THE LIFE AND WRITINGS

OF

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BY

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On the Successive Advances of the Human Mind.[1]

THE phenomena of Nature, subjected to constant laws, are confined in a circle of ever the same revolutions. All perishes and all revives; in these successive generations, by which vegetables and animals reproduce themselves, time only gathers back in each case the image of what it had made disappear.

The succession of man, on the contrary, offers from age to age a spectacle ever varied. Reason, the passions, liberty, incessantly produce new events. All the ages are linked together by a sequence of causes and effects which connect the existing state of the world with all that has preceded it. The multiform signs of language and of writing, by giving to men the means of insuring the possession of their ideas and of communicating them to others, have made of all the individual funds of knowledge a common treasure, which one generation transmits to the next, along with an inheritance always increased by the discoveries of each age; thus the human race seen from its origin appears to the eye of a philosopher as one vast whole which itself, like each individual composing it, has had its infancy and its development.

We see societies establishing themselves, nations forming themselves, which in turn dominate over other nations or become subject to them. Empires rise and fall; laws, forms of government, one succeeding another; the arts, the sciences, are discovered and are cultivated, sometimes retarded and

[1] See *supra* pp. 8, 9.

sometimes accelerated in their progress, they pass from one region to another. Self-interest, ambition, vainglory, perpetually change the scene of the world, inundate the earth with blood. Yet in the midst of their ravages manners are gradually softened, the human mind takes enlightenment, separate nations draw nearer to each other, commerce and policy connect at last all parts of the globe, and the total mass of the human race, by the alternations of calm and agitation, of good conditions and of bad, marches always, although slowly, towards still higher perfection.[1]

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The most sublime mental attainments are only, and can be only, founded upon our ideas of sensation, developed and combined; just as the edifice, whose towering height most excites our admiration, necessarily [has its materials derived from and] is supported by the earth we tread on. The same senses, the same organs, the spectacle of the same universe, have everywhere given to men the same ideas, as the same needs and the same inclinations have everywhere taught them the same arts.

A faint brightness commences to penetrate the long night that rested on all nations, and spreads itself from one place to another. The inhabitants of Chaldæa, nearest neighbours to the source of the first traditions, the Egyptians, the Chinese, appear to surpass the rest of the peoples; others follow them far off; progress leads to further progress. The inequality of nations increases: here the arts commence to rise, there they advance at a rapid rate towards perfection. Some nations further back are arrested in their mediocrity, elsewhere the original darkness is not dissipated. By this infinitely varied inequality the actual state of the universe, in presenting at the same time all the shades of barbarism and of civilisation, shows us in some sort under one view the

[1] 'The opening lines are among the most pregnant, as they are among the most original, in the history of literature, and reveal in an outline standing clear against the light a thought which revolutionised old methods of viewing and describing the course of human affairs, and contained the germs of a new and most fruitful philosophy of society.' (J. Morley, *Crit. Misc.* ii. 26.)

monuments and vestiges, and all the steps of the human mind, the reflection of all the degrees through which it has passed—in short, the history of all the ages.

Is not Nature, then, everywhere the same?—and if she conducts all men to the same truths, if even their errors are alike, how is it that they do not march at an equal pace on the road which is traced for them? Doubtless the human mind everywhere contains the germ of the same progress, but Nature, unequal in her benefits, has given to certain minds an abundance of talents which she has refused to others; circumstances develope these talents, or leave them buried in obscurity, and to the infinite variety of these circumstances is due the inequality in the progress of nations.

Barbarism makes all men equal. In the early times those born with genius find always the same obstacles. Meanwhile societies form themselves and expand, national hatreds, ambition, or rather greed, the only ambition of barbarous peoples, multiply ravages and war. Conquests, revolutions, mix in a thousand ways peoples, languages, manners. Chains of mountains, great rivers and seas, by confining within certain limits the arenas of peoples, and consequently of their intermingling, produce independent languages. These become a tie between nations, and eventually gather into certain great divisions the nations of the world. Tillage causes dwellings to be less temporary, it is able to feed more men than are employed in it, and hence imposes on those left idle the necessity of rendering themselves either useful or formidable to the cultivators. Hence towns, commerce, trades, the lesser arts, the separation of employments, the difference of education, the increased inequality of conditions, hence that leisure by which genius, relieved of the weight of the first necessities, emerges from the narrow sphere in which they retained it, and directs all its strength to the culture of the sciences. Hence that more vigorous and more rapid movement of the human mind, which carries with it all sections of society, and in turn derives from their advance-

ment an increased energy. The passions develope themselves along with genius; ambition takes strength, political conditions lend to it always vaster views, victories have results more durable, and empires are formed whose laws, manners, and government, acting diversely upon genius, become a sort of general education for nations, and put between one people and another the same difference that education puts between one man and another.

