TRENDS OF CIVILIZATION AND CULTURE

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BY

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PREFACE

A STUDY OF CIVILIZATION IS NO NOVELTY. FROM THE BEGINNING of human history, if not in the pre-historic period, man has shown such interest in himself as to record his deeds and thoughts. Hence the concern for civilization shown by our contemporaries is not wholly different from that of fossil men in the geologic past, while the enthusiasm that Americans feel for their cities is fairly well matched by similar emotions in the hearts of Aurignacian men, who were proud of their caves.

In addition to recording his activities, man has rationalized them; hence we have the intensive studies of civilization as found in the writings of Polybius and St. Augustine, Hegel and Spengler, to say nothing of certain impressionistic works which have appeared since the World War. In the present work, it has been the intention of the author to come to an understanding with the present, although not to the extent of discussing " what's wrong with the world " or " what this country needs."

The pursuit of the present, as carried on in the following pages, has necessitated a consideration of the past even unto the formation of the planet whereon civilization has been set up. For the civilization that is now bearing fruits both bitter and sweet is deeply rooted in the past. The range of this book is that of western civilization although, as will appear toward the close of it, the East has not been overlooked.

The sources of this study of civilization and culture have been varied but none too many and they have been duly noted. But in addition to aid from books, the author has been helped by certain of his colleagues at New York University. He is indebted to the following scholars for material assistance in the connections mentioned: Floyd A. Spencer, Ph.D., Greek Culture and Roman Civilization; Charles C. Thach, Ph.D., Feudal Civilization; G. Roland Collins, A.M., The Economic View of Civilization; Albert Sheppard, A.M., The Industrial Form of Civilization; Younghill Kang, Sc.B., The Eastern Question; Rudolph M. Binder, Ph.D., The Present Outlook; Vincent Jones, A.M.,

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THE SUBJECT OF CIVILIZATION AND CULTURE IS MAN; THE SECRET of what man has done and thought is to be found in the history of mankind. The study of man by man — that identifies the matter and indicates the manner of such a study as we are about to take up. Other factors will enter in to give human life its more complete setting, and we shall have to consider the earth in its divisions of sea and land, life in its enormous span of time between protoplasm and the man of the present. Other forces than human volition will be found in operation, gravitation and energy, electricity and life; but it is the nature and work of man which most concerns us. We desire to discover whence man came and whither he is tending, how he has worked and what he has accomplished. Thus we investigate the trends of civilization and culture.

The seat of man's activities is the planet earth. Other planets in our solar system, that private park in the universe, may be thought inhabited. Other stars than our sun may be imagined to have their planets spinning around them. On these solar and stellar planets there may be conscious life akin to our own, but we are responsible for only what we observe and experience in one tiniest speck of matter in the whole universe. It is, of course, the only habitable place we know and, perhaps, the only spot we dare dream of as supporting life. At any rate, it is here without our immediate ken, a stage upon a stage, that the drama of human life is acted. Earth may not have been made for man, but it is here that he has learned how to live. He draws his sustenance from plants and other animals; these are fed by the earth and the earth itself is supplied with such foodstuffs in the form of solar energy. In the last analysis, man is fed by the sun.

How are planets produced? They might seem to have come from the stars by a process of excessive rotation casting off gaseous

matter. This was the nebular hypothesis advanced by Laplace, only to be discarded for a more plausible view. This is the tidal conception of Sir James Jeans according to which the planetary matter was drawn off by a gravitational process pretty much as the waters of the sea are drawn away in the form of tides by the moon. In the universe the excessive rotation of a star, which was supposed to have generated the solar system, is not unusual and it is quite common for stars to be split up in this way. But the effect of such fissioning has been stellar, not planetary. The stars, or about a third of them, experience the effect of rotation by splitting into double stars, creating binary systems. But in the case of "our star," as we may call the sun, there seems to have been no such surplus of centrifugal force, no tendency to split up into celestial twins. Something quite different, extremely exceptional, must have happened in our part of the universe.

