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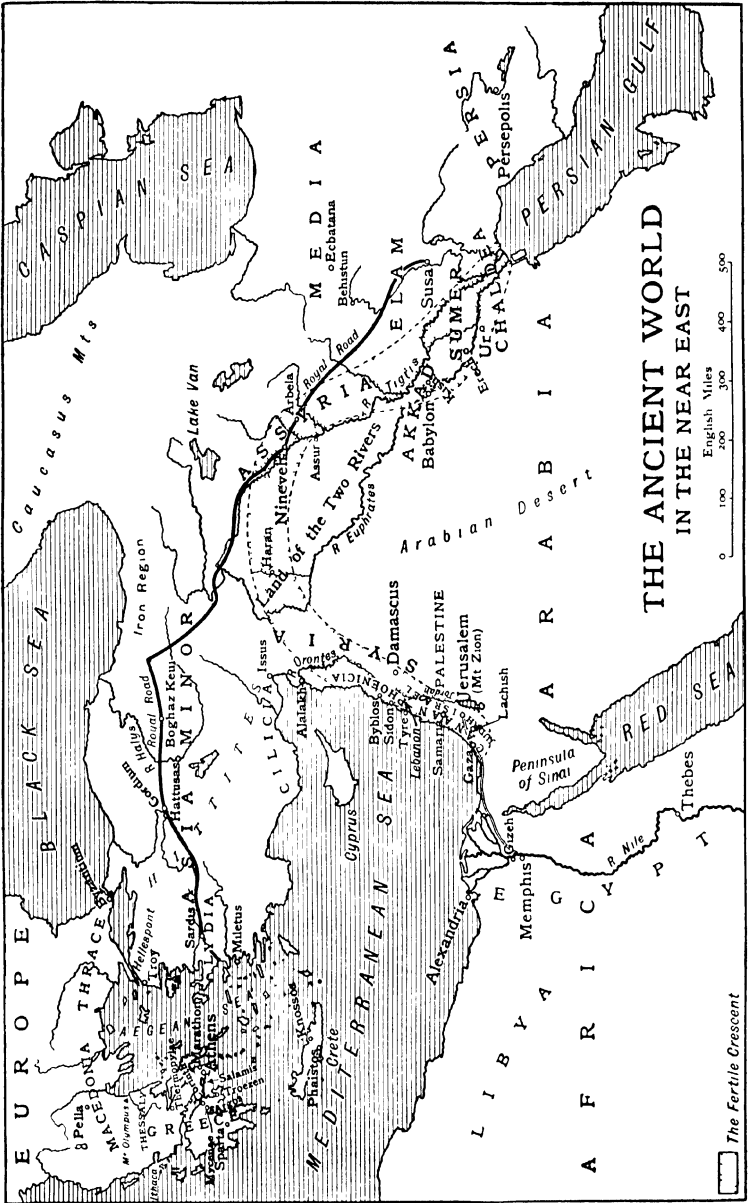




RELIGION IN SCIENCE AND CIVILIZATION







RELIGION  
IN SCIENCE AND  
CIVILIZATION

BY

SIR RICHARD GREGORY

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## PREFACE

In December 1938 I had the honour of delivering an address on "Cultural Contacts of Science" in the Carnegie Institution of Washington, at the opening of a new auditorium of the Institution in Washington, D.C. The lecture was the fifth of a series established to represent, from time to time, the influence of science upon current thought; and the series is associated with the name of the late Mr. Elihu Root, a trustee of the Institution, who was particularly interested not only in the development of the many great scientific research departments supported and administered by it, but also in the deeper meaning of science to life and civilization. My lecture was afterwards published by the Institution in a brochure of about fifty pages.

In the preparation of this lecture, and of an address on "Religion in Science", delivered in the same month at a meeting of the American Association for the Advancement of Science, held at Richmond, Virginia, as well as others on similar relationships of science and social ethics which I was invited to give at Harvard University, Johns Hopkins University, and Columbia University of New York, I found my general theme of the impact of science upon human thought and social behaviour extending into wider fields than those originally contemplated. These aspects of science appeal strongly to me, and were given frequent attention in the columns of *Nature* during the forty-five years of my editorial connection with that journal. The recent formation by the British Association of a new Division for Social and International Relations of Science, and the organization of similar departments by scientific bodies in the United States, India, and elsewhere, represent an awakening consciousness of responsibility among scientific workers for the course of

civilization not only in the past and present but also in the future.

Because science signifies new knowledge, it must at all times be a disturbing influence upon society and require adjustments of thought and action to it. On this account, there has always been a clash between it and traditional beliefs, whether relating to religion or to other humanistic standards of value. The misunderstandings have been due mainly to different interpretations of "What is Truth" and what human purposes are best served by the answer. Such works as Dr. J. W. Draper's *History of the Conflict between Religion and Science* (1875) and Dr. A. D. White's *Warfare of Science* (1876) and *A History of the Warfare of Science and Theology in Christendom* (1896) are melancholy reading to-day; for they are largely concerned with problems and influences which no longer exist, though at the time they evoked bitter discussion.

The mistake has been, and is, to make the conflict one between Christianity and science, instead of between obscurantism and enlightenment. What champions of orthodoxy seek to preserve are traditional beliefs contentedly accepted by the communities of their day and generation. The inertia or opposition to new interpretations is thus not necessarily associated with either Christian or pagan priest-hoods as such, except as guardians of doctrine, but with the spirit of the people whom they represented.

Belief in a flat earth as the centre of the universe was not only a Christian doctrine for many centuries but also a popular conviction. In the sixth century of our era, before the voyages of explorers had extended the knowledge of the earth, it was a deadly heresy to believe in the existence of the antipodes. With Copernicus and Galileo came a revolution of thought which destroyed the roots of popular faith but ultimately prevailed. The conflict passed in more modern times to the evolution of life as written upon the rocks, and the antiquity of man; and the battle became furious and unflinching after the publication of Darwin's *Origin of Species* in 1859, and his *Descent of Man* in 1871.

It was natural for theologians to see in these works oppos-

ing forces in the advance of science, and to use any rhetorical weapons which could be found to protect citadels which had taken many centuries to build. They were justified in defending walls which they believed to be built on firm foundations, but not when inquiry had shown that these were shifting sands instead of solid rock. Science can never accept the Platonic principle that truth may be suppressed, and the people deceived by useful lies, if Church or State considers it expedient to keep them in ignorance. How such a repressive policy retarded scientific progress and human development in classical Greece and Rome is impressively described by Prof. B. Farrington in his recent work, *Science and Politics in the Ancient World*; and the story provides lessons for the times and problems which now confront civilized life.

It is not, however, the purpose of the present work to revive the conflict between religion and science, but to show how they are intertwined in the history of civilization. They are all parts of an evolutionary process of human development; and once it is realized that each has to adjust itself to changing conditions created by expanding thought, the causes of hostility disappear. [It is only when conceptions and superstitions of one period of human history are imposed by ecclesiastical or political authority upon later generations on grounds of expediency, that science insists upon bringing the light of new knowledge to bear upon them and to dissolve them into the mists of past ages.

Though I did not begin to bring together material associating religion with science and civilization until I accepted the invitation to deliver the Elihu Root lecture of the Carnegie Institution of Washington, the subject has always interested me, and various views of it have been the theme of articles and addresses prepared from time to time for scientific or general journals and audiences. I am well aware that a vast amount has been written and published upon social and philosophical aspects of both religion and science; and thought of it has often made me much inclined to abandon the process of crystallizing my own ideas upon them. Conversations with many friends, however,

induced me to complete what I had begun, even with the risk of the undertaking being regarded as superficial or presumptuous by profound scholars whose works have influenced my thoughts and actions during my lifetime.

Many of such works, especially those expressing modern views, are analysed and discussed in a very helpful little book entitled *The Heavens and Faith*, by the Rev. Dr. M. Davidson. I select this guide for particular mention for two reasons. First, because Dr. Davidson is a distinguished astronomer and the aspects of science presented in the early chapters of the present volume relate chiefly to the observation and worship of celestial bodies ; and, secondly, because he is prepared to examine the structure of Christian faith in the light of new knowledge and to express the views of a modern clergyman upon parts which have decayed or need repair. He has been kind enough to read the proofs of this book ; and I am very grateful for his comments upon them.

Relatively few scientific people seem to be aware of the evolution that is going on in religious doctrine or of the receptive attitude now presented to progressive scientific knowledge. On the other hand, it is not too much to say that most people still regard science as an enemy, rather than an ally, to causes concerned with the spiritual or ethical life of man. My main idea has been to show how religion and science—especially knowledge of the universe and of the human race—are interwoven with the history of civilization. I make no pretensions to possess the great learning of archaeologists, theologians, and historians who have already dealt with these subjects in authoritative works. What I have endeavoured to do is to present a broad survey of the field from the point of view of a scientific observer who has a heart as well as a mind, and seeks to share his matured thoughts with his fellow beings.

After I had completed this work, my fertile and untiring friend, Mr. H. G. Wells, whose generous gift of inscribed copies of all his works is among my most cherished possessions, sent me a copy of his recent book, *The Fate of Homo Sapiens*. When I found that he had dealt in his usual incisive and thought-provoking way with the chief religions

of the world and their social relationships, with the life and needs of man as the general theme, I again doubted whether my own message was worth expression. In thanking Wells for his book, I told him that I had for some time been engaged with much the same subjects ; and his reply was very encouraging to me. He wrote : " I shall read your book with interest. One point. The fundamental difference between all religious creeds and science is that the former profess *finality*. The scientific mind ends in expectation."

It will be found that I have elaborated Mr. Wells's point by applying the principles of evolution to religious beliefs and standards of value. Many years ago Huxley said that science " commits suicide when it adopts a creed ". It is in the readiness displayed by many modern theologians to give new interpretations to creeds, that there is hope of making religion an effective force in modern life and thought.

As few qualities of human nature have escaped Mr. Wells's experience, it is not surprising that these and many other problems of individual and social life have been critically analysed by him, though his solutions are irritating or acceptable according to the type of mind receiving them. Among such of his works dealing with social, religious and political questions, of which particular mention should be made in addition to *The Fate of Homo Sapiens*, are : *First and Last Things*, *The Undying Fire*, *God the Invisible King* ; and the whole realm of man and his activities is surveyed in *The Outline of History*, *The Science of Life* (with his son, G. P. Wells, and Julian Huxley), and *The Work, Wealth and Happiness of Mankind*. The outlook in all these works is universal, with mankind as a single unity ; and Mr. Wells has shown, in *The New World Order*, what its meaning might be to modern statesmen.

I have entered into parts of the same extensive field in the course of my mental excursions, but Mr. Wells would not regard me as a trespasser ; for from our college days of more than half a century ago we have shared the same confidences, and the frankness and ever-fresh nature of his thoughts have always impressed me. If my attitude towards any subject with which the present book deals is at all reminiscent of his own, it is because our early lives were

influenced by similar religious and social circumstances, and our reactions are much the same, though the literary expressions of them differs so greatly.

Finally, to prevent misunderstanding, I should like to make it clear that I have not used any of Mr. Wells's books as works of references, but cite them as examples of formative influences upon progressive human thought and affairs. A few references are given to standard works, and to authorities whose words are quoted to illustrate particular points of view, or represent literary reactions to natural knowledge at different stages of intellectual development ; but as this book is intended for general readers, and does not pretend to be a manual for students of religion, science or sociology, no list is given of helpful handbooks or original works worthy of more serious attention. Similarly, although there is a general historical sequence in the order of the chapters, no attempt has been made to develop the subjects in the style of a text-book, in which each chapter has to be comprehended before the next can be understood. The aim has been to make every chapter more or less self-contained, instead of being an essential link in a systematic course of study.

For invaluable aid in the preparation of the book, I am indebted to Mr. E. N. Fallaize, whose knowledge of every aspect of archaeology and anthropology is both wide and deep. He has been my chief source of reference, and to him I gladly express my most grateful appreciation of the assistance he has afforded me by providing me with notes and extracts from original sources relating to various points upon which I desired up-to-date and authoritative details. In addition to acting as a consultant at all stages of the writing of the book, he has read the proofs, and has thus increased my deep obligations to him. In spite of such critical attention, some literal faults may still have been overlooked, but for these, as well as for the character of the picture presented and the views expressed, I accept responsibility in the hope that they will be found pardonable.

R. A. GREGORY

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## Chapter One

### INTRODUCTION

Religion and science are the two chief factors which have influenced human development throughout all stages of civilization : religion as the reaction to an inner impulse as to what is conceived to be sacred and arouses awe or reverence, and science as the accumulation of knowledge of the properties of natural objects—animate and inanimate—in relation to man's needs, and his understanding of them through the use of his intelligence. One represents the emotional side of man's nature, as expressed in religious ritual, art and literature ; the other—also the product of an inner urge—is the construction of a mental picture which gives acceptable form to what is known, at any stage of inquiry, about the nature and origin of all things, visible and invisible. It is in the study of the heavens from these two points of view of devotion or worship and inquiry that religion and astronomy meet in celestial fields.

All religions, primitive and advanced, include three essential elements. First there is a conception of the nature of the deity or deities in relation to man and the universe, and this, together with an account of the origin and history of the people professing the belief, when reduced to writing, constitutes the sacred literature of the belief ; or the Word of God, as represented in the chief books of the Holy Bible. The second element of religions is ritual, which prescribes the mode of approach to the deity in a form of worship. The third is a code of ethics, which prescribes rules of conduct, and in its highest development aims to bring the individual into harmony with what is conceived to be the Will of God or the divine principle of the universe.

The influence of religion upon conduct, when creating a desire to live an upright and holy life in communion with a Supreme Being, is embodied in such definitions of religion as those given in the *Concise Oxford Dictionary* and the *Encyclopaedia Britannica*. The first defines religion as "human recognition of superhuman controlling power and especially of a personal God entitled to obedience and the effect of such recognition on conduct and mental attitude". The *Encyclopaedia Britannica* says: "We may define the religious object as the sacred, and the corresponding religious attitude as consisting of such manifestation of feeling, thought and action in regard to the sacred as is held to conduce to the welfare of the community or to that of individuals considered as members of the community."

It is in the light of service to high ideals that science, without which we cannot live, and religion, without which most people see no meaning in life, can find a common field of action. The spirit should be that of the great French philosopher, Descartes, when he said that he studied science "in order to learn how to distinguish truth from falsehood, so as to be clear about my actions and to walk surefootedly in this life". Whether science is studied with the view of increasing natural knowledge, or with the purpose of adding to human comforts, it creates a consciousness which transfigures life. Neither it nor philosophy can arouse the religious instincts of most people, who require a personal and social being to worship. In Buddhism and Confucianism, however, the religious impulse, which is a fact of emotional life, is satisfied with a subject-matter which is not supernatural or spiritualistic, though these are regarded as essential attributes of Christian consciousness. The permanence of the religious impulse in man is not, therefore, a proof of the existence of supernatural beings, but only of the existence of a particular character in human nature.

When religion is studied as the expression of a characteristic of human nature, there is no conflict between it and science. One is the expression of an instinct for communion with a Superior Power; the other is a spirit of inquiring into all things visible and invisible in the universe. Science does

not set out to establish or depose any particular articles of belief or substance of faith, but to examine critically whatever comes before it in the natural world and to testify faithfully to what is seen and what it seems to reveal. The dogmatism of a few generations ago, both of naturalists and theologians, is giving way to a more liberal spirit ; and all who are searching earnestly for truth are considered to be worshippers at the same shrine. The study of science creates a feeling of infinite greatness in all who pursue it ; and though it may lead to imperfect interpretations, its motive cannot be irreligious.

Fifty years ago the literal interpretation of the Holy Scriptures in the light of current scientific knowledge was the subject of much contentious discussion. Fuller knowledge has shown that the issues then raised were chiefly due to misunderstandings of the meaning of both religion and science. The sacred writings of the early Hebrews contain few allusions to what may be termed the scientific understanding of the universe, or of precise observations such as have been preserved in the records of other ancient peoples. The message they convey was spiritual and not rational. All things were interpreted as testimonies to the wisdom and power of the Almighty and His goodness to man—as subjects of wonder and spiritual exaltation rather than as matters of intellectual inquiry. As a record of spiritual development, the Holy Scriptures are far in advance of the sacred writings of any other early peoples, and represent an important stage in the evolution of the spiritual life of the human race.

The existence of this side of man's nature as reflected in religion cannot be said to be explained by science, yet its reality is universal. The process by which man has become a moral and ethical being with a spiritual life may be different from that by which other living creatures have advanced in perfection or organization. Whatever its origin, there seems, indeed, to be something *within ourselves* "which makes for righteousness", apart from the principle of evolution of the body of man. The human race could not have reached its present position but for this general tendency upwards, which may be called the divine spark of

heavenly flame, or by any other name, but the reality of which is manifest in what is best in human nature.

Science is concerned with the progress of knowledge and the evolution of man not only in the past but also in the present and future. The idea that such development is possible is relatively modern. The chief philosophers of ancient Greece held that the Golden Age was in the past and that mankind was receding from it ; and the same view of human decadence is given Biblical authority in Genesis. Such degeneration from civilization to savagery is, however, unusual and has rarely been established. We need not believe, therefore, that man has degenerated from a state of perfect knowledge to that of being "born in sin and shapen in iniquity", or that the recovery of his lost position must be looked for not in this world but in the next. The adoption of this depressing doctrine is opposed to evolution as a whole and subversive to human endeavour.

Whether we look to perfection as having been passed long ago or regard it as the promise of the future, the fact that the spirit of man is ever striving to attain it is of particular significance. There is reason for hope when divine discontent with life as it is urges men to work for higher things. No progress is possible without aspiration ; and self-satisfaction, therefore, signifies stagnation.

Unlike the creatures of the field, man can make his own environment and so promote the development and survival of any type which satisfies his ideals—poet, philosopher, film-star, or pugilist. His standards of value depend upon the use of his intelligence in fostering the inner light and continually fighting against forces of evil which tend to degrade him. He may not know the reason for his existence, but he does know that there is law and order in the natural world on which he lives, and that if he breaks the rules the penalty is inevitable. Whether he believes that this world and the whole universe were brought into being by a Supreme Power or not, he has to obey the laws of Nature in order to survive. Belief in such a spiritual force may urge him to high endeavour, but upon him is the responsibility of working out his own salvation.

If the divine purpose of the existence and evolution of life is that man should work out his own destiny upon the earth, it is difficult to understand what the ultimate gain will be when the earth will no longer be in a condition to maintain life as we conceive of it. All that science can say as to the future of the earth or any other planet or system in the astronomical universe is expressed in the words : " Our little systems have their day : they have their day and cease to be." We may contemplate the progressive development of man and society to whatever stage may satisfy our ideals, but, so far as we now know, the whole phantasmagoria will eventually be dissolved, and the extinction of mankind will be the final penalty for achieving the highest type conceived by the human mind.

This thought should not, however, be subversive of effort and aspiration on the part of humanity as a whole, any more than the individual should neglect noble motive and conduct because he himself has to pass away, whether his influence has been for good or evil. Though science is unable to provide convincing evidence for survival of personality after death, it must acknowledge that belief in such survival can be an effective ethical factor in human development. It is just as permissible, therefore, to assume that another world awaits habitation of an exalted type of humanity after this earth has come to an end, as it is to believe in the eternal existence of individuality.

If it is assumed that there are " other worlds than ours ", a new meaning may be seen in the stellar universe. The early belief that man was placed upon a world doomed to destruction by a catastrophe was based on ideas of human values and destiny very different from those now held as to the meaning of life and the universe.

Whatever convictions may be held as to the future of man or the world, the standard of goodness is decided by the community. The man who lives a moral life merely because he wishes to save his own soul is not taking a high standard of spiritual action ; for his motive is personal profit. He may believe he will be saved from punishment hereafter by being negative to evil, but his life will be of no benefit to the

human race unless he is positively good. What existence awaits us when we cross the dark river we cannot say, but stimulus and high endeavour may be found in the hope that each thread of life can assist to form an harmonious pattern, even if the design is not known. Though science may not be able to contribute much to the ultimate problems of spiritual beliefs, it does teach that every action carries with it a consequence—not in another world but this—to be felt either by ourselves or others in our own time or the generations to come.