United, divided, one raised on the ruins of others, empires rapidly succeed each other. Their revolutions bring about all possible states, they combine and separate all the elements of political bodies. There occurs an ebb and a flow of power, from one nation to another, and in the same nation from princes to the multitude, and from the multitude to princes. From these settlements and unsettlements everything approaches by degrees to an equilibrium, and takes at last a more permanent and tranquil condition. Ambition, by forming great states out of the fragments of many smaller ones, places limits to its own ravages; war does not desolate except around the frontiers of empires; towns and country places begin to breathe in the bosom of peace; the ties of society unite a greater number of men; the communication of ideas becomes more prompt and further spread; the arts, sciences, and manners make progress at a more rapid rate. Thus, like the tempest which has agitated the waves of the sea, the evils inseparable from revolutions disappear, the good remains, and Humanity perfects itself. . . .

Genius, whose steps are at first slow, unknown, buried in the general oblivion into which time precipitates human affairs, emerges with them from obscurity by the invention of writing. Inestimable invention, that seemed to give to those peoples who first possessed it wings that enabled them to distance other nations—inestimable invention, that snatches from the power of death the memory of great men and the examples of virtue, unites places and times, fixes fugitive thought and assures for it a durable existence, by which the productions, the opinions, the experiences, the

discoveries of all ages accumulated, serve as a basis and a step to posterity that it may raise itself still higher.

But what a spectacle is presented by the succession of the opinions of men! I seek there the progress of the human mind, and I see almost nothing but the history of its errors. Why is its march, which is so sure from the very first steps in the study of mathematics, so unsteady on all other roads, and so subject to wander astray? Let us try to discover the reasons. In mathematics the mind works out a chain of propositions, the one deduced from the other, the truth of which is demonstrated by their mutual dependence. It is different with the other sciences, in which it is not through the comparison of ideas between themselves that the truth of knowledge is reached, but through their conformity with a sequence of real facts. In order to discover truth and to establish it, the point in question is no longer the mere laying down of a small number of simple principles from which the mind has only to let itself be carried on along the line of consequences; it is necessary to start from Nature, just as she is, and from that infinite diversity of effects towards which have concurred so many causes counterbalanced one by another. Notions are no longer assemblages of ideas that the mind forms at its will, and the extent of which it knows exactly. Ideas rise and collect themselves in our mind almost unconsciously; the images of objects come assailing it in the cradle; by degrees we learn to distinguish them, less in respect to what they are in themselves than by their relation to our habits and to our needs. The signs of language impress themselves on the mind while yet feeble, connect themselves by means of habit and imitation at first to particular objects, then succeed in calling up more general notions. This chaos of ideas and of expressions is incessantly increased and confused, and man when he begins to seek for truth finds himself in the midst of a labyrinth which he enters blindfold. Can we wonder at his errors?

Spectator of the universe, his senses, while experiencing effects, leave him ignorant of causes; to seek by the examina-

tion of effects for their unknown cause is to divine an enigma, to imagine one or several words to solve it, to try each successively until one is met with which fulfils all the conditions. The natural philosopher forms hypotheses, follows them to their consequences, applies them to the enigma of Nature, tries them, so to speak, upon the facts, as one verifies a seal by applying it to its impression. Suppositions imagined according to a small number of deficiently known effects yield to other suppositions less absurd but still incorrect. Time, research, chance, accumulate observations, and unveil the hidden connections that unite the several phenomena.

The curiosity of man, ever unsatisfied, incapable of finding repose elsewhere than in the truth, ever excited by the image of that truth which it believes itself to have touched, but which flies before it, still multiplies questions and disputes, and compels him to analyse ideas and facts in a manner always more exact and more profound. Mathematical truths becoming from day to day increased in number, and hence more fruitful, lend themselves to develope more extended and more precise hypotheses, and indicate new experiences which, in their turn, present new problems for mathematics to resolve. Thus the need perfects the instrument, thus mathematical science rests in and illumines physics, thus everything is connected, thus, in spite of the inequality in their steps, all sciences acquire, each from all the others, a mutual support, and thus by dint of grouping, by multiplying of systems, one after another, and by exhausting these of errors, man arrives at last to the certain knowledge of a vast number of truths. . . .