What did happen, it is conjectured, was the approach of some wandering star which came close to the region that was destined to be our solar system. There it exercised tidal influence and drew off a filament of solar stuff which broke up, as it were, into so many planetary drops. In this manner, the passing star became the father of the planetary family. Two forces have been and still are at work in the heavens — the rotational and the tidal. One has produced double stars, the other a planetary system. "We know of myriads of double stars," says Eddington, "and of only one planetary system. . . . The solar system is not the typical product of development of a star; it is not even a common variety of development; it is a freak."[1] It is this "freak" of Creation that interests us. This vulgar fraction of the universe represents the field of our investigation.

The Earth

If, then, we can whittle the range of life down to the confines of our solar system, can we bring the matter to a point by asserting that it is on the planet earth alone that life is findable? This also seems to be the most likely idea in the case. Life depends upon the sun. Some planets are too close, others too far from this source of heat to be habitable. Inside the earth's orbit is Venus,

[1] *The Nature of the Physical World*, p. 176.

outside it is Mars, and in a general way the conditions of life at these points may seem to be analogous to what we actually find on the earth. As far as Venus is concerned, the general situation seems to be maritime and its atmosphere vaporous, so that, if it be inhabited, it must be by creatures different from what we are now; it must be a place where, as Eddington says, "fishes are supreme." Unlike Venus, the planet Mars has solid land and an atmosphere containing oxygen, but no seas. Moreover, its climate is so chilly and with such sharp differences between the temperature of day and night that it is difficult to accept the idea that Mars harbors life in our sense of that term. "There is no definite evidence of life," says Jeans, "and certainly not of conscious life, on Mars . . . or indeed anywhere else in the universe."[2] Earth alone appears to be the place of conscious life.

But after we have detached the planet earth and located life upon it, there remains the rest of the universe. What shall we do with it? We will set aside the earth as the place of culture and civilization and relegate the rest to mathematics and mechanics. "The world is made up of human beings and astronomers," says Harlow Shapley; very well, then, we human beings will stick to our private planet and let the astronomers consider the heavens. But in all this we should not be appalled by any idea of size that the astronomer may hold up before us, and should be unusually careful in applying the adjective "infinite" to what looks like a finite universe. The situation in the skies and the latest report from the observatories are such as to make the whole universe appear small indeed. Science is now talking about the "radius of space." Eddington's estimate includes a hundred million light-years; Hubble made his estimate equal a million million. In either case, the farthest reaches of space are within our mathematical grasp.

By a process of mental arithmetic, we can figure that, since light travels six million million miles in a year, it will travel somewhat over five thousand times that number of feet. Once we have a light-year in the form of feet, we can reduce the distance to inches and fractions thereof. The result is that the radius of the universe, expressed in terms of razor-blade edges, yields a sum

[2] *The Universe Around Us*, p. 322.

made up of comparatively few figures. The row of such digits would extend only half way across the page along a single line of this book. In the case of one computation, thirty figures would suffice, while the other would require only thirty-five. As far as the size of man is concerned, if we measure this by a comparison with the macroscopic universe, man is bound to appear small, but let him contrast his dimensions with those of the electron and he will appear correspondingly large. We may conclude, therefore, that since man is of about average size in the total universe, there is no reason to belittle his being or think lightly of his work.

A Terrestrial Point of View

But this line of popular reasoning is not to be taken as a return to any manlike view of the universe, or anthropomorphism. It will be sufficient to assume that the earth is good enough as a viewpoint for considering the universe, just as it will be safe to conclude that man is able to grasp the meaning of things generally. In some ways it does look as though the advanced science of the XXth century had thrown us back upon a geocentric position and an anthropocentric point of view as these restricted outlooks prevailed up to the beginning of modern times. But if, again, we assume those limited points of view, it is only after we have surveyed the whole galaxy in which we live and thus are like returned tourists who appreciate the advantages and disadvantages of home-life after they have been abroad for an extended tour. Since we realize that all depends upon the point of view, we may make due allowance for this and avoid misconceptions. If we were placed on Vega, we should take a Vegan viewpoint and regard the whole heavens as though they revolved about us there. If, as in the case of Copernican astronomy, the standpoint is the sun, we take a solar point of view. But being actually located upon the earth, we view the universe from a terrestrial vantage point, realizing that our outlook is not an absolute but a relative one. We take man where we find him.