We have passed the stage when, in order to afford support for Christian belief in general, and the Mosaic account of creation in particular, it was only necessary to find naturalistic or rationalistic explanations of miraculous and other elements in Biblical records. Such attempts to fit all new knowledge into a system of thought having no claims to scientific accuracy or intention served no useful purpose to the Bible or to science, and to-day would satisfy neither historical students nor naturalists. A much sounder basis can be found by applying evolutionary principles to religious thought, and by studying sacred books as stages in the story of man's progressive discovery in theology. It is only by disregarding history that the idea of a fixed and final theology becomes possible. In science, there are no final interpretations or unchangeable hypotheses; and if the same principle were recognized in theology, religion would share some of the vitality of the natural sciences. Evolution can be regarded by the theologian as merely the means of creation; and the conception of gradual development is not incompatible with Christian theology. It is through the acceptance of the idea of evolution in the spirit as well as in the body of man that the partition which formerly separated religion and science is being dissolved.

The recognition that knowledge of the physical universe is only the bud of a flower which can never be seen in its perfection is the salvation of science. Nature acknowledges no exclusive claims to truth or right of dictatorship in her name either to this generation or the next. The scientific man has to work for Truth so far as her ways can be com-

prehended by him, but he is never more than a trustee for posterity, and has no authority to define the functions or limit the freedom of those who follow him. When men believe that complete truth has been revealed to them, they restrain inquiry and persecute those who fail to see the same light. This position can never be taken in science, which invites investigation, welcomes criticism, and rejoices at new truths to supersede or supplement the old.

Man as a physical being is but a microscopic part of the universe, yet his mind carries him ever upward, and with spirit bold and unconquerable he seeks to reach the summit of Mount Olympus. Infinite space remains to humble his pride in spite of the knowledge he has obtained of the starry heavens ; yet he pursues his inquiries into the unknown, and his children's children will continue the search. This is the eternal spirit of science felt by Sir Isaac Newton when he said :

“ I do not know what I may appear to the world, but, to myself, I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, while the great ocean of truth lay all undiscovered before me.”

The same humility of understanding was expressed by one of the greatest men of science of our own generation, Sir Joseph Thomson, in the words :

“ As we conquer peak after peak we see in front of us regions full of interest and beauty, but we do not see our goal, we do not see the horizon ; in the distance tower still higher peaks, which will yield to those who ascend them still wider prospects, and deepen the feeling, the truth of which is emphasized by every advance in science, that ‘ Great are the Works of the Lord ’.”

It is this spirit of ever looking onward and upward for truth that gives man a special position upon a globe which is only a particle among innumerable bodies in the immeasurable expanse of a material universe,

## *Chapter Two*

### CIVILIZATIONS OF ANCIENT MESOPOTAMIA

**I**n the study of man and his activities three types of cultural development may be recognized ; and they are all measured by different standards. In the fine arts the imaginative qualities of the mind appeal primarily to the emotions through stimulation of the aesthetic judgment ; material culture is the province of mechanical arts ; and science—the domain of reason—is systematic and formulated knowledge in all fields of human understanding—natural, moral, social and political. Natural science, or natural philosophy, is only one division of science as thus defined, yet, by general usage, the single word now signifies organized natural knowledge. The history of civilization from this point of view is a history of intellectual development in which science has been the chief factor in changing habits of thought from superficial observation and speculative and anthropomorphic theories of causation to clear concepts, rational conclusions, and progressive principles in the advancement of man and society.

In the most primitive times man had to acquire knowledge of the world of Nature around him in order to survive. The effort to secure the food and shelter necessary for his existence demanded a never-ceasing exploitation of the resources of his environment for the progressive improvement of his material equipment—an equipment which he learned to turn against his fellow-man, no less than against the animal world upon which he preyed for food and clothing, or against which he must defend himself. But in this struggle, even more than on his personal prowess, his skill, and his knowledge of the habits of food plant and animal, man relied upon his imagined understanding of, and his

supposed power to control, the hidden causes of the nature and behaviour of the beings and objects of his world ; in other words, his will to survive was rooted in magic. Though the magical beliefs of primitive man may seem to us vain and crude, they should not be despised ; for in these blind gropings to probe causation in Nature may be seen the remote and humble beginnings of the urge to the understanding of the universe, which is science.

It is common in these days to think of progress in terms of material development and to leave out of consideration the contacts of science with what is known as " polite " learning : literature, religion, and other expressions of the human spirit. The noblest works of man are not, however, represented by great industrial advances, but by the search for the truths upon which they are based, and by the influence of this effort upon personal and social ethics. These intellectual or spiritual associations of science were more common in former times than now, when we are passing through, or perhaps, as it may be, just emerging from, a materialistic age in which they tend generally to be neglected. Astronomy has always been the science most closely associated with spiritual feeling, and its religious expression appears in the beliefs of peoples throughout the world.

All such religious beliefs are reflections of thoughts as to the relationships of man to the universe at different stages of civilization. They cannot be understood, therefore, apart from knowledge of the natural and social conditions which produced them. Many types of civilization have come into existence during the past six thousand years or so ; and it would be presumptuous to suggest that anything more than an outline can be given within the dimensions of a book of this kind. The field is so vast that many volumes would be required for even a general survey of it. In the Far East it would be necessary to explore the cultural history of China and Japan, with the Hinduism of Further India and Indonesia. For the Middle East the inquiry should extend into India, with Hinduism and Buddhism and the Moghul Empire ; for Persia, the civilizations of the early Iranian cultures and the periods of Darius and Xerxes ; and from

Sumeria, Babylonia, and Assyria to the Hittites, Syria and the Phoenicians, the Hebrews and the Hebrew Kingdom to Islam in Arabia and beyond. In the Eastern Mediterranean we have the civilizations of Egypt, with the Old Kingdom, the Middle Kingdom, the Empire and the Ptolemaic period ; Crete and the Aegean, with the Minoan, Mycenaean, Helladic and Iron stages of culture ; Athens and Sparta, with Hellenistic and Alexandrian influence, and Rome, with its Republic and Empire.

Stages of European civilization pass from the Neolithic and Bronze Ages to the Iron Age and the Celts into the Roman Empire, which broke up into the " New Rome " of Byzantium, or Constantinople, with its profound influence on the cultures of the Slav peoples, and Roman Christendom, which encountered in the centre and north the invading tribes of Germanic and Scandinavian cultures. This movement, which came to an end with the crowning of Charlemagne and foundation of the Holy Roman Empire, was followed by the uprising of nationalities and the fall of Constantinople, when modern European civilization begins. In South and Central America there were corresponding stages of culture with the Mayas, the Incas and the Aztecs. It is obvious that such a grouping of civilizations assumes an arbitrary definition of the word ; nevertheless, it comprises the most important cultures which have influenced past history.

It has been said that twenty-one civilizations have come into existence in the past six thousand years ; but the number depends on the definition of " civilization ". The classification given below includes the more important cultures which have influenced subsequent history (except the modern American). Those printed in italics may be regarded as sufficiently important or complete in character to be regarded as civilizations in the usual sense of that term. On the other hand, " Gothic " is regarded here as a phase of " Roman Christendom ", an amalgam of Christian and Teutonic. This list recognizes twenty-three types, but it may be doubted whether the Mongols ought to be included ; and America would probably have been omitted under another classification.

CIVILIZATIONS, 4000 B.C.—A.D. 1900

- THE FAR EAST. *China and Japan.*  
Hinduism of Further India and Indonesia.
- THE MIDDLE EAST. *India.* The Indus valley civilization, the Aryans, Hinduism and Buddhism. The Moghuls.  
*Persia.* Pre-Avestian and Avestian. Darius and Xerxes. The Seleucids. Mesopotamia, *Sumeria, Babylonia* (2), *Assyria*, Asia Minor and Western Asia.  
*Mitanni and Hittites.* Lydia and Cilicia.  
*Syria and the Phoenicians.* Carthage.  
*The Hebrews and the Hebrew Kingdom.*  
*Islam.* Baghdad, Egypt and North Africa, Spain.  
*The Mongols.*  
*The Turks.*
- EASTERN MEDITERRANEAN. *Egypt.* Old Kingdom, Middle Kingdom, New Empire, Ptolemaic.  
*Crete and the Mainland.* Minoan and Mycenaean, Helladic and Iron Age.  
*Athens and Sparta.* Alexander, Hellenistic and Alexandrine.  
*Rome.* Republic and Empire.
- EUROPEAN. (?) Neolithic and Bronze Ages.  
Iron Age—*The Celts.*  
*The Roman Empire* breaking up into :  
(a) *Byzantium* and the Slav peoples.  
(b) *Roman Christendom*, which coalesced in the centre and north with the invading tribes, the *Germanic and Scandinavian* cultures. This civilization, if it can be called such, came to an end with the crowning of Charlemagne and foundation of the Holy Roman Empire (A.D. 801), the subsequent uprising of nationalities, and the fall of Constantinople (A.D. 1453), when *modern European civilization* begins.
- AMERICA. Maya, Aztec, and in the south pre-Inca and Inca.

From the point of view of time, the earliest records of civilization come from the two great river-systems of the Nile valley and the Euphrates-Tigris—the domain usually called Mesopotamia, and covering the northern part of the Euphrates-Tigris region, as well as the territory between the rivers. The Euphrates-Tigris region may be regarded as including Assyria, and Mesopotamia as the land between the rivers, in which Sumeria lies to the south and Akkad or Babylonia occupies the northern portion. Much is now known of the natural and social conditions in that country about six thousand years ago, when the Euphrates and Tigris rivers flowed into the Persian Gulf at separate mouths and the region was occupied by a race known as Sumerians. Even in those early days the rivers were regulated by canals and embankments, the ruins of some of which still remain, together with other relics, as archaeological evidence of constructive human design and achievement.

There are traces of a pre-Sumerian people in Mesopotamia proper, but their existence is a matter of inference rather than of direct evidence. The cultural history of Mesopotamia begins with the Sumerians, who appear in Lower Mesopotamia about 4500 B.C. They were a population already possessing a relatively advanced civilization, part of, or closely related to, a widely-spread early cultural complex, having origins to the north, possibly in that part of “the Fertile Crescent” which falls within the northern Euphrates-Tigris region. The early Sumerians were peasant farmers, possessing domesticated animals and plants. Their flint sickles show that they cultivated corn. Although their implements were mainly flint, they possessed, or soon acquired, weapons of copper. They were, in fact, in a chalcolithic (or copper) stage of culture. Their polychrome pottery was refined and delicate.

By the Dynastic period (about 2800 B.C.) the Sumerians had become urbanized and were living in a number of cities, some of which, for example Erech (two square miles), were of considerable size. Of these cities now one, now the other, became the stronger, and attained leadership. Sargon of Akkad, a Semite, not a Sumerian, conquered the whole area

about 2550 B.C. and claimed to have subdued much territory beyond. The urbanized population of Sumeria had developed a recognized system of civic organization, with a high degree of industrial development ; but it was ultimately dependent upon agriculture and flocks and herds. The cities were built of mud-brick with cobbled streets and an efficient system of drainage. The clearest evidence of organized effort is afforded by the huge temple, rising in a succession of terraces to a high tower, which dominated the city and plain. Commerce was already developed, while the use of seals and clay sealings indicates understanding of commercial and legal obligation. The communities were by this time fully literate. They had developed a system of pictographic writing on clay tablets, which evolved into the cuneiform script.

The temple was the centre of city life. Here were concentrated religion, administration, law, literary and commercial activities. The great temple of the Third Dynasty at Ur was dedicated to the Moon Goddess. The temple was the abode of the patron deity, and the city was its appanage ; the chief priest, as the representative of the deity, was the ruler of the city and state. Mesopotamian religion was the worship of these high gods, closely associated with a fertility cult ; but no less prominent in the beliefs of the people were the innumerable evil spirits whose attentions had to be warded off by incantations and charms, of which the temple records on clay tablets contain large numbers. Attempts were made to forecast the action of the spirits and their influence on life by divination and astrology. The religion, in fact, as is shown by the creation legend and others, was one of a struggle between the powers of good and evil, symbolizing the constant effort of the agricultural industry against the encroachments of the desert. It was thus readily absorbed by followers of Zoroaster, the historic founder of the religion of Zoroastrianism, when the country was conquered by the Persians. The people paid tribute of flocks, herds and other produce to the temple as offerings to the deity. The temple or its priesthood thus became the owner of great wealth.

The temple documents contain records of the decrees, conquests and the extent of the dominions of the ruler. These decrees were ultimately embodied in legal codes, of which the most famous is that of Hammurabi of Babylonia, a contemporary of Abraham.

From archaeological remains, as well as the temple records, it is possible to deduce that the early Sumerians were in touch, culturally or directly, with countries far afield. Even in predynastic times they were in contact with Egypt, while so early as 2800 B.C. objects of Indian provenance point to relations with the Indus valley civilization, which indeed itself shows a strong strain of Mesopotamian influence. Sargon claims to have reached "the Upper Sea", which may be the Mediterranean, and possibly he reached Cyprus. By the beginning of the Bronze Age, Mesopotamian influence is to be seen clearly in the Hittite country of the Anatolian plateau, in the Troad, on the mainland of Greece, and even possibly in Central Europe. The basis of these relations was evidently trade.

Among the earliest material imported by the Sumerians was copper. Its source is still undetermined. With the introduction of bronze, tin became an urgent need. The abundance of gold and silver ornaments found in the Royal Graves of Ur is an indication of the wealth and commercial importance of the Sumerian cities at this early date.

The interest of the peoples of the Euphrates-Tigris region in letters throughout their history is notable. The temple tablets show that it was a centre of academic studies. The occurrence of syllabaries and vocabularies was a practical as well as a scholastic need, owing to the agglutinative character of the Sumerian language, which made it difficult for a foreigner to acquire, while their nearness to a Semitic people in the northern part of Lower Mesopotamia made linguistic knowledge a necessity. The later peoples and rulers of Babylonia and Assyria were no less interested in their antiquities, and the transcripts of the early Sumerian and other documents which were preserved in the Assyrian libraries and Babylonian archives have provided much knowledge of Sumerian language, beliefs and customs.

Although Mesopotamia has a long cultural history, extending over some three thousand years or more, when once the cultural pattern was fixed, depending as it does on the character of the environment, it suffered little fundamental change. Development there was, and great Empires arose in Babylonia and Assyria. But the life of the people fundamentally was the life of an urbanized population dependent upon the land. When once the fertility of the land declined and the system of irrigation suffered neglect, the civilization of the region fell into a state of decay and ultimately perished.

## *Chapter Three*

### EARLY STAGES OF CULTURAL DEVELOPMENT

Mesopotamian chronology, with the exception of late dates which can be determined by reference to known historical events, such as the fall of Babylon, rests upon calculation about which there is considerable difference of opinion. Unfortunately, there is no list of kings comparable to the list for Egypt made by the Egyptian priest-historian, Manetho, though Berosus, a priest of Bel at Babylon, who wrote on Babylonian religion and antiquities and whose work, published in Greek in the third century B.C., survives in part in quotations in other authors, gives lists of the early dynasties. His chronology, however, on any explanation, seems irreconcilable with facts. One dynasty alone requires a period of twenty-seven thousand years. His succession of dynasties is usually followed, though with the proviso that some of the dynasties must be contemporary. Hence the use of the terminology "First Dynasty of Ur", "Third Dynasty of Ur", and so forth.

A more trustworthy source, though still subject to dispute as to calculation, is based on the antiquarian discoveries of the later rulers of Assyria and Babylonia. Thus Nabonidus, the last king of Babylon, records evidence from which he deduced that Sargon of Akkad had preceded him by 3200 years. This gives a date of about 3700 B.C., which was for long accepted; but recent archaeological discovery has shown that this must be too high, and presumes a mistake of a thousand years made either by Nabonidus himself or in the record. Further archaeological discovery has reduced the date from 2750, accepted until two or three years ago, to 2550 B.C. The dates given in the following list are subject

to the same uncertainty and differences of opinion, where they cannot be checked by reference to outside sources, such as Egypt. They will serve sufficiently well, however, as a framework on which to peg the development of Mesopotamian cultural history.

4500 B.C. to 2800 B.C. The Sumerian pre- and protohistoric period, in which Sumerian culture developed from the community of peasant farmers to an organized urban population living in a number of cities.

2800 B.C. Dynastic period of Sumeria begins. The First Dynasty of Ur. The Royal Tombs (excavated by Sir Leonard Woolley). Rivalry between the cities and their dynasties.

2800 B.C. approximately. Bronze Age begins, though sporadically earlier bronze may occur in Sumeria.

2550 B.C. Sargon of Akkad, a Semite of Kish. In the contest between the cities, which had been going on since the beginning of the dynastic period, or even before, he rises to supremacy. Sargon was undoubtedly a great conqueror, though perhaps it is doubtful if he really subdued as much as he claims. He is said to have reached the Anatolian plateau and "the Upper Sea". He also claims to have organized his empire by the provision of roads and travelling posts. His successor, Naram Sin, also claimed to hold wide territory. They are undoubtedly the greatest figures in early Mesopotamian history.

2400 B.C. The Third Dynasty of Ur. Temple of the Moon (excavated by Sir Leonard Woolley). A period of great religious and civic expansion. High development of art and architecture.

2300 B.C. References begin to appear to individuals called "Amurru" among the population. Thought to be the fore-runners of the "Amurru" (possibly Amorites) who invaded the country and captured Babylon, founding . . .

2200 B.C. (or slightly later). The First Babylonian Dynasty. The most famous monarch of this dynasty is Hammurabi, usually said to be the Amraphel of the Bible, the author of the great legal code and a contemporary of Abraham.

1750 B.C. (approximately or some believe earlier, about 1900 B.C.). Invasion of the Kassites. An incursion of a people from the north, it may be from the Iranian plateau. They appear to have brought the horse into Mesopotamia. It is conjectured they may have been a branch of the Aryan-speaking peoples, who appear about this time in various parts—Iran, later in India,

and elsewhere, including Europe. If the Kassites were members of the Aryan-speaking group, they did not affect the language. There is evidence of an Aryan-speaking domination in the Hittite Empire about this time, and the Mitanni were also a horse-breeding Aryan people. The Kassites founded . . .

1740-1150 B.C. The Third Babylonian, or Kassite, Dynasty.

1400 B.C. (or a little earlier). Fall of Jericho.

1380 B.C. Accession of the Egyptian King Amenhotep IV or Ikhnaton. The period of the Tell el-Amarna letters, containing evidence of relations of Egypt, Hittite Empire, Mitanni, and Mesopotamia.

1150 B.C. Rise of Assyrian Empire and fall of Kassite Dynasty. A period of expansion for Assyria. In the eighth century B.C. Tiglath Pileser, the great conqueror, began attacks on Palestine. Sennacherib captured Babylon in the seventh century B.C. and attacked Palestine. Nebuchadnezzar, of the Neo-Babylonian Empire, invaded Palestine and captured Jerusalem, 580 B.C.

555-539 B.C. Nabonidus, last king of Babylon. Babylon fell before attacks of Persians.

It is in great river valleys that the cradles of civilization are found. This is true of India and of China, and in no less degree of those two great centres of cultural development of the ancient world, the Nile valley and Mesopotamia, in which can be discerned the earliest beginnings of characteristic elements in the development of modern western civilization. Practically all the literary records which exist relating to the early history of Mesopotamia are in the collections of the British Museum. They consist of thousands of inscribed clay tablets from the Royal Library at Nineveh of King Ashurbanipal of the seventh century B.C.

By what is almost an accident of history—the aversion of the Greeks from the “tyranny” and ostentation of eastern monarchies, as well as their cultural and commercial relations with Egypt—the contribution of the Euphrates-Tigris region in the development of modern culture has been obscured, while that of Egypt, enshrined in a literary tradition, has been placed in too favourable a light. It is only in recent years that the balance has been restored in some measure by archaeological investigation, more especially by the excavations of Sir Leonard Woolley at Ur of the Chaldees

and in Syria, of Mr. M. E. L. Mallowan in Assyria and Syria, and of Dr. H. Frankfort, working on behalf of the Oriental Institute of the University of Chicago, on a number of sites in Western Asia. Through their discoveries it is possible to appreciate more fully than before how deeply the peoples of advanced civilization of to-day are indebted to early cultural development in the Euphrates-Tigris region so far back as the second and third millennia B.C., or it may be even earlier.

Although Mesopotamia, owing to geographical conditions, cannot afford evidence of cultures belonging to the Palaeolithic period about forty thousand years ago, such as those found in the Nile valley, on the present commonly accepted basis of computation of the antiquity of the Neolithic civilization about 10,000 B.C., with which the growth of the "modern" type of cultural environment may be said to begin, we are justified in regarding both these regions as possessed of a relatively advanced form of early civilization so far back as the fifth millennium before the Christian era.