Ill-fated are those nations which, by a blind zeal for the sciences themselves, wish to confine them within the limits of existing knowledge. It is from this cause that the regions which were the first to be enlightened are not those which have made the most real progress. The respect which the grandeur of novelty in an expanding philosophy impresses upon men tends to perpetuate their first conceptions, and

then the spirit of sect is introduced. This spirit was natural to the first philosophers because pride nourishes itself upon ignorance; because the less we know the less we doubt, the less we have discovered, the less we see what remains to be discovered. In Egypt, and for long before in India, superstition which treated the dogmas of ancient philosophers as the patrimony of sacerdotal families by consecrating them, incorporated them with the dogmas of a false religion. In Upper Asia political despotism, the effect of the establishment of great empires during the barbarous ages, and the civil despotism born of slavery and of the plurality of wives, which is a consequence of it, the effeminacy of princes, the degradation of their subjects; in China the very care that the emperors took to regulate studies and to mingle sciences with the political constitution of the state, all tended to retain for ever the sciences in mediocrity. . . .

Time flows on and new peoples are formed through the inequality in the progress of nations. Peoples civilised surrounded by barbarians, sometimes conquerors, sometimes conquered, mix themselves with them, and either as conquered receive arts and laws along with servitude, or as conquerors yield to the natural empire of reason and of policy over force, and thus barbarism is always mitigated. The Phœnicians, inhabitants of an arid coast, made themselves the ministers of the exchanges between peoples. Their vessels, spread over the Mediterranean, began to reveal nations to nations. Astronomy, navigation, geography developed themselves, the one by the other. The coasts of Greece and Asia Minor were covered with Phœnician colonies. But colonies are like fruits, which hold to the tree only until their maturity; the colonies, having become sufficient to themselves, will do as Carthage did, and as, some day, America will do.

[The lecturer next takes a survey of the rise of the power of Greece and of its character as a nation, of the Greek language, philosophy, and government.]

Happy age! when all the fine arts throw forth their light

on every side, when the fire of a noble emulation communicates itself with rapidity from city to city; when painting, sculpture, architecture, poetry, history, culminate everywhere simultaneously.

Athens, governed by the decrees of a multitude whose tumultuous waves were at the will of orators, calmed down or again raised into fury; Athens, in which Pericles taught its magistrates to buy up the State at the State's own expense, to dissipate its treasures in order to save themselves from rendering an account of them; in which the art of governing the people was the art to amuse them, the art to delight their ears, their eyes, their curiosity, always greedy of novelties, with fêtes, pleasures, and renewed spectacles; Athens, to whose very vices of government, which led her to succumb to Lacedæmon, were due the eloquence, the taste, the magnificence, the splendour in all the arts that have made her the admiration of nations. . . .

Commerce and the arts rendered Alexandria the rival of Athens. Astronomy and the mathematical sciences were there carried to a height they had reached nowhere else. Above all there shone there that erudition only slightly possessed by the Greeks, that kind of study which employs itself less upon things than upon books, which consists less in producing and discovering than in generalising and comparing, in judging of what has been produced and been discovered; not bent on marching forward, but turning its gaze backwards to observe the road it has come. The studies which demand the most genius are not always those which infer the most progress for the mass of mankind. There are minds to whom Nature has given a faculty for comparing ideas, of giving them that arrangement which puts them in their full light, but to whom, at the same time, she has refused the ardour of that genius which invents and which opens for itself new paths. This learned culture, with its purpose of bringing together under the same point of view the discoveries of the past in order to show them in clear distinctness, and even to further perfect them, if it be

not the torch that shines by its own light, is the diamond that reflects with splendour a borrowed light, but which only a total darkness would confound with stones of a lower order. . . .

Meanwhile, for several ages past, Rome, as a world apart, was marching in a continued succession of triumphs to the conquest of the universe. Victorious over Carthage, she appeared suddenly in the midst of nations. Peoples trembled and were subjected. The Romans, conquerors of Greece, became cognisant of a new empire—that of Mind and Knowledge—and their rudeness grew less austere. Athens in her victors found disciples, and in the course of time almost rivals. Cicero displayed in his declamations at the Capitol and in the tribune an eloquence drawn from the lessons of the Greeks, of which his degenerate masters knew only the rules. The Latin tongue, softened and enriched, educated Africa, Spain, and Gaul. The limits of the civilised universe became those of the Roman power, and two rival languages, the Greek and the Latin, divided it between them.