Our subject is man, his arts and sciences, languages and laws, beliefs and customs. But we cannot pass at once from the formation of the earth to the development of civilization. We must

wait for the earth to cool down and prepare itself for organisms, watch for the emergence of life from the sea, note the development of animal existence, the evolution of mammals, and the final appearance of crude mankind. We shall have difficulty in making the transition from matter to the organism, and that difficulty will occur again when we attempt to pass from animal existence to human life. It will not be easy to abide by the dogma that the world permits no leaps; if these have not been taken by nature herself they will have to be taken by us in our study of the world. We must be prepared to consider, not one missing link as that between the ape and man, but such a number of them that the blank spaces in the panorama are far more numerous than those occupied. Our program is — from sun to earth, from earth to life, from life to man, from the man of the present to the being who is going to continue or destroy our civilization. Suppose we begin by glancing at life with the hope of gaining some hint as to our own existence. In doing this we must observe how life arose, what was the general course of its development, and what is significant in the emergence of the human species.

The Origin of Life

We are accustomed to use the word "life" in a nobly narrow sense to indicate the existence of the human family on earth or even the history of civilization. That we take to be the life of man and it is just that which forms the ultimate object of our present study. But the life principle within man, that out of which he has developed arts and sciences and the manifold forms of his civilization and culture, has had such a long history that the life of humanity seems no more than the twinkling of an eye. Hence, before we can study man as he has appeared in history, we must investigate life as it is known in geology. Nature must be allowed to relate a long story before man can tell his little tale. We must seek the living among the dead and view the brightness of the present in the darkness of the past.

By studying the remains of former living things we begin to understand those that live now. Such fossils as the entombed bones of animals in the bedded rocks or shell-forms of creatures

that once lived on the sands of the sea-floor, enable the geologists to restore the life assemblages of the geologic periods. These trace back in time for hundreds of millions of years. The age of the earth is set by geologists, as also by astronomers, at something like 2,000 million years. The rocks abundantly supplied with fossils are in a long series which carries us back to a period of at least half that length of time. Such is the age of the earth on which, as though it were yesterday, the history of humanity has been conducted. The life of man in the larger sense of the term is far more recent.

What was the origin of the life-process that, beginning a hundred million years ago, is still felt by us in our breathing, in our immediate experience of our surroundings? We can reply, but cannot give answer to that question, by saying that we do not know. If our ignorance is devout, we may follow tradition and attribute the origin of life to a divine source; but still we should be confronted by the question how that miraculous life came into existence. With such scientists as Helmholtz and Lord Kelvin, we might think of life as having come to earth in the form of meteorites or meteoric dust, but that would amount to no more than a change of venue. We should still have to inquire how life came into existence elsewhere. Or we might follow Sir Ray Lancaster and look upon life as a happy combination of proteids in a colloid state which itself had come out of a natural synthesis of inorganic substances. But here again we should wonder how that happy combination came about. The best we can do, perhaps, is to speak of life as something that emerges from inorganic matter, realizing that our explanation is nothing more than a description of some inscrutable process. We cannot assert that the principle of life is radically different from every other form of physical existence, as though there were some extra element called "vita" or "bios," yet we cannot deny that the outcome of life has been different from the effects observed in connection with inorganic matter. Life means growth and out of this growing life has come man.

Our subject is man and his development, his exterior civilization and interior culture. In proceeding from the generation of the earth to the evolution of its leading inhabitants, we are like