For the earlier formative stages from which this civilization developed, it is to be presumed that a very considerable period of time must be allowed. In Western Asia, indeed, this inference is confirmed by the very great depth at which occur the archaeological deposits containing the relics of the civilization of the widely distributed painted pottery of the earlier monochrome group. On such sites, for example, as the Transcaspiian Anau, or at Susa in what is now Iranian territory, the evidence of stratification points to an antiquity of occupation which authorities would count not in centuries but in millennia. In Mesopotamia itself Sir Leonard Woolley at Ur, in tracing the evidence of occupation down to virgin soil, has found cultural material belonging to periods prior to a great flood, of which he has considered it reasonable to assume the tradition survives in the story of the Flood of the Bible. This story is known to have been derived from a Babylonian legendary account, of which a version has been preserved in cuneiform on tablets of clay.

The evidence from Ur may well take us back into the fifth millennium B.C., to which period also belongs the

earliest occupation revealed by excavation at Kish. At Erech, also a city site of the Mesopotamian delta, German excavators have found below what are termed the dynastic levels, computed to date at approximately 3100 B.C., the superimposed remains of three great, impressive temples, each of which had been reconstructed on more than one occasion. These alone in themselves must be regarded as convincing evidence of the passing of a considerable period of time ; but they were preceded by no less than eighteen distinct and superimposed layers of occupation, which were penetrated by excavation before virgin soil was reached at a further depth below the earliest temple of 17 metres, say 60 feet. Here the evidence of earliest occupation cannot be much later than 4500 B.C.

This early al'Ubaid culture, as it is termed from the site on which it was first recognized for what it was by the late Dr. H. R. Hall, the culture of the early Sumerians, is represented at Erech and other sites, as being already well advanced. It is an agricultural civilization which had progressed far beyond the crude beginnings of cultivation when it first appears in the Mesopotamian delta. It grew corn, as is shown by its sickles of flint, and although flint continued to be the main material for weapons and implements, it acquired copper. Its pottery of the painted pottery types, a polychrome ware, later in date than the monochrome painted ware already mentioned, was remarkably refined and delicate.

From this and other evidence it appears that the origins of this early Sumerian civilization are to be found to the northern area of the Euphrates-Tigris region, somewhere in what the late Prof. J. H. Breasted happily termed " the Fertile Crescent ". Culturally, the al'Ubaid civilization belongs to a complex characterized by this painted pottery, which has a wide geographical distribution, extending from Southern Russia to China. It is probable that not all the sites on which this painted pottery is found are of a like antiquity. Indeed, it may be postulated that a considerable interval of time separates its extreme geographical limits ; but so far as Western Asia and Mesopotamia are concerned,

it has been shown by excavation in Assyria and Syria that, on certain sites, the al'Ubaid culture corresponds with cultural deposits in levels, now some 25-30 metres above the plain, in mounds in which the horizon of earliest occupation may extend back well into the sixth millennium B.C.

It is thus evident, that even before the period of dynasties (2800 B.C.), there had been in the Euphrates-Tigris region a cultural development which, by the beginning of the third millennium B.C., had already been in progress for something over, rather than under, two thousand years. In the actual Mesopotamian delta, the Sumerians, beginning as a community of farmers—a community in certain respects evidently a group of pioneers—depending to a large extent on the date palm, the most important product of Mesopotamia throughout its history, but cultivating corn and possessing domesticated animals, had by then advanced, or rather for some considerable time had attained to the status of an urbanized society. They had a well-developed industrial system, and were sufficiently organized to erect public buildings of the size of the temples at Erech and provide the cities with cobbled streets and a system of drainage of a comparatively advanced and efficient type. The scarcity of stone made it necessary for them to use mud bricks, at first sun-dried, but which when fired, if they hampered the development of their architecture in some directions, fostered it in others, leading, for example, to the discovery of the principle of the true arch, which became familiar to the users of stone only much later. By the early days of the dynastic period, the city of Erech had grown to cover a space of two square miles, while scattered throughout the delta were other no less important cities: Kish, Agade, Ur, Lagash, Isin and others, now one, now the other, aspiring to and sometimes attaining dominance over the rest.

Another consequence of the use of mud-brick, of unquestionably greater importance for the development of civilization, was the facility it afforded for the development of a system of writing and the use of seals for confirming personal, official and commercial documents. By the dynastic period there is evidence that the peoples of Mesopotamia were fully

literate, at first using a pictographic script, which later, through the employment of a triangular stylus for drawing on the moist clay of the tablets they used for writing material, developed into the cuneiform system of writing. If, however, this material condition fostered the evolution of a script, the need for developing a system of recording day-to-day happenings was no less forced upon them by their religious, social and economic organization.

In the Mesopotamian city—and this holds good throughout the greater part of the history of the region—the most imposing erection was the temple, a monumental structure of brick, dominating and dwarfing all other buildings—the home and dwelling-place of the patron deity of the city. It stood in its own enclosure, which was surrounded by a wall, forming an interior, or secondary, fortification. In its more highly elaborated form it was raised on a succession of terraces, approached by broad flights of steps, thus forming an impressive staging for the elaborate ceremonial processions, in which an image of the deity, or perhaps the high priest—his or her representative on earth—participated, attended by a train of lesser priests and worshippers. This succession of terraces led up to and culminated in the *zigurat* or tower, which looked out over city and plain, and topping the city mound with its brightly coloured walls, formed a conspicuous object in the flat monotonous landscape, visible for many miles.

The dominance of the temple tower over the city and its surroundings was symbolic of the place of religion in the organization of the life of the citizen. The high priest was the ruler of the city, and the people were his subjects in virtue of his priestly office, as the high gods' earthly representative, to whom they paid tribute of sheep, cattle, and other produce of their industry, as sacrifice to the gods. The temple organization in its most advanced form of development is perhaps best to be appreciated in the temple of the Moon Goddess of the Third Dynasty of Ur (*c.* 2400 B.C.), which was excavated by Sir Leonard Woolley. The dedication of this temple to the Moon Goddess was natural to an agricultural people, whose calendar was regulated by the

moon, and whose seasonal occupation of cultivation of the earth and the care of flocks and herds, as well as their addiction to divination, constrained them to watch the apparent motions of the stars and planets.

The elaborate decoration of the temple at Ur, with its friezes of copper, on which bas-reliefs depicted activities connected with the care of the herds, brings out clearly the close relation of ritual, industry and art, which must have been ever present in the mind of the citizen. This relation is even more intimately stressed when, as at Tell Asmar, the temple sculpture represented the deity and chief ministrant in the ritual performance of the central act of the fertility cult, which with living participants survived in Babylonia down to historic times, as may be inferred from the accounts of Herodotus and others.

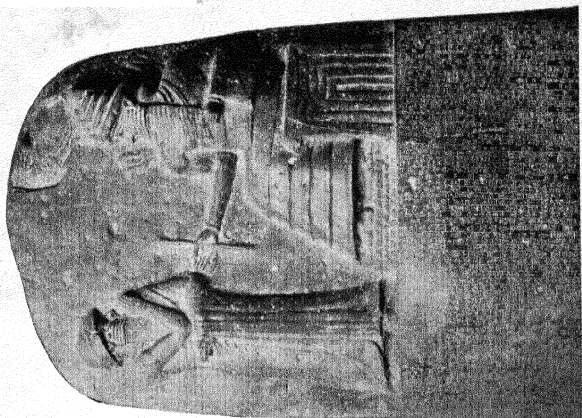
Life for the peasant farmer of Mesopotamia was a constant and never-ceasing struggle between the desert and the sown ; and the effects of this struggle were no less deep-rooted in the minds of the urban population, whose very existence in the last resort was bound up with the land. Not only did the fertility of their fields depend upon irrigation, which needed constant care—Babylon was far-noted for its waterways—but also the flocks and herds, from the former of which came their wool, which was the chief article of commerce, were at the mercy of the apparent caprice of disaster by flood and tempest, especially lightning and sand-storm. Of these anxieties no more striking picture could be found than in the catastrophies of the story in the Book of Job. It is, therefore, no matter for surprise that throughout Mesopotamian history the religion of the people, in addition to the worship of the high gods, who must be propitiated by sacrifice, is gravely preoccupied with a thronging world of spirits, whose evil attentions must be averted by spells and charms, and whose intentions and interferences with daily life are forecast by divination from the stars, the inspection of the entrails of sacrificed animals, and other means. The story of creation, which is echoed in the Biblical version, tells of the emergence of the world from chaos in the struggle between the powers of good and evil. This appears also in

the story of the Garden of Eden and the Fall under temptation by the Serpent.

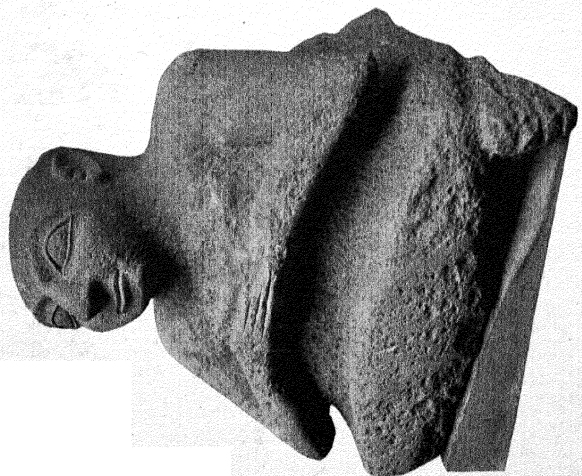
The dualistic symbolism of the struggle of ordered life against the almost overwhelming forces of the environment was a central theme of Mesopotamian religious belief for some thousands of years, as is shown in the innumerable tablets which have been recovered by archaeological exploration among the temple records. Under the Assyrian empire the powers of evil are regarded as embodied in the hideous forms of demons, who figure prominently in Assyrian art. Finally, the belief in this conflict was absorbed in the kindred faith of the struggle between Ormuzd and Ahriman, which was introduced by the Persian conquest on the fall of Babylon.

But the temple records were not solely and exclusively concerned with religious matters. The temple was the centre of the city's administration, of its law, and of its academic and commercial activities. The decrees of the ruler and the records of his acts appear equally with the regulations by which the varied life of the community was governed—later to be embodied in legal codes. Thus Sargon of Akkad and his successor, Naram Sin, record their conquests and the bounds of the territories over which they ruled ; while the former sets forth the details of the measures he had taken for the improvement of communications within his empire. Of the legislative measures of the Mesopotamian rulers, the most famous is the code of Hammurabi of Babylon, the contemporary of Abraham, sometimes identified with the Amraphel of the Bible. It is from this code, which has been shown to be of Sumerian origin, that much of the early legislation of the Hebrews recorded in the early books of the Bible is derived. In relation to its time this code must be regarded as a monument of legislative skill in enactment. It makes provision in detail for every contingency which might be expected to arise in the daily life of the community and in the relations of its members.

By the dynastic period, it has already been stated, the Sumerian communities were already fully literate—not indeed that this is to be understood so far as concerns individual



*British Museum*  
 Top of the slab engraved with Hammurabi's code of laws. The King is receiving the laws from the Sun-god Shamash. Period about 2100 B.C. The slab is in the Museum of the Louvre, Paris, and there is a cast of it in the British Museum



*British Museum*  
 Stone portrait figure of an early Sumerian. Period about 3000 B.C.



members of the community as necessarily applying outside the priestly class and the scribes. The interest in letters, however, is a remarkable feature in Mesopotamian culture, and endures throughout its history. The attention given to syllabaries and vocabularies is no doubt to be attributed to the foreign relations of the people, who must to a considerable degree have been polyglot.

The Near East is still one of the most polylingual regions of the world, and among the many peoples who mingle there the Armenians are conspicuous for the facility with which they acquire languages—a facility which must have distinguished some of their forebears. The Sumerians themselves, speaking an agglutinative tongue, with all its difficulties for a foreigner, would be bound to acquire the Semitic language of their neighbours, the people of Akkad, for it has to be remembered that while the southern part of Lower Mesopotamia was Sumerian, the northern area here was held by Semites, who under Sargon of Akkad (2550 B.C.) made themselves for a time masters of the whole region. At Ras Shamra in Syria, which though lying outside the area with which we are here concerned, was in close touch with it in the middle portion of the second millennium B.C., there have been found in recent French excavations dictionaries written in cuneiform, no doubt compiled for the practical purpose of commercial inter-lingual communication, as well as scholastic studies.

In the later ages of the Babylonian and Assyrian empires, the interest of the monarchs in literary and antiquarian subjects caused them to have transcripts made of early Sumerian and other documents. Such collections were stored in the library of Ashurbanipal and among the archives of Nabonidus of Babylon. To these tablets and to the collections of originals from earlier sites, such as the temple records recovered from Kish and Ur, we are indebted for our insight into the languages, the beliefs and the laws and customs of early dynastic Mesopotamia.

From almost the earliest times the Sumerians must have established some degree of organized international commerce. Among their earliest needs was copper, although

the source from which Sumerian copper was obtained is still undetermined. Some would say Arabia, while others look to the Anatolian plateau ; and even so far afield as Katanga and Northern Rhodesia has been suggested. With the introduction of bronze in the early centuries of the third millennium, tin became an essential need. The quantities of gold and silver ornament found by Sir Leonard Woolley in the Royal Graves at Ur afford further evidence of an active and extended foreign trade, in which these metals are only the most conspicuous components. By this time also, Mesopotamia had been for some considerable period in close touch with India, as is indicated not only by the general character of the culture of the Indus valley civilization, but also by the discovery in Mesopotamia of objects of undoubted Indian provenance which can be dated at somewhere about 2800 B.C.

With Egypt there had been cultural contacts so far back as the pre-dynastic period of that country. There is also evidence of trade relations with the Hittite empire in the cuneiform tablets dealing with commercial transactions found in the chief city of that empire, and with the people of Mitanni, while references to Assyrian relations which occur in the Tell el-Amarna correspondence with the ruler of Egypt in the fourteenth century B.C. are well known.

From a very early date, therefore, the Euphrates-Tigris region, and more especially Sumeria, was exercising a very decided influence on a widely spread area of cultural development. How great this really was will perhaps be decided with greater certainty when archaeologists are in a position to interpret more completely the results which Sir Leonard Woolley is obtaining in his excavations on the Orontes plain in Syria, and it is possible to trace to their origins the threads of the commercial and cultural contacts of the second millennium B.C., of which he is there finding evidence.

The basis of this great system of international relations, if the dynastic conquests and diplomatic relations of Babylon and Assyria in later ages are disregarded, was trade, rooted,

so far as Mesopotamia was concerned, in the land, and more especially in the staple product of wool. Field and city were indissolubly bound up together. Of the life of the former at about 2000 B.C. an intimate glimpse, at least from one side, may be obtained in the story of the patriarchs in Biblical narrative. Here, however, the picture is that of the life of a more or less nomad pastoral group; but in the temple records of Sumeria, as, for example, in the temple of the Third Dynasty of Ur, another side of the picture is presented. Here is the evidence that this pastoral life had behind it a highly commercialized system, with an elaborately organized record of income and expenditure, sales, loans, contracts and other business transactions, and with its network of agents and officials at home and abroad. It is not surprising that in Mesopotamia and the lands with which it was in closest contact, seals and clay sealings are among the more common and significant of archaeological finds, and that such an intricate commercial organization should have fostered the elaboration of a system of writing at so early a date.

These early stages of development of Mesopotamian culture were succeeded by the great empires which grew up in Assyria and Babylonia, but throughout them all the environment in Mesopotamia determined the type of civilization. When once the main pattern of the life of the people had taken shape—a city life based upon the land—it remained unchanged in essentials over a prolonged period. It is true that there was cultural development, more especially with the introduction and extended use of a metal such as iron; and the civic organization must have suffered some change under great despotic monarchs; but fundamentally in belief, occupation, and general organization of life, the differences throughout the ages were of degree rather than of kind. Mesopotamian civilization rested upon the river; but unlike the Nile, it brought no fertilizing silt to reinvigorate the land from year to year. In the end the land soured, agriculture declined, and the system of irrigation was suffered to lapse into decay. With the fall of Babylon in the sixth century B.C. Mesopotamia ceased to hold its

place in the world for a thousand years, until under a Moslem ruler Baghdad rose to take the seat of Babylon.

The most remarkable feature of Mesopotamian culture was its perdurable character. When once the foundations of an urban civilization had been laid by the early Sumerians, they endured for thousands of years—in fact, for a longer period than any other form of civilization in the history of the world, not even excepting that of the Chinese. Neither racial nor cultural intrusion was strong enough to deflect that civilization from its normal course of development for any length of time ; and indeed, invading elements were invariably absorbed in the long run. This would appear to be the course of events in the obscure period which followed the Kassite invasion, when Kassite rulers were supreme in Babylon and the Assyrian empire was in process of formation in the second millennium B.C., in so far as the history of the period can be discerned through the mists of time.

The Assyrians were, it would appear, an agricultural people of simple culture, their needs few, their tastes unsophisticated. On the evidence of language and their bodily characters, they were Semiticized Armenoids, derived ultimately from the highlands of the Anatolian plateau. Their government seems to have been originally theocratic. Such at least would be a justifiable inference from the fact that their first ruler, so far as known, a contemporary of Hammurabi of Babylon, was a high priest of the Assyrian war god. Of this war god the sanctity was such that, while there were innumerable shrines to other deities in Asshur, for long the chief city of the Assyrians, it was his cult which caused that city still to be held in veneration when in later years the dynastic ambitions of Assyrian rulers had moved the centre of government to Nineveh.

The strength of Assyria, however, unlike that of the other commercialized states of Mesopotamia, lay not in an urban organization, but in a peasant population, which was organized to give service to its ruler, not only for public works, but also for war. The Assyrian empire owed its existence to the character of its militia-army, as much as to the military skill of its rulers ; and it was only when, in the

late history of the empire, those rulers ceased to take the field at the head of their forces, and a country exhausted by incessant campaigning was no longer capable of filling the ranks of its armies with a native soldiery, but had to make good the deficiency from the ranks of conquered peoples or mercenaries, that the empire began to totter to its fall. It was, too, in these later years of the empire, when the monarch no longer took the field, that there came that remarkable efflorescence of Assyrian art and learning, of which we have reaped the benefit in the unsurpassed achievements of Assyrian sculpture and in the clay tablet archives of the Royal Library, which have preserved so much, not only concerning Assyria, but also (in translation) of earlier Sumerian records.

However true it may be to regard the Assyrian empire at the height of its power as a destructive force through its wide-flung conquests, it was also thereby a great and powerful agency in the dissemination of culture. Throughout its history Mesopotamia was, to a great extent, polyglot and polycultural, but under the empire—and this also largely applies to the later Neo-Babylonian kingdom which succeeded it, though there rather on account of its reputation as a centre of learning—Assyria was a great centre of assemblage of all the races of the then known world, brought thither by conquest or commerce, while they came to Babylon out of desire for learning and the lore of the Chaldees. It was into such a cosmopolitan world that the Jews, already members of a state largely internationalized by its geographical position and political history—were introduced by the captivity. Small wonder then if post-exilic revision of biblical narrative should have introduced into the Holy Books elements of the legends and beliefs with which the Jews had come into contact during their exile, notwithstanding the exclusiveness of a chosen people.

It is perhaps permissible to see in the later history of the rulers of the Assyrian empire and the efflorescence of Assyrian culture a certain softening of fibre which comes from conquest and a not too wise enjoyment of the fruits of victory. At the same time, it is evident that once more the

intrusive culture, after long resistance, succumbed to that of the vanquished people. No other explanation need be sought for the remarkable zeal for all things Sumerian which gave rise to the antiquarian spirit of inquiry of which we find evidence in the cultural relics of the late Assyrian empire.

With the rise of the Assyrian empire at the beginning of the last millennium B.C., Babylon had suffered an eclipse. Save for brief revolt, it was for the greater part of the first half of that millennium, until the rise of the Neo-Babylonian kingdom, no more than a vassal state of Assyria. Nevertheless, Babylon was the holy city of Mesopotamia. Its sack and destruction by Sennacherib was an act of sacrilege, which caused a thrill of horror to run throughout the people, and quite possibly contributed not a little to the uprising which caused the downfall of the empire and the founding of the Neo-Babylonian kingdom. In this kingdom Nebuchadnezzar and others of its rulers essayed, even in the form and size of the reconstructed temple buildings, to raise once again the glories of ancient Babylonia. During the Assyrian supremacy the religious and cultural dominance of Babylon, notwithstanding its subordinate status, had indeed been admitted by the Assyrian monarchs, when they had acquiesced in the claim of the Babylonian priesthood that their accession to the rule of the Assyrians was not properly assured until each had undergone a religious ceremony, something in the nature of a coronation, in Babylon. Cyrus himself, the conqueror of Babylon, did not feel that his hold on the city was complete until he had tarried within its walls for some months in order to take part in the religious processions of the New Year, which followed some months after the city's surrender. By this act he affirmed his standing as priest-king. Once more the dominant role of religious cult in the polity of the Mesopotamian state was vindicated.