From the age of Augustus to the fall of the Roman Empire I see but a general decadence into which everything precipitates itself. Is man elevated, therefore, only to fall? A thousand causes unite to deprave taste more and more: tyranny, which degenerates the public mind from everything that is great; senseless luxury, born of vanity, judging of works of art less as objects of cultivated taste than as signs of opulence, which is as much opposed to their perfection as an enlightened love of true magnificence is favourable to it; the ardour for new things by those who, without the genius to invent them, have too often just wit enough to spoil the old; the imitation of the faults of great authors and even the misplaced imitation of their beauties. Writers multiply in the Roman provinces and corrupt the language. Some remnants, imperfectly known, of ancient Greek philosophy, mixed with a mass of vain allegories, or with the illusions of magic, take possession of men's minds,

smothering all the sound philosophy of Nature which had been born of the works of Seneca and of Pliny the Elder. Soon the Empire, abandoned to the caprices of an insolent military faction, becomes the prey of a long line of tyrants, who, in snatching it from each other, carry ravage and desolation into the provinces. Military discipline is annihilated. The barbarians of the North penetrate on all sides. Peoples dash themselves on peoples; towns become deserted, the country uncultivated, and the Empire of the West weakened by the transport of all its strength to Constantinople, ruined in detail by so many repeated ravages, on a sudden collapses, and leaves the Burgundians, the Goths, and the Franks to dispute over its vast ruins and to found kingdoms in the different countries of Europe.

It should not be for me, in this sanctuary, to pass in silence that new light which, while the Empire marched to its ruin, was shed on the universe—light more precious a thousand times than even that of letters and philosophy. Holy Religion! can we forget that it was through you that manners were improved, that the darkness of idolatry at last was dissipated, and that mankind were enlightened on the true character of God? During the almost total ruin of literature, you alone formed the writers who inspired the desire to instruct the faithful and to repel the attacks of the enemies of the faith. When Europe was the prey of the barbarians, you alone reclaimed their ferocity; you alone have perpetuated the knowledge of the Latin tongue become dead; you alone have transmitted to us, across the abyss of so many ages, the mind, if I may say so, of so many grand men, which was stored up in that language. The conservation of a vast treasure of human knowledge, when at the point of being dissipated, we owe to you.

But the malady of the human race was too deep; it required ages to cure it. . . . In what are called the middle ages we see kings without authority, the nobles lawless, the people slaves, the countries covered with fortresses, ravages incessant, war aflame between town and town,

village and village, penetrating almost the whole mass of kingdoms; no commerce, all communication interrupted, cities inhabited by artisans, poor and without emulation; the only riches, the only leisure which some men yet enjoy, lost in the idleness of a nobility scattered here and there in their castles, who could only give themselves up to combats useless for their country. The most gross ignorance spread over all nations, over all the professions. Deplorable picture, but too true of Europe during several centuries. And yet, in the midst of this barbarism shall one day spring forth the perfected sciences and arts. In the midst of this ignorance an insensible progress prepares the way for the striking success of later centuries. Under this unpromising soil are being nourished and developed the feeble roots of a distant harvest. Among civilised people the towns are by their nature the centre of commerce and the focus of society. They already existed; if the spirit of the feudal government, born of the ancient customs of Germany, combined with some accidental circumstances, depressed them, it was in the constitution of such states an anomaly which was certain to be effaced in the long run. We soon see the towns raising themselves under the protection of princes, who sought, by holding out their hand to the oppressed citizens to gain their aid, to increase their own power by reducing the power of their vassals. [In the larger towns rose the universities.] Already Latin and theology, along with the dialectics of Aristotle, were studied in the universities. Long before that the Mussulman Arabs had been instructed in the philosophy of the Greeks, and this light spread itself over the West. Through them mathematics was extended and expounded, a science less dependent than the other sciences on the perfection of taste, and perhaps even on justness of mind. One can study it without being conducted to any great truth. The verities of mathematics, always certain, always pure, were surrounded by the errors of judicial astrology. The chimerical hopes to discover the great secret, by animating the Arab philosophers to separate

and to combine all the elements of bodies, had brought forth under their hands the immense science of chemistry, and had spread it wherever men could be deceived by their greedy desires.

At last on all sides, and in all circumstances, the mechanical arts perfect themselves, because even in the decline of the sciences and of taste the needs of life conserve them, and because in the crowd of artisans who cultivate them successively it is impossible not to meet, now and again, one of those men of genius who are mixed with the rest of mankind as the gold is with the lower metal of the mine. Hence a number of inventions unknown to the ancients appeared in an age almost of barbarism: our art of recording music, our bills of exchange, our paper, window-glass, plate-glass, windmills, clocks, spectacles, gunpowder, and the magnetic needle leading to the perfection of navigation and commerce. Arts are but the practice of Nature translated, and the prosecution of arts is a sequence of physical experiments, more and more unveiling Nature. Facts accumulate in the shade of the times of ignorance, and the sciences, whose progress although for a time concealed is not the less real, emerge some day increased by new riches.

