating, as it does, diffidence or despair. He does not formally refute it, but he marshals the reasons for an optimistic view, and these reasons supply the disproof. The facts on which the fatalistic doctrine of Returns is based can be explained without resorting to any mysterious law. Progress has not been steady or continuous on account of the prejudices and errors which hindered men from setting to work in the right way. The difficulties in advancing did not arise from things which are not in our power; they were due to the human understanding, which wasted time and labour on improper objects. "In proportion as the errors which have been committed impeded the past, so do they afford reason to hope for the future."

4

But will the new period of advance, which Bacon expected and strove to secure, be of indefinite duration? He does not consider the question. His view that he lived in the old age of the world implies that he did not anticipate a vast tract of time before the end of mankind's career on earth. And an orthodox Christian of that time could hardly be expected to predict. The impression we get is that, in his sanguine enthusiasm, he imagined that a "prudent interrogation" of nature could extort

[1] Bodin's *conversiones*.

all her secrets in a few generations. As a reformer he was so engaged in the immediate prospect of results that his imagination did not turn to the possibilities of a remoter future, though these would logically follow from his recognition of "the inseparable propriety of time which is ever more and more to disclose truth." He hopes everything from his own age in which learning has made her third visitation to the world, a period which he is persuaded will far surpass that of Grecian and Roman learning. If he could have revisited England in 1700 and surveyed what science had performed since his death his hopes might have been more than satisfied.

But, animated though he was with the progressive spirit, as Leonardo da Vinci had been before him, all that he says of the prospects of an increase of knowledge fails to amount to the theory of Progress. He prepares the way, he leads up to it; but his conception of his own time as the old age of humanity excludes the conception of an indefinite advance in the future, which is essential if the theory is to have significance and value. And in regard to progress in the past, though he is clearer and more emphatic than Bodin, he hardly adds anything to what Bodin had observed. The novelty of his view lies not in his recognition of the advance of knowledge and its power to advance still further, but in the purpose which he assigned to it. The end of the sciences is their usefulness to the human race. To increase knowledge is to extend the dominion of man over nature, and so to increase his comfort and happiness, so far as these depend on external circumstances. To Plato or Seneca, or to a Christian

dreaming of the City of God, this doctrine would seem material and trivial; and its announcement was revolutionary: for it implied that happiness on earth was an end to be pursued for its own sake, and to be secured by co-operation for mankind at large. This idea is an axiom which any general doctrine of Progress must presuppose; and it forms Bacon's great contribution to the group of ideas which rendered possible the subsequent rise of that doctrine.

Finally, we must remember that by Bacon, as by most of his Elizabethan contemporaries, the doctrine of an active intervening Providence, the Providence of Augustine, was taken as a matter of course, and governed more or less their conceptions of the history of civilisation. But, I think, we may say that Bacon, while he formally acknowledged it, did not press it or emphasise it.

5

Bacon illustrated his view of the social importance of science in his sketch of an ideal state, the *New Atlantis*. He completed only a part of the work, and the fragment was published after his death.[1] It is evident that the predominating interest that moved his imagination was different from that

[1] In 1627. It was composed about 1623. It seems almost certain that he was acquainted with the *Christianopolis* of Johann Valentin Andreae (1586–1654), which had appeared in Latin in 1614, and contained a plan for a scientific college to reform the civilised world. Andreae, who was acquainted both with More and with Campanella, placed his ideal society in an island which he called Caphar Salama (the name of a village in Palestine). Andreae's work had also a direct influence on the *Nova Solyma* of Samuel Gott (1648). See the Introduction of F. E. Held to his edition of *Christianopolis* (1916). In Macaria, another imaginary state of the seventeenth century (*A description of the famous Kingdome of Macaria*, 1641, by Hartlib), the pursuit of science is not a feature.

which guided Plato. While Plato aimed at securing a permanent solid order founded on immutable principles, the design of Bacon was to enable his imaginary community to achieve dominion over nature by progressive discoveries. The heads of Plato's city are metaphysicians, who regulate the welfare of the people by abstract doctrines established once for all; while the most important feature in the *New Atlantis* is the college of scientific investigators, who are always discovering new truths which may alter the conditions of life. Here, though only in a restricted field, an idea of progressive improvement, which is the note of the modern age, comes in to modify the idea of a fixed order which exclusively prevailed in ancient speculation.

On the other hand, we must not ignore the fact that Bacon's ideal society is established by the same kind of agency as the ideal societies of Plato and Aristotle. It has not developed; it was framed by the wisdom of an original legislator Solamona. In this it resembles the other imaginary commonwealths of the sixteenth and seventeenth centuries. The organisation of More's *Utopia* is fixed initially once for all by the lawgiver Utopus. The origin of Campanella's *Civitas Solis* is not expressly stated, but there can be no doubt that he conceived its institutions as created by the fiat of a single lawgiver. Harrington, in his *Oceana*, argues with Machiavelli that a commonwealth, to be well turned, must be the work of one man, like a book or a building.

What measure of liberty Bacon would have granted to the people of his perfect state we cannot

say; his work breaks off before he comes to describe their condition. But we receive the impression that the government he conceived was strictly paternal, though perhaps less rigorous than the theocratic despotism which Campanella, under Plato's influence, set up in the City of the Sun. But even Campanella has this in common with More—and we may be sure that Bacon's conception would have agreed here—that there are no hard-and-fast lines between the classes, and the welfare and happiness of all the inhabitants is impartially considered, in contrast with Plato's scheme in the *Laws*, where the artisans and manual labourers were an inferior caste existing less for their own sake than for the sake of the community as a whole.[1]

It may finally be pointed out that these three imaginary commonwealths stand together as a group, marked by a humaner temper than the ancient, and also by another common characteristic which distinguishes them, on one hand, from the ideal states of Plato and, on the other, from modern sketches of desirable societies. Plato and Aristotle conceived their constructions within the geographical limits of Hellas, either in the past or in the present. More, Bacon, and Campanella placed theirs in distant seas, and this remoteness in space helped to create a certain illusion of reality. The modern plan is to project the perfect society into a period of future time. The device of More and his successors was suggested by the maritime explorations of the fifteenth and sixteenth centuries; the later method was a result of the rise of the idea of Progress.

[1] This however does not apply to the *Republic*, as is so commonly asserted. See the just criticisms of A. A. Trever, *A History of Greek Economic Thought* (Chicago, 1916), 49 *sqq*.

6

A word or two more may be said about the City of the Sun. Campanella was as earnest a believer in the interrogation of nature as Bacon, and the place which science and learning hold in his state (although research is not so prominent as in the *New Atlantis*), and the scientific training of all the citizens, are a capital feature. The progress in inventions, to which science may look forward, is suggested. The men of the City of the Sun "have already discovered the one art which the world seemed to lack—the art of flying; and they expect soon to invent ocular instruments which will enable them to see the invisible stars and auricular instruments for hearing the harmony of the spheres." Campanella's view of the present conditions and prospects of knowledge is hardly less sanguine than that of Bacon, and characteristically he confirms his optimism by astrological data. "If you only knew what their astrologers say about the coming age. Our times, they assert, have more history in a hundred years than the whole world in four thousand. More books have been published in this century than in five thousand years before. They dwell on the wonderful inventions of printing, of artillery, and of the use of the magnet,—clear signs of the times —and also instruments for the assembling of the inhabitants of the world into one fold," and show that these discoveries were conditioned by stellar influences.

But Campanella is not very sure or clear about the future. Astrology and theology cause him to hesitate. Like Bacon, he dreams of a great Renova-