## Chapter Four

### ASTROLOGICAL INFLUENCES AND RELIGION

Even in most primitive times, knowledge of the properties of the things around him was necessary for man's existence, and mysterious characteristics of natural objects and phenomena were worshipped in fear or adoration. Although among the cave paintings and engravings, which prehistoric man has left to us in evidence of his magical and religious beliefs, there is none upon which an astronomical interpretation could be placed with certainty, it is clear that with the introduction of agriculture in Neolithic times man must have looked to the heavens for guidance in his calendar of operations among his flocks and herds and in his fields. It may be that in early times the constellations were of even greater significance than the sun and moon, just as they are now among the primitive peoples of modern times, for whom in many parts of the world the rising of the Pleiades marks the beginning of the year and the time to prepare the ground for planting. Thus it is recorded that while the Kenyah and Kayan of Borneo <sup>1</sup> note the passing of time by measuring the sun's shadow with a marked stick, they nevertheless send a man to the forest to watch for the rising of the Pleiades to warn them of the coming of the north-west monsoon. Also, among the Ba-Ila of Northern Rhodesia, to whom the only planet known is Venus, though they duplicate it as morning and evening star, the Pleiades are known as "The Shewer", because this star-group indicates to them the beginning of the year and the time to prepare

<sup>1</sup> *The Pagan Tribes of Borneo.* By W. McDougall and C. Hose. (London, 1912.)

the ground for planting.<sup>1</sup> There is evidence of the influence of the Pleiades in prehistoric times in Western Europe. The stone circle in Cornwall known as "The Hurlers" would appear to be orientated to the rising of the Pleiades; and the old Erechtheum, the temple dedicated to the legendary King Erechtheus at Athens, was associated with this same group.

At the beginning of the history of civilization the sun and moon were given divine attributes, as well as used to mark the times of operations of life in days, months and years. The earliest cultural contacts of science are preserved in historic records of such observances. Studies of these records in cuneiform texts show that a considerable knowledge of the stars existed in Mesopotamia so far back as the time of the Sumerians. Astronomical texts have survived which date from Sargon of Akkad, who lived about 2550 B.C., and from his successor, Naram Sin; and in the time of Hammurabi (about 2100 B.C.) a formula for divination mentions the configuration of certain constellations.

It would, in fact, appear that by about 3000 B.C. the Sumerians were already well acquainted with the skies. They regarded the stars collectively as a flock of sheep, the sun being the old sheep, while Sibzianna, which is thought to be Arcturus, was "the star of the shepherds of the heavenly herds". From boundary stones, inscribed cylinders and cuneiform tablets many references have been collected which point to a considerable astronomical knowledge of this period. Groups of stars, or asterisms, were being formed with a well-defined system of star names, and the zodiac was marked out. The constellation which we now know as that of the Virgin, for example, was recognized in the fourth millennium B.C. This knowledge was taken over from the Sumerians by Babylonia.

A great store of astronomical and astrological lore was collected from older material in the library of Ashurbanipal about 650 B.C. This formed a library of reference; but there were also collected in the library the reports from an elaborate network of astronomical observations which were being made systematically all over the country.

<sup>1</sup> *The Ba-Ila*. By H. Dale and E. W. Smith. (London, 1920.)

In the time of Sargon of Akkad the sun-god was given the highest place in religious devotion. He is depicted with one foot upon a mountain and as the supreme judge carrying a saw with which he "cuts decisions", while rays representing the sun issue from his shoulders.

It is in ancient Babylon that the earliest references to the signs of the zodiac are found. All the well-known zodiacal signs, except those of Cancer and Sagittarius, can be identified with figures represented upon engraved cylinder seals used to impress their designs upon tablets of the First Dynasty. In addition to groups of stars thus recognized, the sun, moon and planets were named and their positions used for astrological purposes. Their Babylonian names were: Shamash (the sun); Sin (the moon); Nabu (Mercury); Ishtar (Venus); Nergal (Mars); Marduk (Jupiter); and Ninurta (Saturn).

These astronomical bodies, and others representing natural objects and phenomena, were the principal gods of Babylonian religion. Marduk eventually took the form of the sun-god and became the chief god of Babylon. Three gods of the sky, the earth and the abyss or deep knowledge formed a trinity: Nabu (Mercury) was the god of science and learning; Ishtar (Venus) corresponded to the goddess of love and beauty of the Greeks of a much later period; and Nergal (Mars) was similarly the god of war and hunting.

In the earliest times this astronomical knowledge was chiefly applied to astrological omens and forecasts relating to the king and the state; and there is little evidence of the existence of horoscopes of private citizens. Predictions of coming events of importance were derived by the priests of Babylon and Assyria not only from aspects of the heavens, but also from many other natural growths and phenomena. In astrology, eclipses of the sun and moon, positions of the planets in the signs of the zodiac, meteors and shooting stars, storms, thunder and lightning, the movements of clouds and the direction of winds, were all regarded as influencing human life and events in the near or remote future. Similar omens were derived from the conditions of certain parts of

the human body, the actions of various animals, the colours of dogs entering temples, birth monstrosities, dreams, the appearance of the entrails of sacrificial victims, and scores of other subjects.

To the Babylonians astrological forecasts based upon aspects of the heavens belonged to the same category as omens interpreted from unusual natural occurrences, and they were just as unworthy of intelligent acceptance. The religious practices in Babylonia based upon these beliefs, derived essentially from the early Sumerians, were of the nature of elementary magic, and were intended to secure good food-crops and success in industrial and commercial enterprise. They represent a time when man regarded himself as the centre of the visible universe and all things and movements in heaven or earth were believed to be reflected in his existence.

Though accurate observations of the heavens were also made by the Egyptians at an early period of their history, in its dawn astronomy was of an essentially religious and magical character. The desire to obtain a knowledge of the future from the aspect of the heavens was doubtless one of the principal motives which actuated the Egyptians, the Chinese, and in particular the Babylonians in their earlier observations of the stars ; and it was only after many centuries that the practice of astrology gave place to more scientific aims and methods.

During the Assyrian empire important astronomical schools were in existence in the eighth and seventh centuries B.C., and a number of reports made by the royal astrologers have been preserved. From these and from the lists of stars, observations and calendars of the same period, it appears that at the time the science was still at its astrological stage of development.

Later, Babylonians studied astronomy on a purely scientific basis. Though they had no correct conception of the solar system, they had arrived at the conclusion that the movements of the heavenly bodies were governed by laws and were amenable to calculation ; in fact, astronomical tablets belonging to the Seleucid and Arsacid eras prove

that they calculated the time of the new moon's appearance, and the periodical appearance of lunar and solar eclipses, that they noted the courses of the planets, and included in their observations a number of the principal constellations and fixed stars. In consequence of these discoveries, it is now a generally accepted opinion that the Greeks obtained from the Babylonians of this period the greater part of their knowledge of astronomy.

The chief constellations known to the Greeks seem to have had their origin among the primitive peoples of the valley of the Euphrates. Few of these groups of stars have any resemblance to the figures whose names they bear. It seems as if the myths relating to these figures existed as ideas in the minds of primitive peoples, and that the general arrangement of stars in certain groups was used to represent these figures. That is to say, the constellations did not suggest the myth or legend, but were adapted to express an idea. Some constellations are, however, definitely associated with weather or seasonal changes on the earth.

The antagonism between light and darkness is represented in the beliefs of many ancient peoples as conflicts between good and evil, between gods which personify the sun, moon, planets and stars, and demons belonging to the underworld. The oldest gods of Babylonia were associated with the heavenly bodies and are identified with deities which figure in the story of creation as told in the "Seven Tablets of Creation". In the fifth tablet, for example, it is said of the supreme god, Marduk :

" He formed the heavens for the great gods.

He set in heaven the constellations which are their likenesses.

He fixed the year, he appointed limits.

He set up for the twelve months three stars apiece."

This reference is to the division of the year into twelve parts, represented by twelve constellations, or signs, of the zodiac, each distinguished by three stars. Twelve similar groups, each known by three particular stars, are described in astronomical and astrological texts of Egypt, Greece, Syria and Arabia.

Much has been written and believed—most of it incorrect—about Chaldean astrologers, but for actual information concerning the knowledge they possessed, and the uses they made of it, references must be made to the series of astrological reports of the Royal Library of Nineveh, which were translated into English at the beginning of this century by a leading Assyriologist, Dr. R. C. Campbell-Thompson.<sup>1</sup>

There is no doubt that the study of astrological astronomy is very ancient in Western Asia, but the oldest known texts of this class are those of the reign of Sargon of Akkad. The principal astronomical schools in Assyria in the seventh century B.C. were at Ashur, Nineveh and Arbela, and at a later period there were famous schools in Babylonia at Sippara, Borsippa and Erech or Orchoë. The chief duty of the astrologer in Assyria was to calculate times and seasons, using simple instruments for his observations. The time measure was two hours ; the month contained thirty days. Both the Assyrians and the Babylonians had a year of lunar months, and much of the time of their star-gazers was spent in observing the sun and moon, with the view of determining when the months began and ended. From observations of the planets Jupiter, Venus, Saturn, Mercury and Mars (the sun and moon were also classed as planets), together with observations of constellations of the zodiac, and other celestial bodies, omens were deduced, and from the position of the horns of the moon many portents were derived. The astrologers had to report to the king the exact time each new moon appeared, and to interpret to him the meaning of particular aspects of the heavens. In addition to stating the astronomical state of the sky, the astrologers often added comments upon current affairs or suggested that the signs portended further favours of the gods, whose will was believed to be reflected in the movements of the planets and other celestial bodies.

As the sun, moon and the five planets were deities personified, and therefore were objects of worship, it was natural that their appearances and positions should be carefully

<sup>1</sup> *The Reports of the Magicians and Astrologers of Nineveh and Babylon.* (London : Luzac & Co., 1900.)

observed in order to determine the times of religious festivals. Each god or goddess was endowed with special qualities and was regarded as having particular influence upon the earth and mankind ; and the supreme god, Marduk, possessed the attributes of many of the others. There were thus, in those days, very good reasons for believing that aspects of the heavens, as represented by planetary or other gods appearing in them, directly affected people and events upon the earth. Such associations of celestial bodies with terrestrial affairs form part of many early religious beliefs. When, however, the planets and other heavenly bodies were divested of their gods, and became substance instead of spirit, the essential principle of astrological relationships disappeared.

Astrology implies the existence of separate deities associated with, and controlling the motions of, prominent astronomical objects. To believe in it is to enshrine divine attributes in bodies which are now known to be purely material, and the movements of which are determined by known natural laws. It is only by disregarding such knowledge, and reverting to the pagan religious beliefs of ancient Babylonia, Greece and Rome, that the teaching and guidance of astrology can be accepted by civilized people to-day. The practice of astrology was condemned by many Christian councils, and science is unable to afford any sound basis for its principles. That astrological conceptions associated with religious beliefs of five thousand years ago should be exploited by a modern priesthood is a pathetic reminder of the persistence of human credulity, and the slow rate of transition from primitive conceptions to enlightened knowledge.

It is suggested by modern astrologers that the moon and the planets emit characteristic radiations which affect life upon the earth. This is the basis of the belief that the growth of seeds is influenced by the phase of the moon at the time when they are sown. There is no more justification for this belief than there is for that of the influence of the moon upon the weather, which is enshrined in the folk-lore of many countries. Though careful scientific inquiries have been carried out with the view of discovering any relation

between the weather and the various phases and positions of the moon, no connection has been found definite enough to be of service in actual weather forecasting. Anyone who can bring forward evidence which will establish such a connection will make a notable contribution to meteorological science, and at the same time confer a benefit upon humanity. Meteorologists are prepared to adopt any rule or relationship which is of assistance in preparing their weather forecasts ; and the fact that they take no account of lunar phases or the directions of the moon's horns—which can be determined many years in advance for any place on the earth—shows that lunar influence has not yet been brought within the sphere of practical science.

From time to time popular newspapers pander to popular beliefs by publishing weather forecasts based upon positions of the moon or other celestial bodies, but when such predictions are critically examined over a reasonable period, their success or failure is found to be determined by the law of chance. About fifty per cent of any such predictions are fulfilled and about fifty per cent are incorrect ; so that the odds are even. As people always remember their winnings more than their losses, a tipster may depend upon gaining a good following when he is just as likely to be right as he is to be wrong in the information he gives. In general, the public regard weather forecasts in much the same spirit as they accept the astrologers' view of " What the stars foretell ", and they do not wish to inquire critically into the predictions or to know anything of the principles upon which the prophecies are based. They are not likely to be shaken in their cherished convictions by the knowledge that no convincing evidence has yet been submitted to the court of science to establish any direct connection between the weather and the moon or the planets, or between these bodies and any events or conditions of human life on the earth in the past, present or future.

## *Chapter Five*

### ANCIENT EGYPT

**T**he sun as the source and benefactor of all life on the earth was the essential idea of the religions of ancient Egypt, and was worshipped in the form of Ra or Amon-Ra. Osiris was the god of the underworld, and there were many local deities to which reverence was paid. Long before these beliefs crystallized into definite doctrine, and the priests and priest-kings used them as social influences, cruder forms of worship were followed. Even in the most enlightened period of Egyptian history the people were intensely superstitious, and to them there was little distinction between the magician and the priest.

What were the religious ideas of the earliest peoples in Egypt can only be a matter of speculation based upon the implements and drawings and other relics of prehistoric man. In archæology what is known as the Stone Age, because metals were unknown or not used, is divided into three stages—the Eolithic or “dawn” period, the Palæolithic or “old” Stone Age, and the Neolithic or “new” Stone Age. Flint implements of the type characteristic of the Old Stone Age, at a date variously estimated at anything up to, or beyond, 100,000 years ago, have been found in Egypt, but the beginnings of civilization in the country are best represented by stone-weapons, tools and amulets and pottery which are masterpieces of their age. These are of the Neolithic type, and represent works of the primitive inhabitants of the Nile valley about fourteen thousand years ago. The indigenous stone-using people of the country appear afterwards to have been overrun by a more civilized people from the east, who introduced copper weapons and brought about a transition from a Stone Age to a Metal Age.

No precise dates can be assigned to the beginning and end of any of these ages or the lengths of the periods, but evidence of various kinds enables rough estimates to be made of them. In prehistory the use of stone for the manufacture of weapons and other implements was followed by the use of copper and iron, succeeding stages representing indefinite periods of growth from barbarism to civilization.

In Egyptian history it is not until about 3200 B.C. that what is known as the " Old Kingdom " was established, with a ruler who united the two existing kingdoms of the north and south and is represented in the legendary character of King Mena or Menes, founder of the First Dynasty. From that time Egyptian chronology is determined from what has been discovered as to the lengths of the dynasties of the various rulers of the country.

The " Archaic " period of Egyptian civilization ended with the Third Dynasty, about 3000 B.C., after which came the period of the three great pyramid builders—the mighty Cheops, Chephren and Mykerinos—referred to by Herodotus, the renowned Father of History.

For about a thousand years from the Fourth Dynasty (about 2900 B.C.) there was a succession of kings until the Thirteenth Dynasty when Egypt was invaded by a group of Semitic tribes, known as Hyksos, or Shepherd Kings, who became Egyptian kings or Pharaohs until their reign ended with the rise of the Eighteenth Dynasty about 1580 B.C., when they were expelled. According to one view, this was the date of the exodus of the Israelites from Egypt recorded in both Egyptian and Hebrew history. A " New Kingdom " was then established under which the First Empire was formed and such great temples as those at Karnak and Luxor were built.

In the sixth century B.C. the Persians invaded Egypt and ruled over it for about one hundred and twenty years. Their yoke was thrown off about 404 B.C., though war with them continued until Alexander the Great defeated Darius III in 332 B.C. and became the first Pharaoh of the Thirty-first or Macedonian Dynasty. This began the period of the Ptolemies, which lasted from 305 B.C. to 30 B.C., and during

which Egypt was one of the strongest forces in the world. It was Ptolemy I who founded the museum and library at Alexandria. But though Egypt was ruled by Greek kings during this period, it still remained an independent kingdom and these kings were Egyptian Pharaohs and nothing else. With the death of Cleopatra in 30 B.C. Egypt became a province of the Roman empire: Roman emperors adopted Egyptian names and titles for about three hundred years, and the independent career of the country came to an end.

The rule of the Romans lasted until A.D. 640, when the Arabs conquered Egypt and introduced the religion of Islam. The evangelist St. Mark is said to have preached the gospel of Christianity at Alexandria about A.D. 69, and converts to this faith rapidly increased. In parts of the country, however, the cults of Osiris and Isis continued to be popular until the fifth century. It is not surprising, therefore, that Egyptian religious conceptions became incorporated in the creeds of other faiths and that many different sects absorbed ancient beliefs into their doctrines. The Copts are racial descendants of the ancient Egyptians, and they represent the early native Christians, but they have inherited weird mythological conceptions from their ancestors, and are regarded as outside the fold of the Roman and Greek Churches. It was the doctrine of life after death, so familiar to the Egyptians in their ancient beliefs, that made them accept the Christian religion with enthusiasm and adapt it to their way of thinking, though the actual form was influenced in places by Greek and other pagan gods.

Religion is the central factor in Egyptian history, provided it be understood that the supreme god—throughout a great part of Egyptian history some manifestation of the sun, Amon or Ra—is incarnated in the royal ruler, as is indicated by the incorporation of the name of the deity as an element in the king's official name; while the king is in a peculiar way the personification of the land he rules. The Egyptian designation of royalty as "Son of the Sun" is also frequent among other peoples, both ancient and modern, who assign divine origin to their kings. Scarcely

less potent as a social factor is the belief in the survival of the soul after death, which in the cult of the dead deprived each generation of so much wealth, not only in the form of funeral furniture, which was deposited in the tomb, but also in the land, which was held in mortmain, so to speak, to provide for the rites to be performed at the burial places of important personages.

These theological ideas were reflected in the law and administration and the social, political and economic organization of the country. Hence, while advance in civilization in Mesopotamia affected the whole of society, as it was bound to do in an urbanized population, in Egypt it was in the main confined to the entourage of the king and the priestly and official class, while the people, peasant cultivators, in whose life the essential factor was the annual flooding of the Nile, followed a mode of existence which, except for the introduction of metals, might almost be said to have remained unchanged from the Neolithic Age down to modern times. For the evidence, then, of what was most characteristic and most advanced in the civilization of Egypt, it is necessary to look, not to the people as a whole, but to the palace and the temple, the tombs of the kings and of priests and officials.

In Egypt the king as the incarnation of the god—the purity of his descent as well as his right to inherit the kingly office and possessions was maintained by marriage to his sister as chief wife—was the owner of the land. The people not only paid him tribute in virtue of their use of the land, but they were also liable to render him service, for what might be termed public works, the erection of the temples and the royal tombs, of which the pyramids are colossal examples. To oversee these works, and to control the use of the land as well as exact and keep account of the revenue from it, required an army of officials, in addition to the usual palace service. The priesthood also formed an even more powerful class, and the way in which the centre of the official religion swings from one centre to another, from Memphis to Thebes and so forth, from time to time as the character of the official cult changes from one manifestation of the

supreme god to another, is an indication of their power, and an index of palace and temple intrigue.

The early development of a hieroglyphic system of writing from the pictographs of the earliest period made Egyptian civilization literate almost from its beginnings. In the inscriptions and papyri has been preserved a wealth of material bearing upon Egyptian religion and magical beliefs. Among much that is purely magical, there is also much that points to a certain power of observation and scientific thought, for example, in the medical papyri, if of a somewhat crude character. On the other hand, in the practical application of mathematical and mechanical science, they had made considerable advances. This was made necessary not only by the general mode of life, which depended on a conservative utilization of the Nile flood and the application of methods of irrigation, but also by the development of the monumental use of stone in the erection of their great public buildings—royal and religious.