Different causes of events take their rise in the different countries of the world, and all, by however many separate roads, concur at last to the same end—to advance the human mind. . . . Germany, Denmark, Sweden, Poland, by the influence of Charlemagne and the Othos, and Russia by her commerce with the empire of the Greeks, cease to be uncultivated forests. . . . The nations, by the quarrels between nobles and princes, begin to form for themselves the principles of a more stable government, and to acquire, by the variety of circumstances into which they are brought, the particular character which distinguishes them. The wars against the Mussulmans in Palestine, in giving to all the Christian States a common interest, taught them to know each other and be united, and set the seeds of that modern policy by which so many nations seem to constitute but one

great republic. Already is seen royal authority rising in France; the power of the people establishing itself in England; the cities of Italy forming themselves into republics, and presenting the image of ancient Greece; the little monarchies of Spain driving the Moors before them and gradually forming themselves into one. Soon the sea, which until now caused the separation of nations, becomes by the invention of the mariner's compass a band of connection. The Portuguese in the East, and the Spaniards in the West, discover new worlds. The universe is at last known. Already the mixture of barbarous tongues with the Latin has produced, in the course of ages, new languages, while the Italian, less distant from the common source, less mixed with the foreign elements, is the first to be refined into elegance of style and fitted for the beauties of poetry. The Ottomans, pouring over Asia and into Europe with the rapidity of a tempest, finish by overthrowing the empire of Constantinople, and disperse into the west of Europe the feeble sparks of the sciences which Greece had yet preserved.

An art suddenly rises by which are spread, in all directions, the thoughts and the glory of the great men of the past. Until now how slow, in every sense, progress has been! For two thousand years back medals have presented to all eyes characters impressed on bronze, and, after so many ages, it occurs for the first time to some obscure man that characters might be impressed on paper! As soon as the treasures of antiquity, drawn from the dust, pass into all hands, penetrate into all places, enlightenment is brought to the minds that were losing themselves in ignorance, and then genius is called forth from the depth of its retreat. The time has come.

Emerge, Europe, from the darkness that covered you! Immortal names of the Medicis, of Leo X., of Francis I., may you be consecrated for ever, may the patrons of the arts share the glory of those who cultivated them! I salute you, Italy, happy land, for the second time the country of

letters and of taste, the source whence their waters are shed to fertilise our regions. Our France, as yet, views your progress, but from a distance. Her language is still infected with some remnant of barbarism. . . .

And now that multiplicity of facts, of experiences, of instruments, of ingenious operations, which the practice of the arts had accumulated during so many ages, has been drawn from obscurity by the work of the printing press, the productions of the two worlds, brought together by an immense commerce, have become the foundation of a natural history and philosophy hitherto unknown, and freed at last from grotesque speculations. On all sides attentive eyes are fixed on Nature. Slight chances turned to profit bring forth discoveries. The son of an artisan in Zealand, while amusing himself, brings together two convex glasses in a tube, and the limits of our senses are removed. In Italy the eyes of Galileo have discovered a new celestial world. Now Kepler, while seeking in the stars the numbers of Pythagoras, has found the two famous laws of the course of the planets which will become one day, in the hands of Newton, the key to the universe. Bacon had already traced for posterity the road she had to follow. . . . Great Descartes! if to find truth has not been always given to you, you have at least destroyed tyranny and error [that obscured it]. . . . At last all the clouds are dissipated. What a glorious light is cast on all sides! What a crowd of great men on all paths of knowledge! What perfection of human reason! One man, Newton, has submitted the infinite to the calculus; has unveiled the nature and properties of light, which, while revealing to us everything else, had concealed itself; he has placed in his balance the stars, the earth, and all the forces of Nature.

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Amidst these vicissitudes of sciences, of arts, of all that is human, rejoice, gentlemen, in the satisfaction of seeing that the Religion to which you have consecrated your hearts and your talents, always herself, always pure, always entire,

stands perpetuated in the Church, preserving all the characters of the seal which the Divinity has stamped upon it. You will be her ministers and you will be worthy of her. The Faculty expects from you her glory, the Church of France her enlightenment, Religion her defenders; genius, learning, piety, unite to give foundation for their hopes.[1]

[1] *Œuvres de Turgot*, i. 527–691.