Although evidence of Palaeolithic man is found in the Nile valley and the adjacent desert, the civilization of Egypt, like that of Mesopotamia, may be said to begin in the Neolithic Age. At the close of the Ice Age in the Pleistocene epoch about half a million years ago, the change in the distribution of rainfall caused by the melting of the northern ice cap was responsible for the gradual dessication of the previously fertile North African tract. Men and animals withdrew to the oases, but the relation of the Palaeolithic Stone Age cultures, which have been found, for example, at El Khargeh, to the earliest Neolithic civilization is as yet obscure.

There is, however, clear evidence that the early pre-dynastic civilization of Egypt, belonging to so early a period as the sixth or even possibly the seventh millennium B.C., was that of a people already agriculturists—people with a remarkable skill in flint working, fashioning implements of a wonderful grace and delicacy, foreshowing the technical skill which the later Egyptians showed in so many directions. They were also makers of delicate forms of pottery, among which painted ware appears. In the later stages of this civilization, copper is found sporadically in the form of

beads ; but the age of metals was still far distant. It was not, in fact, until the early dynastic period that copper implements appear on the Egyptian scene, and add to the facility of the people in the working of stone for use in their monumental buildings. But even in these pre-metal days the people had a remarkable skill in stone working, and by the middle pre-dynastic period they had learned how to fashion and hollow out blocks of stone to make their great stone vases of graceful shape and wonderful workmanship.

In the pre-dynastic age the foundations were laid of other characteristic elements in Egyptian culture, especially in social and religious organization. In the fourth millennium B.C., at a date which is variously estimated, but may for practical purposes be regarded as fixed with sufficient accuracy at 3200 B.C., there took place the consolidation of Egypt under Menes, a king of lower Egypt, who is therefore regarded as the first king of the First Dynasty. Previously Egypt had been divided up into a number of separate local groups, each with its own separate social organization and its own deity. These groups are represented in later Egypt by the nomes, which were the administrative units of Egyptian government. Each of these units had its own religious cult, and this is represented in later Egypt, first by the deity becoming a member of the Egyptian pantheon, and secondly by the retention of that deity as the object of a local cult and represented in the standards which distinguished, more or less as a crest, each of the nomes. Pre-dynastic Egypt was thus the basis of the political, social and religious organization of the dynastic period, and this remained virtually unchanged in essentials throughout Egyptian history.

The main landmarks in Egyptian history may therefore be summarized as follows :

**THE OLD KINGDOM.** First Dynasty to Eighth Dynasty. This early period is characterized by a high development in art and architecture. In the Fourth and Fifth Dynasties the Pyramids were erected, a remarkable testimony, not only to the constructive genius of the Egyptians, but also to their power of organizing labour on a grand scale. Khufu, builder of the great pyramid at Gizeh, to judge by the features of the portrait statuette found by

Sir Flinders Petrie, must have been a ruler of remarkable strength of character and organizing power.

**THE MIDDLE KINGDOM.** After the Eighth Dynasty Egypt appears to fall into a period of disorder and decay, but is regenerated under the Eleventh Dynasty. The Twelfth Dynasty (about 2000 B.C.) is again a period of social reconstruction, with a strong strain of religious revival. The earlier temple at Deir el Bahari, a remarkable monument, was erected, and to this period belong the earliest versions of *The Book of the Dead*, that remarkable collection of religious instruction for the use of the soul after death.

After the Twelfth Dynasty a period of decline again begins, possibly partly due to the first impacts with the peoples moving down from Central Asia, who appear in Mesopotamia at about this time as the Kassites. Ultimately these peoples, coming through Palestine, appear in Egypt as the Hyksos, the people of the so-called Shepherd Kings, who overwhelm the native dynasties. After a struggle lasting for a considerable time, they are driven out by Ahmose, the first king of the Eighteenth Dynasty, about 1580 B.C. or perhaps a little earlier. With the Eighteenth Dynasty there begins a period of great expansion known as the New Empire.

**THE NEW EMPIRE.** During the New Empire of the Eighteenth and Nineteenth Dynasties (Thothmes III, Amenhotep III and IV (Ikhnaton), Rameses II and III are the most famous names) Egyptian arms were carried far up the Nile to what is now the Sudan and into Asia. Palestine and Syria are conquered, battles are fought with Hebrews and Hittites, alliances formed with Mitanni and peoples of Mesopotamia. The Tell el-Amarna letters of the period of Amenhotep IV, found in a chamber near his palace in the district of el-Amarna, show the course of events, when under the Eighteenth Dynasty the power of Egypt was beginning to decline in Asia. The artistic but weak Ikhnaton, best known as the Heretic King, was deserting the worship of Amon the sun, to follow after the Disk of Aton—a cult usually regarded as an early form of monotheism, which he may have acquired, at least in germ, from his mother, who was a native of Syria. The declining fortunes of Egypt (in a military sense) were restored by the early monarchs, Rameses II and III, of the Nineteenth Dynasty; but the restored supremacy of Egypt in Syria and Palestine was of short duration, and she was forced to withdraw before the Hittites and the rising power of Assyria.

During the whole of Egyptian history up to this point, there had been cultural contacts with Crete. In the Eighteenth and Nineteenth Dynasties, Egypt was attacked by a number of peoples described as Peoples of the Sea. These are thought to be pirates from the islands and mainland of Greece and Asia Minor of Helladic times, the latest possibly Mycenaean, not long before the fall of Troy.

Of later Egyptian history the most interesting event and one of no little cultural importance was the foundation of a colony, partly military, partly commercial, at Naukratis in the reign of King Amasis, of the Twenty-sixth Dynasty (570 B.C.), who was a good soldier, and when drunk, as he frequently was, became coarsely humorous. From the site of this colony and its successors have come the important papyri which have given much information not only about Graeco-Egyptian culture, but also, from the later remains of post-Christian date, have produced the fragments of classical and Christian sacred literature—such as “The Sayings of Jesus” and other texts.

With the conquest of Egypt by the Persian Cambyses (528 B.C.) the native dynasties come to an end, except for a brief period, and after the fall of Alexander's empire the monarchs of Egypt are the Ptolemies, to whom in the partition of his conquests Egypt fell.

## *Chapter Six*

### SUN AND SKY GODS

Just as researches on Mesopotamian texts in recent years have shown that there was very considerable astronomical knowledge on the Euphrates so far back as the Sumerians, 3000 B.C. or earlier, so there is evidence that even before dynastic times in Egypt the appearance of the star Sirius near the sun at sunrise was used to mark the beginning of a year. In the time of King Menes there was a college of priests, physicians, astronomers and astrologers at Heliopolis ; and the three pyramids at Gizeh, built about 3000 B.C., were constructed with geometric accuracy based upon astronomical observations. In a tomb at the time of King Seti I (1320-1301 B.C.) appears a list of planets at their upper culmination, or highest points on the meridian ; and this and other astronomical knowledge was afterwards passed on to the Greek and Roman worlds.

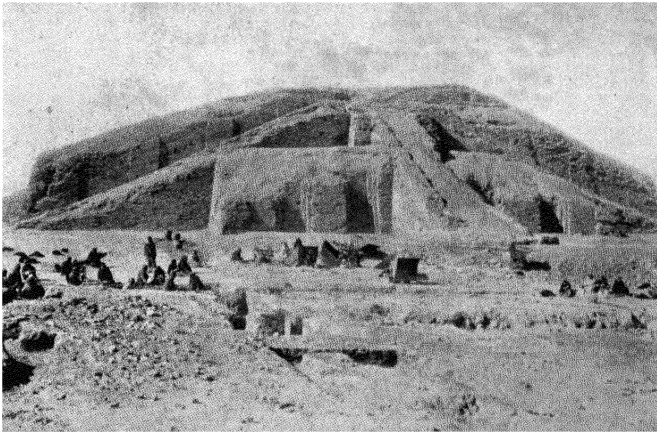
From the pyramids and remains of great temples in Egypt, from the funerary furniture of tombs, as well as from numerous writings preserved in papyri, and inscriptions on temple walls, much knowledge has been obtained of the highly developed civilization of ancient Egyptian times. The Egyptians possessed a vast literature of both secular and religious types, and their arts and architecture reveal remarkable experience of the properties and working of many materials. The construction of the great temples of Egypt, as described in preserved records and shown in existing remains, is of particular interest for astronomy, as well as for the study of mythology and religious belief.

To the Egyptians the daily movement of the sun across the vault of heaven typified the life of man from birth in the

morning, through maturity at noon and ending with death at its setting. But just as the sun renewed its youth and vigour every day, so it was believed that, after the death of the natural body, the heart, or spirit, or soul *double*, of life continued to exist in the tomb or in the underworld of which it was a spiritual part. There were many "gods" to whom supernatural attributes were given, but Amon-Ra or Ra was above them all as the "only one" who, like the god of Israel and Islam, had no second or equal. Both the art and the literature of the Egyptians were in the main the product of their religious belief in a future existence, in which the legend of Osiris was connected with the doctrine of eternal life.

The body of religious compositions known as *The Book of the Dead* is the chief source of knowledge of these beliefs, from the first record in the time of the pyramids of the Fifth Dynasty to the latest forms in the early centuries of the Christian era. This work consists of a collection of funerary texts which the ancient Egyptian scribes composed for the benefit of the dead; and it includes spells and incantations, hymns and litanies, magical formulae and names, words of power and prayer, found cast or painted on the walls of pyramids and tombs and engraved on coffins, sarcophagi, and rolls of papyrus. The history and growth of this work were described, with an interlinear transliteration and translation of the Egyptian text, by Sir E. A. Wallis Budge, who referred to the sun-god Ra as follows:

"Ra was the name given to the sun by the Egyptians in a remote antiquity, but the meaning of the word, or the attribute which they ascribed to the sun, is unknown. He was the visible emblem of God, and was regarded as the god of this earth, to whom offerings and sacrifices were made daily, and when he appeared above the horizon at the creation, time began. . . . The Egyptians attributed to the sun a morning and an evening boat, and in these the god was accompanied by Khepera and Tmu, his own forms in the morning and evening respectively. In his daily course he vanquished night and darkness, and mist and cloud disappeared from before his rays; subsequently the Egyptians invented the moral conception of the sun,



*From "The Sumerians", by C. L. Woolley (Clarendon Press)*

Remains of the Ziggurat, or temple tower, of Ur of the Chaldees, where the father of Abraham lived. The tower was built about 2300 B.C.



*Rischgitz*

The building of the Tower of Babel, as represented in  
*The Self-Interpreting Bible* (1834)



representing the victory of right over wrong and of truth over falsehood.”<sup>1</sup>

Some of the great temples of Egypt seem to have been designed originally to point in the direction of the rising or setting sun at particular times of the year—either the solstices or the equinoxes. One of these temples is that of Amon-Ra at Karnak, near Luxor, which, even in its ruins, is a most impressive structure. There seems originally to have been two temples on the site, the chief of which faced the sunset at the summer solstice, while the other opened in the direction of sunrise at the winter solstice. There are other solar temples in Egypt, but none of such grandeur as that at Karnak. From the entrance pylons of the temple to the inner sanctuary through various halls of different sizes and details, the axis of the temple is about five hundred yards in length and is unbroken by a single structure. Said Sir Norman Lockyer :

“ The construction gives one a very definite impression that every part of the temple was built to subserve a special object, viz. to limit the light which fell on its front into a narrow beam, and to carry it to the other extremity of the temple—into the sanctuary, so that once a year, when the sun set at the solstice, the light passed without interruption along the whole length of the temple, finally illuminating the sanctuary in most resplendent fashion and striking the sanctuary wall. The wall of the sanctuary opposite to the entrance of the temple was always blocked. There is no case in which the beam of light can pass absolutely through the temple.”<sup>2</sup>

In connection with this form of temple construction, it is worth mention here that in certain temples of the Incas of Peru, who were sun-worshippers, in a series of chambers leading to an inner sanctuary, the entrances were placed diagonally in relation to one another, so that a beam of the rising sun penetrated the temple and fell precisely and solely on the altar which stood in the inner sanctuary.

<sup>1</sup> *The Book of the Dead*. The Papyrus of Ani in the British Museum. (British Museum, 1895.)

<sup>2</sup> *The Dawn of Astronomy*. (London, 1894.)

The setting sun at Karnak is now one degree, which is equal to twice the apparent diameter of the sun, south of the axis of the temple, and this difference might seem to conflict with the view that the light of the sun shone straight down the aisle at sunset. The difference, however, is accounted for by a secular change in the bearing of the sun at sunrise and sunset, due to a known change in the obliquity of the ecliptic, that is, in the angle between the plane of the earth's equator and the plane in which the earth makes its annual revolution around the sun. Taking this astronomical change into consideration, Sir Norman Lockyer was able to calculate the date of the original foundation of the shrine of Amon-Ra at Karnak, when the setting sun shone down the axis of the temple.

After a detailed investigation of the group of massive stones called Stonehenge, on Salisbury Plain, Wiltshire, from an astronomical point of view, Sir Norman Lockyer found that the direction of an "avenue" of two earthen banks, which extends for a considerable distance from the structure, is in the general direction of the sunrise at the summer solstice, precisely in the same way that, in Egypt, a long avenue of sphinxes indicates the principle line of outlook of a temple. He therefore concluded that Stonehenge was originally erected to mark the position of sunrise on the longest day, and was used as a solar temple for worship, as well as for the practical purpose of determining the length of the seasonal year. Archaeologists in general adopt the theory that Stonehenge was not constructed for sun-worship, but as a sepulchral monument; but whatever view is maintained, the fact is that the sun rises in a direction near that of the axis of the structure on the longest day. From his measurements Sir Norman Lockyer concluded that Stonehenge took its final shape about 1700 B.C.

During the reign of Amenhotep IV, otherwise known as Ikhnaton (1380-1362 B.C.), in the Eighteenth Dynasty, the sun-god was worshipped as the one and only god—a belief which was, therefore, monotheistic. Amenhotep IV abandoned his name when he rejected the cult of Amon, or Amon-Ra, and adopted the new name of Akh-en-Aten, or

Ikhnaton, signifying "The Blessed of the Disk". He then separated himself from the priests of Amon at Thebes and established his new capital at Tell el-Amarna, on the east bank of the Nile, nearly two hundred miles south of Memphis. He was a heretic and monotheist, and his reign and his reform lasted less than twenty years, yet the really religious literature of Egypt reached its culminating point in this period. To him the sun was the visible symbol of the god Aten, and not the great sun-god Ra himself, who was believed to have created the hundreds of other gods worshipped by the Egyptians.

Philosophic insight as well as poetic beauty are manifest in Ikhnaton's noble "Hymn to the Sun-Disk", which contains the following passage, among others of high religious expression :

"Thou makest the seasons to preserve all that thou hast created—the winter to cool and the flood. Thou hast created the heavens afar, to go up into them, that thou mayest see all that thou hast made. Thou art One, but thou ridest in thy form as the living sun, appearing, shining, giving, and returning. . . . Thou art in my heart, and none knoweth thee as doth thy son Akhenaten whom thou hast deigned to let comprehend thy thoughts and thy strength."

Ikhnaton's exalted conceptions, and the advanced cultural character of the short period of his kingship, have been described as follows :

"The followers of Aten declared that their god was almighty, and that he was the sole creator of the universe ; they ascribed to him a monotheistic character, or oneness, which denied the existence of any other god. Their god was 'One Alone', and different in nature from any of the other gods of Egypt. It was the intolerance of Akhenaten himself that made him hated, not only by the priests of Amon-Ra at Thebes, but by the whole nation, which execrated him after his death as 'that great criminal of Akhenaten'.

"The palaces and houses of the new city were beautiful and were richly decorated. Art developed in a new direc-

tion and was characterized by a freedom and a naturalism never met with before or after in Egyptian history. It sanctioned the use of new colours and new designs. . . . Akhenaten had the mental beauty and the vision of a great poet, as his famous "Hymn to the Sun", said to be his own composition, shows. And like most poets and other men of genius, he had no practical capacity. Whilst the king was playing the priest in his new city and making arrangements for building shrines to Aten in the Sudan, his Asiatic empire was breaking up. The Tell el-Amarna letters show how rapidly the desert tribes began to harass the Egyptian garrisons in Syria and Palestine, and to hem them in. Akhenaten made no attempt to maintain his authority in Asia, or to keep what his fathers had won in battle, and there is no record of any military expedition during his reign. Shortly after his death Egypt had lost her Asiatic empire, his new city was destroyed, the cult of Aten died out, and the shrine of Marmachis which he built at Thebes was pulled down, and the stones rebuilt into the temple of Amon. Amon and the priests had prevailed." <sup>1</sup>

Whether, apart from the teaching of Ikhnaton, the sun was worshipped as the god himself, or as his symbol, also whether even the educated priests believed in one or many gods, is not altogether clear, and authorities differ in their decisions. It is known that numerous family and tribal gods, and other primitive conceptions were worshipped, yet it is possible to recognize three main elements in the religion of Egypt. They are : a solar monotheism, or a god specially manifested in the sun ; the worship of the regenerating powers of Nature, including man ; and an anthropomorphic divinity. The sequence in time of these phases of faith is doubtful, and they ultimately became intermingled in a very confusing manner. It may be assumed that the less exalted views prevailed before those of a higher type, and that in the development of one into the other, many primitive beliefs and practices would be retained in modified form long after

<sup>1</sup> *A General Introductory Guide to the Egyptian Collections in the British Museum.* (London : British Museum, 1930.)

their original character had been forgotten. This evolution of ideas, and of sacred rites and ceremonies, is common to all religion—including Christianity.

The spirit of Ikhnaton's teaching prevailed for a few years only, and represented a religious mutation which failed to survive. As in comparative biology the structure and function of the various parts of an organism can be traced from simple to complex associations, so in religion, myth and legend and folk-lore merge into creed, doctrine and speculative theology acceptable to existing stages of intellectual development. Every religion is of a composite character and includes vestigial evidence of its primitive ancestry. This is as true of the Christian religion as it is of the sacerdotal system of the Hebrews and of ancient Egypt and Chaldea. Though the only sacred book of the Egyptians is *The Book of the Dead*, it is known, as the result of archaeological investigations, that the antiquity of their religion far exceeds that of any other nation; for many of its component elements belong to prehistoric times. Not only is the religion of the historic age known in detail, but the knowledge also extends into the dark regions of earlier times.

Sir E. A. Wallis Budge traced this growth, and the conditions of life associated with it, in a great work of two volumes, published in 1904.<sup>1</sup> His explanation of the element of animal worship in Egyptian religion is that during man's first early occupation of North-East Africa, he found himself faced not only with human foes, but also with a host of hostile animals. Soon, however, he proved his superiority over these creatures, some of which he killed in self-defence, while others he domesticated or made them serviceable to his needs. The belief that men acquired additional power by eating particular parts of the animals they overcame seems to have led some early Egyptians to practice cannibalism. A long passage in a religious text refers to King Unas of the Fifth Dynasty (about 2600 B.C.), hunting, killing and eating the gods. "He it is who eats their magic and swallows their power." The belief in the god-man or god-king was thus

<sup>1</sup> *The Gods of the Egyptians: Studies in Egyptian Mythology*. (London: Methuen & Co.)

developed ; and man-worship and animal-worship were combined by placing animals' heads on human bodies, as the Assyrians placed human heads on animal bodies.

Belief in the god-man in the form of Osiris became the chief element in Egyptian religion, and remained for thousands of years the faith of the people through the tangled skein of religious life in Egypt until Osiris passed into the form of the god-man, Jesus Christ. When the idea of immortality first came in is doubtful, but evidence from the burials of prehistoric man indicates that it existed in Egypt at least ten thousand years ago.

In addition to the sun or sky-god or other high god, the religion of most primitive communities usually includes the worship of "godlings" or inferior deities, who control the processes of Nature and the affairs of men. In the folk-lore and tradition of such people are heroic and village godlings, the godlings of disease, the sainted dead and the malevolent dead. The development of these crude conceptions into a higher type of religious worship seems to be much the same everywhere. In India, for example, even at the present time, the deities commonly worshipped by the masses are distinct from the high gods described in the Vedic hymns, and the Triad, or Trinity, whose attributes are set forth in the sacred works of the Brahmans. Indeed, the earlier and more philosophic forms of Hinduism never became the religion of the people. The older creed is buried under an overgrowth of demonolatry, fetishism and kindred forms of primitive religion, not described in books or patronized by high-caste priests, but living by oral traditions, and forming the daily cult of almost all classes of society in modern India. This form of Hinduism, and the folk-tales and customs associated with it, were discussed with authority in *The Popular Religion and Folk Lore of Northern India*, by W. Crooke, who showed in that work that religion has passed through the same phases of growth in India as it did in Christian Greece and Rome.

The doctrines and religions of ancient Egypt represented beliefs that, by magical rites or otherwise, man could be brought into touch with the great natural forces around him.

Animism is usually understood as the doctrine which attributes living souls to inanimate objects and natural phenomena ; and it was chiefly in this sense that Sir E. B. Tylor <sup>1</sup> presented a philosophy of religion in relation to early civilization. Tracing the origin of a belief in spiritual beings to the result of primitive thought on the problems presented by the difference between the dead and the living body, by sleep and waking, trance, disease and death, he followed the course of development upwards into the existing religions of the most civilized races. The conception of survival of the souls of individual creatures after death became expanded into a belief in other spirits, which were held to control the events of the material world, and hence became the objects of worship and propitiation. Animism, in this sense, reached its full development in a system inculcating a belief in controlling deities and subordinate spirits, in souls separable from bodies and a future state of existence, morality or ethics being incorporated into religion only in the later stages of culture.

In parenthesis, it should be remarked that Dr. R. R. Marett makes a distinction between animism in the sense of the recognition of soul or spirit with a being of its own, apart from bodily substance, and what he terms " animatism " to mark off a type of belief concerning whatever is deemed sacred, that is, possessing *mana*, or a mystic power, and as such becomes the object of religious or quasi-religious attention and behaviour.

The idea that the soul is a thin, unsubstantial human image, which is temporarily absent from the body in sleep, trance and disease, and departs from the body for ever after death, is very primitive. The soul is believed to possess all the attributes of the body to which it gives life, and in religious teaching to be responsible to God for the deeds done in the body. Many people find comfort in the belief that such personal attributes survive after death and can be recognized by communications from friends who possessed them, but the evidence afforded in such spiritualistic mani-

<sup>1</sup> *Primitive Culture : Researches into the Development of Mythology, Philosophy, Religion, Art and Custom.* (London : Murray, 1871.)

festations is insufficient to convince critical scientific inquirers as to their objective reality.

Speculations on the nature and influence of the human soul have been put forward by many philosophers—pagan and Christian—from Plato onwards, but judgment upon them is still a matter of personal preference and mental training rather than of unprejudiced opinion. One group supports the popular view that the mind or soul is something distinct from the body yet abiding in it during life, while another school of philosophers rejects the idea of the soul having any form, and regards it as nothing but a continually changing system of activities or events. Mental activity is a process and not a fixed state ; and, similarly, it is reasoned that the soul is not a thing, but an activity.

Magic, religion and science are now regarded by most authorities as stages in the development of man's conceptions of his relationships to Nature. Sir James Frazer, in his monumental work, *The Golden Bough*, has shown that the movement of human thought has, on the whole, been from magic, through religion, to science. In magic, man believes that he can, by certain actions of his own, manipulate the established order of Nature to meet his immediate needs. When he finds that he cannot exercise this control, he ceases to rely on his own unaided efforts and ascribes to certain great invisible things behind the veil of Nature the far-reaching powers which he once thought he possessed himself.

Thus magic is gradually superseded by religion, and natural phenomena are believed to be regulated by deities who are like men in kind and are swayed by human passions, but are endowed with powers vastly superior to his. At a much later stage he finds that these gods are only the products of his own imagination, and that they are not servants of his will either to produce good or to avert evil. Then comes the recognition that the laws to which he has to submit or control are those of Nature, and that the study of them constitutes science.

These three successive stages of human thought are expressed by Sir James Frazer in the words :

“ The keenest minds, still pressing forward to a deeper solution of the mysteries of the universe, come to reject the religious theory of Nature as inadequate, and to revert in a measure to the older standpoint of magic by postulating explicitly what in magic had only been implicitly assumed, to exist, an inflexible regularity in the order of natural events, which, if carefully observed, enables us to foresee their course with certainty and to act accordingly. In short, religion, regarded as an explanation of Nature, is displaced by science.”

Science here signifies organized knowledge derived from experience ; and though in this sense it represents a new attitude of mind towards the universe of Nature, it has to become a social ideal and an emotional force before it can form what is commonly understood by religion. It is only when society recognizes that the pursuit of truth by the sage is as divine a purpose as contemplation of it by the saint that the two meet on the sacred ground of religion. Religion is a complex of both thought and emotion, beginning with perception of the vague, the indefinite and the mysterious, which becomes deeper with increasing knowledge and merges into philosophic speculations on the infinite. As a social force, religious faith constitutes a principle by which to live, whatever its origin or course of evolution.

Whatever views may be held as to the origin of the religious impulse, there is no doubt that many objects and events in earth and sky have been regarded as sacred and have been worshipped as deities belonging to an external world, or because their properties or actions suggested the existence of forces other than those due to human agencies. Chief among these celestial objects is the sun, either as a physical body daily bringing light and warmth to mankind or as the personification of a deity. In a number of hymns in the *Rig-veda*, the earliest of the four sacred texts of the Hindu scriptures, and composed in the second millennium before the Christian era, striking natural phenomena are apostrophized as characters of conscious beings, the personifications sometimes merging into one another and together being described as *deva*, or “ the shining ones ”. Light in

a physical sense, and associated with moral and intellectual values, inspired the lyrical poetry of Aryan settlers in India, and in one of the hymns in the *Rig-veda* the sun is addressed as follows :

His bright rays bear him up aloft, the god who knoweth all  
that lives,  
Surya, that all may look at him.  
The constellations pass away, like thieves, together with their  
beams,  
Before the all-beholding sun.  
His herald rays are seen afar refulgent o'er the world of men,  
Like flames of fire that burn and blaze.  
Swift and all beautiful art thou, O Surya, maker of the light,  
Illuming all the radiant realm.  
Thou goest to the host of gods, thou comest hither to mankind,  
Hither all light to behold.  
With that same eye wherewith thou look'st brilliant Varuna,  
Upon the busy race of men.  
Traversing sky and wide mid-air, thou metest with thy beams  
our days,  
Sun, seeing all things that have birth.<sup>1</sup>

It has already been shown that, from a very remote period, the Babylonians, like the ancient Egyptians, observed the positions of the stars and other celestial objects, and thus laid the foundations of astronomy. These early observations were essentially of a religious and magical character, and their motive was to obtain a knowledge of future events, whether celestial or terrestrial.

A certain amount of astronomical knowledge, as well as conceptions of the nature and origin of the universe, seems to have been derived by the ancient Hebrews from the Babylonians, and was probably introduced into Palestine by Abraham, while during their exile, 586-536 B.C., they acquired a tendency to idolatry in the form of star-worship. In the sacred books of the Hebrews there are, however, few allusions to what may be termed the rational understanding of the universe, and few precise observations, such

<sup>1</sup> *Hindu Scriptures*, edited by Dr. Nicol Macnicol. (London : J. M. Dent & Sons, Ltd. ; New York : E. P. Dutton & Co., Inc.)

as have been preserved in the records of other ancient peoples. Thus, though the moon is often mentioned, and the Hebrew calendar was based upon the lunar month, there is no reference in the Bible to the monthly changes or phases of our satellite. Whatever astronomical or other natural objects or phenomena are described are used for poetic imagery or spiritual purposes, and not for scientific analysis. The Hebrews saw all things as testimonies to the wisdom and power of the Almighty and his goodness to man ; as subjects of wonder and spiritual exaltation rather than as matters of intellectual inquiry. This spirit is represented in the words :

“ When I consider thy heavens, the work of thy fingers,  
 The moon and the stars, which thou hast ordained ;  
 What is man, that thou art mindful of him?  
 And the son of man, that thou visitest him? ” <sup>1</sup>

While, therefore, there are many passages in Holy Scripture which shows sympathetic observation of the phenomena of Nature, there is little in them that can be said to have much scientific significance. Notwithstanding this, it cannot be assumed that the Hebrews were less observant of natural things and effects than the peoples of neighbouring regions, though their reactions to them were purely spiritual. In the Book of Wisdom (vii. 16-20) the standard of natural knowledge set before the mind of man is high. The book was not, however, composed by King Solomon, as popularly believed, but much later ; and the impact of Greek thought is clearly shown in it. The number of subjects to which attention is directed in the following extract is sufficient to satisfy any teacher of general science to-day :

An unerring knowledge of the things that are ;  
 To know the constitution of the world and the operation  
 of the elements ;  
 The beginning and end and middle of times,  
 The alterations of the solstices, and the changes of  
 seasons,

<sup>1</sup> Psalms viii, 3, 4.

The circuits of years and the positions of stars,  
 The nature of living creatures and the raging of wild  
 beasts,

The violences of winds and the thoughts of men,  
 The diversities of plants and the virtues of roots.

Another passage from the Apocrypha (Eccl. xliii. 1-12) shows that the Hebrews looked to the sky for times and seasons as well as for worship, but to them such knowledge was not regarded as of such a sacred character as that of their spiritual communion with God.

“The pride of the height, the clear firmament, the beauty of heaven, with his glorious shew ;

The sun when it appeareth, declaring at his rising a marvellous instrument, the work of the most High :

At noon it parcheth the country, and who can abide the burning heat thereof?

A man blowing a furnace is in works of heat, but the sun burneth the mountain three times more ; breathing out fiery vapours, and sending forth bright beams, it dimmeth the eyes.

Great is the Lord that made it ; and at his commandment it runneth hastily.

He made the moon also to serve in her season for a declaration of times, and a sign of the world.

From the moon is the sign of feasts, a light that decreaseth in her perfection.

The month is called after her name, increasing wonderfully in her changing, being an instrument of the armies above, shining in the firmament of heaven ;

The beauty of heaven, the glory of the stars, an ornament giving light in the highest place of the Lord.

At the commandment of the Holy One they will stand in their order, and never faint in their watches.

Look upon the rainbow, and praise him that made it ; very beautiful it is in the brightness thereof.

It compasseth the heaven about with a glorious circle, and the hands of the most High have bended it.”

The Hebrews made a clear distinction between the worship of God and the contemplation of His works. A thousand

years after Abraham, Greek philosophers similarly separated the study of Nature from that of personal deities and sought for law and order in it. In the sixth century before the Christian era, Xenophanes, Thales and Pythagoras first opened up those veins of speculative philosophy which occupied afterward so large a portion of Greek intellectual energy. Grote, in his *History of Greece*, points out that they were the first to disenthral the philosophic intellect from all-personifying religious faith and to constitute a method of interpreting Nature distinct from the primitive conceptions of unenlightened and untaught minds. It is in these philosophies we first find the idea of Person tacitly set aside or limited, and an impersonal Nature conceived as a subject of study. They defined the scope of natural philosophy, with its objective character and invariable laws, discoverable by a proper and methodical application of the human intellect. The Greek word *phusis*, denoting "Nature", and its derivatives "physics" and "physiology", unknown in that large sense to Homer or Hesiod, as well as the word *kosmos* to denote the mundane system, first appears in their time.

## *Chapter Seven*

### SACRED BOOKS AND DOCTRINES

When religion is studied as the expression of the spirit of man throughout the ages and among different peoples, its many types are seen to be branches of a tree having its roots in primary emotional characteristics of humanity. Christianity is one of these boughs ; and it has borne some of the richest fruits because it has been pruned from time to time of growths which would keep out the sunlight of knowledge. It is only by the wise removal of such superfluous or unprofitable shoots that a religion can be made a structure worthy of progressive intellectual development.

Not so very long ago every respectable citizen in a Christian community was expected to believe in the inerrancy of Holy Scripture or be convicted as a pestilent disturber of an established faith. To inquire into the nature or history of such beliefs was condemned as a coarsely irreligious motive, and science was warned off a territory which had to be preserved for the meditations of the guardians of clerical orthodoxy. To impugn a single jot or tittle of traditional doctrine was to weaken the very foundations of faith, and to believe that any other religion except Christianity was worthy of attention was regarded as heretical. Since then the scientific method of ascertaining evidence before arriving at conclusions as to its meaning has been applied to sacred as well as secular history, and the historical religions of mankind have been examined calmly and dispassionately in the pursuit of truth. The principle of natural growth applied to religions enables their relative influence and importance to be understood and their origin and development to be traced.

The history of doctrine is recorded in the sacred books of a religion, and it shows the various forms in which the religious emotions of man have clothed themselves and the various dogmas into which they have been crystallized. In the study of comparative religions the Bible takes its place among other sacred texts which gradually become canons of orthodoxy and are assumed to constitute an infallible and authoritative text-book of life and morals, law and learning. Doctrine must, however, necessarily develop with knowledge and enlightenment, as the mind of man gains new ideas and new points of view in conflict with the uncompromising attitude of a priesthood which exists to protect the creeds of past generations.

In every system of religion, whether primitive or advanced, provided it be a natural growth and not a "forced" and self-conscious product of sophisticated intellect or emotion, three elements can be distinguished.

First, there is a body of legend or traditional lore, which commonly will be found to include material indicating directly or indirectly the conception currently held of the nature and attributes of the extra or superhuman forces of the universe—spirits, deity or deities; a story of creation, more or less comprehensive and usually covering the creation of mankind; exemplifications of the relations of mankind to gods, spirits, and the animate and inanimate world ("inanimate" here in the modern sense, as to the primitive mind all things were animate); the origins, migrations and traditional history of the people, whose faith and beliefs, or knowledge, as they regard it, are set out herein; and so forth. From this and such material are elaborated, more or less complete, the various systems of theology.

Secondly, there is the ritual or order of worship, which prescribes the mode of approach to the spirits, deities or deity, on set or incidental occasions, in order to propitiate, serve, adore, or enter into communion with them. The purpose of this ritual may range from the simple or primitive objective of preventing or averting the influence of the spirits, which is believed to be harmful, unless they are propitiated, or of constraining them by some magical or

ceremonial act to serve the votary, to some such object as that of an advanced type of belief, which aims at securing the benevolent guidance and favour of an all-seeing and all-powerful ruler of the universe, or, as in certain eastern systems of thought, at attaining complete at-oneness with the universal principle of being. Ritual is either based upon the body of sacred tradition or can be justified by reference to, or interpretation of, that body of tradition. Such is, for example, the justification in theory of the rituals of the various Protestant Churches, the Roman Church and the Orthodox Churches, each differing, however, in interpretation and in their faithfulness to what is regarded as the practice of the early Church.

Very often it is found that the tradition has been framed to account for the ritual, of which the original meaning has been lost or obscured ; for example, the Adonis and Isis and Osiris legends grew up around the ritual to explain a human sacrifice to promote fertility. It is for this reason that the explanations given to anthropologists by native informants rarely go back to the original and true purpose of a rite.

Thirdly, there is a system of ethics or rules of conduct by observance of which conduct in life is brought into harmony with cosmic principles. Of such systems the following may be regarded as a grouping of some of the most strongly marked types.

(a) In the primitive forms of religion, by observance of such rules or precepts, men avoid actions which would be followed by spiritual intervention of a harmful character, possibly affecting not only the individual alone, but also his family, or even the community as a whole. This is the system of tabu, of which infringement, such as, for example, by touching the person or regalia of a chief in Polynesia or the Malay Peninsula, may be followed by a disease affecting the individual only, or entail, as sometimes in the instances of adultery or incest, the failure of the crops of the whole country. This system of tabu is the germ from which develop the codes of ethics governing personal and social relations, although, naturally, as these codes advance in

complexity other factors than the magical or spiritual forces in the background of tabu come into operation.

(b) In more advanced forms of religion men may impose upon themselves adherence to a formal code of conventional regulation with a view to preserve their ceremonial cleanness or preserving themselves from ceremonial uncleanness. This may give rise to a conception of purity and impurity, as the basis of the ethical code, which is very little removed from the idea of physical or material pollution ; but it may also lead to advanced spiritual conceptions. In either event there is a formalism of thought and conduct, which in practice and idea differs little from the ritualism of worship already mentioned. It was such an extreme form of ritualism in conduct as this which Christ had in mind in rebuking the Pharisees ; and it is to be observed to-day in some of the more extreme rules of caste (Brahmanism) in India.

(c) The highest form of religious ethic is that in which the aim of conduct is complete and implicit obedience to what is conceived to be the Will of God. In its less generous manifestations this obedience may be rendered against natural inclination as an outcome of fear ; for “The fear of the Lord is the beginning of knowledge”. It may then degenerate into a formalism as lifeless and even more harsh than that of those systems which stress ceremonial purity. On the other hand, it may become a joyous and spontaneous acceptance of a mode of life, such as it is conceived would be consonant with the nature of God, subject to such limitations of the flesh as are ineradicable—the ideal of saintliness. Hence arises the desire for uprightness as an end in itself, either with a view to reward, if not in this world, in the next, or pursued selflessly for its own sake. This concept of religious ethic has led to the highest idealism in human conduct ; but it has also degenerated into many unpleasant forms of exaggerated and distorted continence and self-torture in the monastic, ascetic and mystic conceptions of the holy life.

The aberrations of religious systems of ethics, or rather of their more fanatical followers and exponents, have been

pursued in face of the exemplars they had before them, in some instances at least, in the lives and teaching of their founders, such, for example, as Christ, Gautama Buddha and Confucius. These exemplified a practical morality, which, had it been adopted by those who came after them, might have served the needs of a united mankind—united, that is, in all that is essential in making for good living and well-being. Such ideal systems, however, it is said, were not adaptable to the conditions of a workaday world. But this is true of every measure of reform, and constitutes the justification of its claim to the title of "reform"; while its success lies in the fact that it has forced everyday conditions to comply with its demands, and not that it has adapted itself to them. It has still to be proved by trial that, of the ethical systems which have emerged in the great movements for religious regeneration and revival in the history of the world, no one in its respective field, and in some of its more fundamental principles, has yet delved sufficiently deep into the elemental constituents of man's nature to attain a rule of conduct which even such a purist in ethics as Kant might have accepted as Law Universal.

Study of the relations of the three elements or facets, as outlined above, in the religious systems of past and present, is no mere work of supererogation. For out of these relations, there has grown the strife and disunion, which, as Christ foresaw of his own teaching, have been an inseparable accompaniment of intensity in religious belief. Conflict arises especially out of the resulting concepts of divinity and spirit which have been presented to the minds of men in the various systems of theology evolved from what has here been called tradition—in no invidious sense—and the relation of those systems to the practice and theory of conduct in life to be required of those who actually do, or are expected to, accept them. Some idea of how this has come about may perhaps be gathered from a brief consideration of the character and history of the mode of presentation of these three elements in the religious systems of the world to their followers, and the authority upon which they base their claim to unqualified acceptance.

When Moses, as we are told, came down from Sinai, bearing the Tables of the Law which he had received from the hand of God, there began a tradition of the Divine origin of the Scriptures and of their inerrancy as the Word of God delivered through men who were divinely inspired, but as such were no more than his instruments. This view of the Law and the prophets was accepted from the Jews by the earliest Christians, themselves Jews, and transmitted by them to the Gentiles. Among the Gentiles the tradition, which now included the books of the New Testament, descended from generation to generation, though subjected to a growing scepticism. This scepticism appeared so early as the centuries immediately following the first expansion of Christianity, and gathering strength from the days of Galileo and Copernicus, finally dethroned the Bible from its position of unquestionable authority in the late nineteenth and early twentieth centuries.

There has been brought together in the course of the last generation a large and still steadily increasing body of evidence by which a considerable and influential proportion of the Christian world has been led to the conclusion that a modification in the attitude of the Christian Churches towards the Bible as the sacred book of the Christian religion is inevitable. This conclusion can scarcely be avoided in the light of the developments in scientific knowledge and biblical scholarship since the middle of the last century.

As one of the earliest results of the application of the comparative method of study to the Bible it was apparent that its position as a body of sacred literature was by no means unique. The initial difficulty of such studies in the nineteenth century was, of course, to eliminate the idea that, Christianity being regarded as the only true religion, all other systems were mere superstition. When once this prejudice is overcome, it is possible to show that every form of religion (as has already been indicated above) is based upon a body of tradition, sometimes, but not in all instances, embodied in written documents, which stand in an analogous relation to their particular creed as the Bible to the dogma, ritual and ethical system of Christianity.

When once this objective point of view is attained, it is possible to grasp that even so primitive a culture as that of the Australian aborigines, who apart from their European contacts are a people of the Stone Age, has a body of tradition which has a direct bearing upon tribal custom, social organization and behaviour, and at the same time, at least in part, is of so sacred a character that it must not be revealed to women or to those males of the tribe who have not yet been admitted into full membership. This sacred tradition deals with the Golden Age of the past, the Alcheringa, when communion of spirits and men was closer than now ; but it also deals with the ceremonial in which the bull-roarer embodies the voice of the god. When this sounds, it strikes terror into the hearts of the tribe, and its nature must never be revealed to women. In this same ceremonial of initiation the novice was instructed in his rights and more especially his duties as a full member of the tribe.

Whether Darumulun was a high god, or merely the bull-roarer, an ancient and sacred but obviously man-made piece of wood—a subject of acute controversy a generation ago—is immaterial. This ceremonial would now be interpreted as no mere piece of “mumbo-jumbo”, a conscious deception on the part of the elders of the tribe, as some would have maintained formerly, but as a solemn ceremonial in full accord with the concepts of a primitive mentality, which would recognize divinity embodied in the meanest object. The important issue for the present purpose is that this ceremonial embodies in concrete form (*a*) the tradition (“scripture”), (*b*) the ritual and (*c*) the ethical code as parts of a religious system in which, however crude and rudimentary it may be, the second and third elements stand in the same relation to the first as the analogous elements do in the tradition of the Christian system.

In the totemic ceremonies described by Spencer and Gillen as a result of their investigations among the Arunta of Central Australia, there is the same combination of (*a*) the history and exposition of the nature of the totem, (*b*) the ceremonial by which the members of the totem group promote the increase of the totem and (*c*) the ethical obligation

to carry out the ceremony for the benefit of their fellow-tribesmen, but from which they themselves can receive no direct benefit, as they may not eat their own totem. On the other hand, they participate in the benefits which accrue when other totem groups conform to the obligation to reciprocate by the performance of their respective totem ceremonies.

It would be possible to multiply parallel examples almost indefinitely, more especially from the interesting initiation ceremonies of the tribes and secret societies of Africa, in which, in addition to the ethical instruction, the theological concept of death and resurrection is exemplified in the ceremonial which the novices undergo. One of the most instructive groups of legend and doctrine is that of the Pacific peoples which centres in the person of the divine culture hero Maui, who according to one version created the earth by fishing it up from the bottom of the sea : according to another, made heaven and earth by cutting apart his father and mother, previously joined together, in order that he and his brothers and sisters, who were confined between them, might have light and air. The interest of this body of legend lies in its development, with other elements of tradition, into a body of esoteric doctrine among the Maori, who for more than six hundred years have preserved a detailed record of the voyage of their ancestors across fourteen hundred miles of sea to New Zealand, and of the canoes in which they came. Of this esoteric knowledge the priesthood was the repository. Prolonged instruction in its tenets was an essential preparation for attainment to that office.

These few examples must suffice to demonstrate that "literature"—to use an incorrect but convenient term—which may be regarded as sacred, is a possession common to primitive peoples generally. If it be accepted that such a construction is not without foundation in the evidence cited, it is unnecessary to call in the aid of a special dispensation to account for the appearance of such a literature among a primitive nomadic people as the Hebrews were, when first they appear on the scene of history, that is, as now generally accepted, in the days of Abraham, about 2000 B.C. or possibly a little earlier.

In general outline, notwithstanding cultural differences, there is no little resemblance between the Hebrews and the peoples of India in respect of their sacred literature and their religious history. In both Palestine and India, tradition takes its origin from the legendary lore of a nomadic pastoral people, whose beliefs become the basis of a religious system, which eventually is dominated and formalized by a priesthood. This formalized religion is regenerated and recast by a religious reformer: in Palestine Christ, in India Gautama Buddha, whose teaching and ethical code transcend the boundaries of the respective countries of their origin and attain something in the nature of a form of belief capable of universal appeal. The resemblance must not be pressed too hard; but it is at least a remarkable coincidence that both Buddhism and Christianity failed to maintain their foothold among the peoples with whom they originated, and now number only "gentiles" among their adherents. There is a further point of resemblance in the history of Jewry and Hinduism, that in both a priestly revival followed a period of crisis: in Palestine it is post-exilic, in India the neo-Brahmanism which followed the decay of Buddhism in the early centuries of the Christian era.

The sacred literature of India will always rank among the great literatures of the world. Like the Bible it comprises a number of documents of widely varied age and character. Of these the earliest are the Vedas, which embody the religious and cosmic concepts of the invading Arya, who entered India probably not later than the middle of the second millenium B.C., or some tribes, possibly, a few centuries earlier. These concepts personify the forces of Nature as divine and spiritual beings, often inverting their original attributes as they appear in the Zend-Avesta of Zoroaster, to which the Vedic hymns are obviously closely related.

The Vedic hymns and early Brahmanic writings constitute the "classics" of Indian literature, and their interest for modern Hinduism is historical as bearing on origins, rather than directly doctrinal and ritualistic. This character belongs more strictly to the later writings, which developed from them. With the rise of the Brahmans, the priestly

class, into power, an event which may be placed at somewhere in the neighbourhood of 800 B.C., there began a systematization and formalization of the beliefs in personified natural forces of the Vedas which was finally carried so far as the creation of an organized polytheism or pantheon. With this development of religious belief there was also built up a highly developed and formalized body of ritual and ceremonial, which was closely associated with the elaboration of the caste system, in which the Brahman is supreme. This took the place of the form of society with which the Vedas are to be associated—a society in which the predominant class is the warrior, the Kshatriya.

Although the rise of the Brahman to ascendancy has been much obscured, especially by speculation of a theological, social and political trend among Hindus themselves, and the origin of caste is a matter of controversy, which seems to offer little prospect of satisfactory solution, it is tempting to regard the predominance of the Brahman in this early period as the final stage of the submergence of an invading culture by the indigenous civilization—as has happened in the history of the world time and again—as well as a mark of that reverence for the gods of the soil, which is a characteristic of the spread of Hinduism among the aboriginal peoples to this day.

Be this as it may, this much is certain, that with the rise of Brahmanism there set in a period of formalism in Indian life and belief, which finally attained a point, when opposition became widespread and numerous movements towards reform came into being. Of these the most important was Buddhism, the teaching and doctrine of Gautama, which appears in the sixth century B.C., the latest of the dates recorded for the death of the founder being 488 B.C. The teaching of Buddha offered to his followers the ethical doctrine of salvation through a new way of life, in place of a conformity, empty of content, to an elaborate ritual and ceremonial sterilizing every relation with gods and men.

Apart from the ethical teaching of Buddha, which naturally affected the attitude of his followers towards the social system of the Brahmans, with its observance of the caste

theory, theologically and philosophically the trend of Buddhist thought was in opposition to Brahmanic doctrine. The trend of development in Indian thought was moving steadily towards a pantheistic philosophy. In the Upanishads, the latest development of the Vedic writings, there can be discerned the beginnings of this movement in the search for a single reality behind the individual gods, and for salvation, not in the performance of ceremonies, but in the attainment of unity with this reality. The doctrine of a single principle or entity behind the personalities of the gods represented an early endeavour on the part of India to solve the philosophic problem of the one and the many, which was the preoccupation of Greek philosophy and thence descended to modern philosophy. Buddhism was only one among a number of voices uttering a protest against the formalism of the Brahmans, and seeking to revert to the position of the Vedas, as thus interpreted. It denied the existence of any permanent substratum in this world.

With the rise of Buddhism in Northern India, the doctrines of the Brahmans suffered a complete eclipse. This was largely owing to the fact that Buddhism was embraced by a succession of powerful monarchs, of whom Asoka, the great Indian emperor (264-228 B.C.), is the best known. His missionaries spread the doctrines of Buddhism far beyond the confines of India. Passing first to the south of the sub-continent, thence it reached Ceylon, and from there it went on to Further India, and ultimately to Malaya, Java, Sumatra and other islands of Indonesia. In the north it travelled to the north-west in the direction of what is now Afghanistan, where a powerful school took shape in the kingdom of Gandhara, and entered Tibet. From the Indian borderlands it overran the lands of what is now the central Asiatic desert, reaching China, where for a considerable period it was the predominant religion, Korea and ultimately Japan.

It is a significant fact that the principal source for intimate knowledge of the status and character of Buddhism in India in its later period, that is, from the third to the seventh and eighth centuries A.D., is derived from the accounts of the



The Lotus Columns of the Hypostyle Hall of the Great Temple of Karnak, showing the unbroken aisle of the temple



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Sunrise at Stonehenge. When this prehistoric monument was built, the sun, as seen from the altar, rose on midsummer day above the distant stone



Chinese Buddhist pilgrims who visited India and its principal Buddhist shrines and centres of teaching in order to learn the true precepts of the faith, which in China in course of transmission over a long period of time had become corrupt.

This is an interesting fact, which should be kept in mind in considering the character of Buddhism in relation to its wide geographical distribution and influence. Taken over this vast expanse of its geographical distribution, the character of Buddhism is not uniform. In each country to which it spread, however much its adherents may have professed and attempted to keep doctrine pure, in actual practice, as has happened with other religions which have been widely propagated by missionary effort, doctrine to some extent and practice largely have been modified to conform to local religious beliefs. Thus, in Tibet, Buddhism is a very different matter from what it is in India, more especially in respect of the numerous incarnations of Buddha, the bodhisattvas, which virtually have been elevated into separate deities ; while the so-called devil worship, that is, shamanism, of Tibet has been freely incorporated into belief and ritual. In Further India, the period of the efflorescence of the arts of architecture and sculpture most characteristic of the best Buddhist period, is regarded as culminating in the great temples, of which the best known is Ankor Wat (A.D. 1125) in Cambodia, French Indo-China. In these temples, the concepts of Hinduism and Hindu art (it is scarcely necessary to recall that this is a great and exclusively religious art), are inextricably mingled with the forms and concepts of Buddhism, and a like confusion of diverse elements is to be found in the legendary and traditional lore which is its inseparable accompaniment.

With the decline of Buddhism, which began soon after the second century A.D. and was practically complete, at least in a political sense, by the fifth century A.D., Brahmanism again raised its head. For modern Hinduism this period of neo-Brahmanism is the most important. It is then that the sacred literature of Hinduism takes its shape ; and it is especially significant in its relation to early tradition, as in the

Puranas the theological and philosophic arguments were directed to show that there had been no break in continuity between the Vedas and Brahmanism. It is also in this body of literature that there are included the *Mahabharata* and the *Ramayana*, the two great sacred epics of India, in which are gathered up and brought together a vast collection of beliefs, legends and folk-lore which had been current in India from the earliest times. To these must be added the important sacred Code of Manu, a document which deals with the religious, ritualistic and social life of Hinduism in minute detail. For general guidance and for matters in dispute in the conduct of every department of life, from small to great, reference to these documents is the supreme authority : but as with other great bodies of sacred literature, interpretation has given rise to a number of sects into which Hinduism is still divided to-day.

The same remark as to the existence of sects of diverse views might also be applied to Buddhism—apart from the differences of national and geographical distribution to which reference has already been made. In the accounts of the voyages of the Chinese pilgrims, even when Buddhism was on the decline, it is recorded that there were no less than eighteen different Buddhist sects in India. The differences between the Buddhist sects were not all differences of doctrinal interpretation. Some were due to differences of memory. There are no Buddhist documents contemporary with the rise of the faith in Buddha's teaching, and the record is derived from posthumous memory. The number of documents purporting to contain the authentic record is large. Of these the most comprehensive is "The School of the Elders" in Pali, the canon of the Theravadins of Ceylon, where Buddhism was introduced by missionaries in the third century B.C. Among the older schools the canon exists in the threefold division of the Tri-pitaka which was settled, with the orthodox commentaries, at the Council of Gandhara summoned by Kanishka, ruler of Gandhara, in the first century A.D., and afterwards reduced to writing.

The Tri-pitaka, or "Three-fold Basket", contains in its three divisions rules of discipline (227 in number) binding

on the monks, with a commentary, which is also regarded as canonical, five collections of discourses attributed to Buddha. One of these, however, and that the most important for the information relating to Buddha which it contains, namely the Jataka, is not canonical, and also "Material relating to Buddha's Previous Births"—higher teaching, dealing with psychological doctrine, in seven books in Pali.

The most important sectarian division in Buddhism, however, is that between the followers of the Mahayana, the doctrine of the Greater Vehicle, and that of the Hinayana, the Lesser Vehicle. Broadly speaking, the former covers the schools of northern Buddhism, which spread out over Central Asia to China, and the latter those of Southern India, and their converts in Further India. It will be seen that Buddhism is in no inferior position in comparison with other faiths in the possession of a large body of sacred literature, in which are contained historic narratives relating to the founder, who is virtually elevated to the position of divinity. This is true also of the exposition of the theological and philosophical doctrine which is said to be his teaching, and the code of ethics which he inculcated. The relation of this literature to Buddhism generally is not so much that of the Bible to Christianity, although analogous, but rather as if each of the Gospels, instead of being accepted as fundamental, though differing, had been made the basis of four divergent sects of Christianity.

Taoism—the popular religion of the Chinese—was derived from astronomical conceptions of relationships between the heavens and the earth. It was founded by a great religious reformer, Lao-tze, who was born about 604 B.C., half a century before Confucius. He introduced the word Tao, "way"—which signified the celestial pole, around which everything revolved, and in which all energy found its source. This idea became the basis of a religious system and a social philosophy in which culture is prized above possession, and militarism was condemned.

Though there are decided differences between the principles of Taoism and those of Confucianism, each system makes ethical conduct its chief object, and neither is asso-

ciated with the cruelties and fanaticism of other religions. The cult of ancestor worship in China has no mythological motive, but expresses the philosophic conception that continuation of life lies not in the immortality of the soul, but in the perpetual remembrance of the righteous by mankind. The original teaching of Taoism has, however, been modified by contact with Buddhism, and Lao-tze himself has become one of a trinity of deities in a mystical pantheon.

In so far as Confucianism is to be regarded as having been a religion of China, it, too, rests upon the words of a great reformer. Whether that reform is to be called religious or ethical depends upon the interpretation to be given the term "religion". Confucianism is essentially "a way of life". As such it might be regarded as purely ethical, if it were not for the implications of Chinese forms of religious belief. For paradoxical as it may seem, it is possible to say that in China a man might simultaneously hold three distinct forms of religious belief—Taoism or Confucianism, Buddhism, and ancestor worship.

It is perhaps unnecessary to add that Chinese religious beliefs are extremely complex, and perhaps to the western mind over-subtle. Both Taoism and Confucianism are branches of the Universal, which might baldly be described as a form of animism. For there is in China no personal deity or being who stands, as it were, outside the system. At the head and front of this animistic system are Heaven and Earth, and the whole system works in accordance with the Tao or "Way". It was the duty of the emperor, and his representatives, the governors of provinces, mandarins and other officials, to perform ceremonies, such as ploughing the ground ceremonially at the New Year, to ensure the proper and due working of the Tao. The emperor, as the representative of Heaven on Earth, was divine, and in addition to the Tao ceremonial, a no less important element in the official religion was the worship and reverence paid to the imperial divine ancestors. On the proper performance of the Tao ceremonial depended the prosperity of the country and its people. The people took no part in this official religion. Their religion was confined to ancestor worship,

on which, however, there came to be grafted worship of a large number of departmental, gods and goddesses, spirits, demons, and spiritual beings of various kinds. There are many who, though Christians, represent a similar tendency to paganism in their belief in the influence of charms, omens and the stars upon their lives.

This sketch of Chinese religious ways of thinking is necessary to appreciate the place of Confucianism in its relation to the life and theology of the people. The history of China in the centuries immediately preceding the birth of Confucius in the fifth century B.C. had been stormy and disturbed. Conflict between states and feudal lords had reduced life to a chaos. It is characteristic of the Chinese mentality that efforts at reform and pacification should have come in the first instance by way of a literary vehicle. Lao-tze before the days of Confucius had already stated the principles of the Tao ; but it remained for Confucius to endeavour to give that teaching practical effect. Not only did he in his writings show how the individual by his personal efforts in a reformed conduct could restore the Tao to working order, but by bringing together a small group of disciples, who lived in accordance with his precepts, he showed how his ethical system actually worked as a rule for the conduct of life. Confucius himself claimed to be no more than a teacher ; but he stands first among official sages of the Chinese, his position as such having been officially recognized by authority from time to time, until, in the late days of the empire he was raised to the rank of "Divine Arbiter", and held in veneration equally with Heaven and Earth. As such his position may be regarded as on a par with that of the divine teachers of other creeds. From the beginning his writings have held the position of the scriptures of the Chinese.

The writings of Confucius, or rather Confucianism, are contained in the Shu-King, five books or documents, some, but not all, of which are held to be written by Confucius. Briefly, these contain a chronicle of the Chinese empire, going back, according to Chinese computation, to a period equivalent to 2800 B.C., when the first emperor came to the throne. This chronicle exemplifies the working of the Tao

in the past. In his ethical treatise Confucius shows how there is a logical chain involved in the working of the Tao, which passes from Heaven and Earth, step by step, through a series of grades to the individual. He then shows how society and the Way may be regenerated from its present (that is, contemporary) state of disorganization and discord to harmonious working by the regeneration of the conduct of the individual, restoring the essential goodness of his nature. Harmony will then return on the upward way through the various grades already recited, until the effect at last reaches Heaven and Earth, so that complete harmonious working is restored and the regeneration of society as a whole accomplished.

It will be noted that, like Christ and the Buddha, the appeal is to the individual, and the aim the moral regeneration of the individual in order to bring about reform—in the teaching of Christ, as usually understood, in harmony with the Divine purpose, in Buddhism to attain perfection by absorption into the fundamental principle of the Universe, that is, the attainment of Nirvana; while the objective of Confucius is the harmonious working of the Universe as a whole, of which the individual is an integral part.

As regards the sanctity of the writings of Confucius, his teaching at first produced little effect, apparently indeed was almost forgotten, when in the third century B.C. Shi'Hwang of the T'sing dynasty conquered the parts of China which lay outside his own dominions and made himself emperor of China as a whole. This emperor distinguished himself by committing the whole classical literature of China to the flames. Within a few years the Han dynasty followed.

The early monarchs of this dynasty, perhaps the greatest in Chinese history, with a reverence for antiquity which in the eyes of China can only be regarded as inspired, sought to restore the old order of things. Such fragments of the literature as had survived were collected and collated, and the memory of scholars and the learned were laid under contribution to restore such parts of the works of the sages as were missing. The religious element in these restored classics became the State religion, and commentaries on

these documents were prepared. In the result a constitution was built up in accordance with the precepts of antiquity, which endured in this ultra-conservative State until the beginning of the twentieth century, a period of more than two thousand years.

The documents which had been rescued from oblivion embodying the words of Confucius are regarded as sacred, and in relation to his latest elevation may be held to be those of a divine personage, so far as that conception is germane to the Chinese mode of thought. As such they are, and always have been regarded, since the recension of the Han dynasty, as unalterable. In so much, however, as they deal with the State religion, which is the concern of the royal house, it was essential that the words of the sacred documents should be correctly understood. Each dynasty in turn, therefore, has caused to be drawn up a body of rules or ritual of the procedure which must be followed by the emperor and his representatives in order that their actions may be in accord with the teaching of the sacred writings. Of these manuals of ritual the most famous and highly elaborated was the compendium drawn up for the emperors of the T'ang Dynasty between A.D. 713 and 741, which in a measure has been a model and basis for the rituals which have served later dynasties.

While it is possible to say simply of Buddhism that it was concerned with the salvation of the individual, and of Confucianism that it aimed at the regeneration of a whole society through a reformation in the conduct and character of its individual members, it is more difficult to define the aim which Muhammad himself had in view. If one were to judge by results, it would appear that his religious teaching was directed to a great national revival, and was a reaction against the polytheism in the degraded forms of Christianity which Muhammad saw around him. For in so far as it seems that he acted with any motive ulterior to the enthusiasm which is the spring of action of every religious teacher, his purpose was to recreate the traditional religion of Abraham, the ancestor, through Ishmael, of his race, the nomadic pastoral peoples of the desert, as well as of

the more settled agriculturists and traders gathered together in cities, with whom they regarded themselves as kin, or rather it would be more correct to say, who claimed kinship with them. In other words, the peoples known by the convenient and comprehensive term of the Southern Semites, although this applies a linguistic term to an ethnic group.

In the Koran, or rather the teaching upon which the Koran was based, Muhammad embodied as the direct word of God conveyed to him by divine messenger, the tradition, the belief and the law which had been the spiritual principle in the Semitic community from the beginning, but from which in the period that had elapsed since the days of Abraham they had departed. This was to be the law, in the widest sense, governing the life of the individual, both as such, and as a member of an organized community, and dealing with every department of life. To this day the Koran remains the irrefragible guiding principle in every relation of life in all Moslem communities, so far as members of that community are concerned. It is theology, ritual, civil and criminal law, and code of ethics in one, which it is the business of every teacher, judge and ruler in the Moslem world to interpret and administer.

Much of the Koran is unquestionably drawn from Jewish sources, though as Muhammad could not read, it is probable that his material was a result of oral transmission from Jews whom he met. At Muhammad's death some portions appear already to have been written down, while others had been committed to memory. The whole was collected and arranged after he died. The first version was the work of his secretary, Zayd ibn Thabit, at the order of Abu Bakr, and on the death of that leader came into the possession of his daughter, the widow of the prophet. Afterwards, however, when dissensions arose in the army as to the true form of the revealed text, on the instructions of Uthman, the then ruler of the Moslem world, Zayd was again instructed to prepare a new text with the assistance of three members of the prophet's tribe, the Koreish (Quraysh). All other versions in existence were then ordered to be burnt and copies of the revised text sent to the principal centres of the empire.

This remains the accepted and standard text to the present day.

Shortly after the death of its founder, quarrels arose on doctrinal grounds as to the method of appointment to the Caliphate, resulting in the great division, which still endures, into two bodies, the Sunni, for whom until recently the Caliph was the Sultan of Turkey, carrying with it the great body of Moslems, and the Shiah, to which the Persian members of the faith adhere. Muhammadanism, however, was not immune from the fate of other religious beliefs, which have relied on the recorded word of founder and teacher, and a large number of sects, in number well over a hundred, sprang up sooner or later, each making its individual interpretation of the law the ground for independent existence and dissent from other groups. Although the Moslem world, on the whole, presents a united front against the unbeliever, it still remains a faith much divided within itself, but with the Word of God as delivered to the Prophet as its impregnable stronghold against assault by external forces.

Of the sacred literatures which have so far been considered, it may be said that the Hindu sacred books are the work of priestly hands, which illustrate from a gallery of divine personages the character of divinity, and those of Buddhism and Confucianism record the teaching of one who was not originally divine, whatever share of divinity he may have acquired later according to the development of his character, as in Buddha, or, in the later view of his followers, as in Confucius. The Koran, however, shares with the Law and the Prophets of the Jews, and the Bible of Christianity the claim to represent the actual Word of God, either by direct transmission or by divine inspiration.

The history of the Bible in the Christian world since the early days of Christianity is the story of the weakening of this claim, while the history of the Christian Churches is closely wrapped up with the attempts which have been made to meet the attacks on its divine character. It was after the Reformation that bibliolatry became more common among the Protestant sects than it had been previously.

The Bible fails, however, to justify faith in its inerrancy on account of its inconsistency with itself, its variance from current concepts of what should constitute Christian belief, and from current codes of morality, its failure in its adaptability as regards statements of fact and the discoveries of science relating to the record of happenings in the cosmic process, and finally in its inability to withstand the investigation of textual criticism, when directed to the claims of authorship upon which the authenticity of its various parts has been based.

The Hebrews were a small nation, belonging to the great Semitic race, which had much in common with the other peoples of that race—Assyrians, Babylonians, dwellers in Syria, and others—who were looked upon as heathen outside the pale of the salvation of the Jewish God. The ancient Jews left behind them fewer remains than any other nation belonging to the Semitic race, whose inscriptions, buildings, and other works have been preserved, and the study of which has thrown much light upon the manners and customs of the peoples described in the Old Testament. In the Bible, however, we have a unique record of the institutions of the Jews and of their ancestors. It is the production of many writers who lived at different periods. It is a mixture of historical facts fused with legend, poetry, folk-lore, stories and traditions, deeply devotional religious hymns, prophecies, and descriptions of scenes in the life and history of the sons and descendants of Abraham.

Until the latter half of the nineteenth century, clergy and laity alike condemned as heretical any inquiry into the origin or meaning of the Hebrew scriptures. With the expansion of the spirit of historical research through scientific methods of inquiry, it became obvious that the principles of evidence and reasoning which held good for the history of Greece or Rome or any other peoples must be equally applicable to that of the ancient Jews as recorded in the Bible.

It is a testimony to the influence of scientific training that Professor Robertson Smith, the great British leader in the application of historical research to the Old Testament,

began his career as assistant to the professor of natural philosophy in the University of Edinburgh and did notable original work in mathematical and experimental electricity. Later, in 1870, he was appointed professor of Oriental languages and Old Testament exegesis at the Free Church College, Aberdeen, and there applied his scientific habit of mind to the study of the Semitic languages and the Old Testament. He examined the Jewish records in accordance with the principles of scientific evidence, and was able to show that the ancient Hebrews and their neighbours had a large common stock of religious tradition. The religions of Judaism, Christianity and Islam were shown to have been built upon the beliefs and customs of ancient heathenism, and to represent a natural and continuous stream of development instead of isolated doctrines revealed to particular peoples.

These views met with intense opposition from certain Christian sects, with the result that Robertson Smith was removed from his chair in Aberdeen in 1881, and the Church was thus deprived of its most learned member. The soundness of his methods of study, and the conclusions established by the results, were testimonies of truth which survived the bigotry and prejudice of the court by which he was condemned. Robertson Smith's reputation was increased by the judgment which convicted him; and it is difficult to understand now that such a trial could ever have taken place in an enlightened country. Appropriate reparation was afterwards paid by the crowded audiences which attended his lectures in Edinburgh and Glasgow upon the method and conclusion of biblical criticism; and a few years after his dismissal by the Free Church of Scotland he returned to Aberdeen itself to deliver three courses of lectures on the primitive religion of the Semites.

Even in the early Church, from the days of Origen onwards, there was some "uneasiness" as to the character of the text and content of the Bible. More especially as regards the Gospels and other books of the New Testament, the language, current colloquial Greek, was felt to be below the dignity of a sacred book, which recorded the words of God.

By some, however, this was regarded as a proof of authenticity, in view of the social status of those who were among the first members of the Church, while Origen and others of the Fathers after him interpreted the inconsistencies and other weaknesses of the biblical text as allegory and metaphor. As a consequence of these condonations and interpretations of the text there grew up a body of apologetic and exegetic literature based in part on tradition not embodied in the text, and dealing with both doctrine and ritual, which came to be in their sphere as authoritative as the original. It was out of these that there grew the dissensions, which in their turn have given rise to the divisions, leading to the separate existence of the Greek and Eastern Churches, the uprising of the numerous heretical sects of the Middle Ages, the Reformation and the creation of the various Protestant Churches, and finally within the Protestant faith the separate forms of belief which have brought about, among others, the separation of Nonconformity from the ritual and doctrine of the Church of England.

While the difficulties which grew out of interpretation, ritualistic practice, or Church government and discipline as set forth in apologia, exegesis, or papal ordinance, were in part solved by renunciation of doctrine, separation from the parent Church, and a reversion, it was claimed, in doctrine to the Word of God, and in ritual to the practice of the early Christians, as known at the time—to state summarily many volumes of detail in Church history—the separatist body disregarded reconciliation by providing its own interpretation of passages of doubtful meaning or questionable authenticity.

The justifications of the inerrancy and authenticity of the biblical text put forward by theologians were rationalistic, mystical, or subjective and psychological, rather than of the objective and factual character which to the logical mind would seem most fitted to an attempted rebuttal of the increasingly evident discrepancy between the facts in Nature and the constitution of the world and the record of biblical story. For example, a theologian of the reformed English Church in the days of Queen Elizabeth lays down eight points which were held, in the view of the theologian,

adequate to support the authenticity of the biblical narrative. Among these were the majesty of the doctrine, the simplicity and purity of the style, the antiquity of the books (then thought, so far as the Mosaic narrative was concerned, to be the oldest written), the miracles, the testimony of the martyrs and the failure of its enemies to destroy it, and so forth; while the fact that its authors, in certain instances, had been illiterate, was taken as a proof of divine inspiration.

Such lines of argument could not withstand the evidence of science, which could be weighed and tested by direct observation. As is well known, the literal accuracy of, say, the story of creation has, generally speaking, been abandoned in favour of an explanation as metaphor or allegory. In part, this is due to the cumulative evidence in geology, palaeontology and biology, brought together since the beginning of the nineteenth century, and, particularly since the time of Charles Darwin, which has canalized the trend of scientific opinion towards acceptance of evolutionary principles. As more and more light is thrown by scientific research on the history of the universe, of the stellar system, on the formation and composition of our world and on the history of life upon its surface, it becomes increasingly evident that the story of creation, as well as the record of the special intervention of the hand of Providence on certain recorded occasions, cannot be accepted, either because it is contradicted by the scientific interpretation of known facts, or because it is contrary to the invariable order of known processes of Nature.

The view that the Mosaic account of the creation of the world and of the various forms of life up to man should be accepted as an authoritative and accurate statement of inorganic and organic evolution is no longer held either by theologians who know most about the origin of the scriptures, or among philosophers who are best acquainted with the facts of science. Science is progressive, and many of the scientific conclusions of one generation are modified or superseded through new knowledge obtained during succeeding generations. Unless, therefore, the Bible is regarded as containing all scientific knowledge for all time, there is

not much purpose in showing that science and revelation are in agreement at a particular epoch, even assuming this to be the case. A more reasonable view to take is that the Scriptures are faithful historic records of what was thought or believed when they were compiled, containing observations of obvious phenomena only, and interpretations appropriate to the period in which they were made. Any attempt to show that the facts of modern science can be confirmed by reference to an inspired literature must be special pleading for a case which has only the flimsiest evidence to support it.

With the advance in the technique of textual criticism in the course of the last generation, with a more searching analysis of the matter of the text, and with the use of the comparative method in evaluating the tradition embodied in the narrative, it has become even more patently evident that orthodox opinion in regard to the authenticity of the Bible cannot be maintained. In regard to the actual text, not only has it been possible to show that it has undergone a priestly recension in which all matter at variance with orthodox views in the post-exilic period had been eliminated, including anything which could be construed as a survival of a polytheistic or heathen character in belief, but also that the text of the early books, traditionally the work of Moses, was not the work of one, but of several hands. Of these one strain had come from a people to whom God was Jehovah, and another, presumably of northern origin, was derivative from a tradition in which the deity appears as Elohim, while a third hand appears to combine characteristics of both schools. To these is added a fourth hand, in which the narrative shows evidence of a priestly origin.

Further, a detailed examination of the narrative in the early part of the Book of Genesis demonstrates that the story of creation and the Garden of Eden is not one but two narratives, which in part are inconsistent one with another. Moreover, archaeological research among the archives of the early peoples of Mesopotamia has brought to light records on the clay tablets which contain what are probably the

original versions of both the story of creation and the flood. These versions had either been adapted by Hebrew writers to their own conceptions of their people's history—this adaptation may be even so late as the exile in Babylon—or they may have been derived with the Mesopotamian versions from a common source in western Asiatic tradition, although in view of the character of the narrative, the former explanation appears the more likely.

Nor are these early passages in the Book of Genesis unique in other respects. Textual criticism has made it evident that the theory of single authorship ascribing the early books of the Bible to the inspired pen of Moses cannot be maintained. Also, study of the religious content of these books goes to show that the narrative of the early history of the Hebrews, as well as the cosmological material there given, up to the time of Abraham and possibly some at least of the matter after that period, is not historical, but a body of tradition and legendary matter, in part common to the peoples of Western Asia, in part a heritage from the primitive beliefs which appear to be the heritage of man in the earlier stages of his cultural development.

Furthermore, it is probable that had the narrative come down to us in something more nearly approaching its original shape, this conclusion would have been even more certain. It is evident that at some late period the narrative has been worked over to remove all reference to polytheistic belief or traditions and practices which were patently reminiscent of heathendom. At the same time it is only fair to say that, onward from the time of Abraham (whom some would regard as an historic personage, or at least a personification of the tribal nomadic life of the early Hebrews), so far as archaeological research has gone, it tends to confirm the general historic accuracy of the Bible in its record of events, as, for example, in the catastrophic fall of a great city on the site of Jericho, or the evidence of the strategic importance and the sack by Assyrians and Babylonians of a fortified city, identified with Lachish.

Before leaving this topic it may perhaps be worth while to repeat that the conception of the Deity in the Bible is

by no means uniform throughout, and that it is possible to indicate with some certainty the sources of the influence which has determined the character of the concept in each instance. In the early chapters of Genesis, apart from being the Creator, a Babylonian concept as here presented, though the divine creator is not peculiar to that group of beliefs: God is also the judge. The priest-ruler, the patesi, was the head of the City State of Sumeria. The story of the temptation and the fall of man is a version of the struggle between good and evil, which appears in the Babylonian creation legend, where Marduk (Merodach) fights against the monster. This struggle between good and evil runs all through the early eastern cults, and is well exemplified in the Aryan folk-religion founded by Zoroaster, the Mithraic legend, and in Manichaeism, founded by Mani, a Syrian, in the fourth century, and, like Mithraism, for a time a rival of Christianity.

At a later stage, for example, in the story of Joshua and the succeeding narrative of the conquest of Palestine and its consolidation against the surrounding peoples, God is the tribal god, the God of battles, jealous if his own people depart from his precepts in any way, but strong to protect them against the assaults of their enemies. From the period of the formation of the Jewish kingdom onward, God is the divine ruler, a deification of a great ruler, powerful, wise and absolute, like Solomon, but still more closely resembling the potentates from the empires further east, such as Babylon, though some of the prophets taught His love, kindness, forgiveness and mercy. Finally, in the New Testament, the kindly All-Father appears just, merciful, from whom all benefits flow, a conception which carries further the idea of the fertility gods, who bring benefits to man when their appropriate rituals have been duly observed, but with the more savage features of their cults, such as human sacrifice, eliminated.

## *Chapter Eight*

### THE ZODIAC AND DIVISIONS OF THE YEAR

**I**n the latitude of Egypt, the duration of dawn and twilight is very short, and bright stars are therefore visible near the sun at sunrise and sunset. The star Sirius or Sothis is the brightest in the sky, and it was observed by the Egyptians to appear above the eastern horizon just before the rising of the sun each year on July 19 or 20, which was very near the time of the annual inundation of the Nile. Such a heliacal rising of Sirius is referred to in one of the inscriptions in a temple at Dendera, one of the best-preserved temples in Egypt. The building is not very ancient, being of Greek and Roman origin, though constructed on earlier foundations. The large temple on the site was dedicated to the goddess Hathor, whom the Greeks identified with Aphrodite. Certain chambers, as well as a small temple which forms part of the main building, were especially devoted to the celebration of the festival of the New Year, marked by the appearance of the star Sirius. An inscription in this temple referring to Sirius reads :

“ She shines into her temple on New Year’s Day, and she mingles her light with that of her father Ra on the horizon.”

About 700 B.C. the star Sirius rose with the sun on the Egyptian New Year’s Day, and the light of both would shine along the axis of the temple on that day.

The position of a star in relation to the sun on any particular day of the year is affected by the precession of the equinoxes, so that from time to time, and along different parts of the Nile, the heliacal rising of other bright stars at

the summer solstice may have been used instead of Sirius to mark the beginning of a year and the rising of the Nile, which is not in maximum flood at Cairo until more than forty days after the maximum at Aswan. These variations do not, however, affect the fact that the Egyptian year was derived from observations of the heliacal risings of the star Sirius. The rising of the star heralded the rising of the sun, and the interval was used by the priests to prepare for the solemn ceremonial which took place on New Year's morning or the great festival of the Nile rising and the summer solstice.

The primitive year of the Egyptians appears to have been one of 360 days. The months in such a year—apparently based upon the lunar month—would not, however, correspond to the succession of the seasons of a solar year, and before 3000 B.C. a year of 365 days was adopted as the civil or "vague" year; but as this year was shorter than the natural year by one quarter of a day, or about a day in four years, the dates of seasons would work backwards in time through all the months of the year. Continued observations of the sun at the solstice soon revealed that the established year of 365 days was not a natural or solar year; consequently the sacrifices and feasts, which were regulated by it, did not fall in the seasons with which they were made originally to correspond. When, however, the priests had discovered that the more accurate length of the natural year was  $365\frac{1}{4}$  days, they did not introduce an extra day every four years to adjust the difference, but maintained the length of 365 days as that of the civil year and imposed an oath upon their kings not to alter it. Only the priests were thus able to know when the true year began and the inundation of the Nile could be expected. As Sir Norman Lockyer said in his *Dawn of Astronomy* :

"The variations between the fixed or sacred and the vague years were known perhaps for many centuries to the priests alone. They would not allow the established year of 365 days, since called the 'vague' year, to be altered, and so strongly did they feel on this point that, as already stated, every king had to swear when he was crowned that

he would not alter the year. We can surmise why this was. It gave great power to the priests ; they alone could tell on what particular month the Nile would rise in each year because they alone knew in what part of the cycle they were ; and in order to get that knowledge, they had simply to continue going every year into their holy of holies one day in the year, as the priests did afterwards in Jerusalem, and watch the little patch of bright sunlight coming into the sanctuary. That would tell them exactly the relation of the true solstice to their year ; and the exact date of the inundation of the Nile could be predicted by those who could determine observationally the solstice, but by no others."

The difference between the lengths of the civil and sacred years suggested to the Egyptians that 1460 solar or natural years of  $365\frac{1}{4}$  days would correspond in length to 1461 civil or calendar years of 365 days, and this relationship is their famous Sothic or Dog-Star cycle. Each day in this cycle represents four years in actual time, so that the length of the cycle is  $365 \times 4$ , that is, 1460. Calculations show that the heliacal rising of Sirius (or Sothis) took place at the summer solstice on July 20 about 3000 B.C., and the Egyptian priests seem to have known this fact a little later.

By means of the Sothic period or cycle it is possible to assign a date to the reign of the first dynastic king of Egypt, Mena or Menes. It is known from a work by Censorinus in the third century A.D. that a Sothic period ended in A.D. 142 or 139. A heliacal rising of Sirius is recorded on a papyrus found at Lahun of a king of the Twelfth Dynasty, and using the Sothic period expressed in terms of the "vague" year of 365 days, the date of the dynasty is placed at about 2000 B.C. From astronomical evidence of this kind the date of Menes is placed at about 3200 B.C.

The year of the Egyptians was divided from early times into three seasons, each of four months, beginning with the month of Thoth, the god of wisdom, at the end of June. There were four months of inundation, four of seed-time and four of harvest, corresponding to winter, spring and summer ; and each month was divided into thirty days. The annual

calendar is depicted on a frieze in a hall of the great temple at Dendera.

In the Ramesseum at Thebes, the work of Rameses II, who lived about 1301-1234 B.C., are drawings and hieroglyphs representing the twelve months, beginning with the month of Thoth, corresponding to parts of our present June and July. The months are arranged in relationship to certain constellations ; and they show that the Egyptians were familiar with some of the constellations of the zodiac at the time of Rameses II, and probably long before. As the heliacal rising and setting of stars was recorded, it must have been observed that each month had a different group of stars near the sun at sunrise and sunset. A group near the sun at sunrise in any month would be above it at sunrise in the following month, and would not be with the sun again until a year had passed. A particular group of stars, or constellation, is thus associated with each month, and twelve of such constellations make up the zodiac.

Several zodiacal constellations with others are represented by mythological figures on a so-called zodiac, which was originally on the ceiling of one of the chambers in the temple at Dendera and is now in the Bibliothèque Nationale in Paris. The figure of a jackal in the centre represents what we now know as the Little Bear, one star of which is our Pole Star, though it was not the Pole Star at that time. Near it is a figure called the Thigh, represented by the leg of an animal and identified as the Great Bear. Other groups of stars represent the present constellations of the Dragon and Orion. This zodiac, as well as two others at Esneh and Ed-Dayr, are of Ptolemaic and Roman construction, though no doubt they represent earlier conceptions. There is, however, clear evidence from both figures and inscriptions that observations of the stars were regularly made by the Egyptians and that names were given to certain constellations, some of which were associated with the rising of the sun.

Observations of groups of stars seen just above the sun at dawn or at twilight were associated with seasons and other events on the earth in very early times. The groups were

figures on a celestial dial, and the sun took a year to pass round the complete circle of the heavens upon which they were fixed. The division of the circuit into twelve parts, or signs, made up the zodiac, as recognized and used for religious and seasonal observances by the Chaldeans, the Chinese, the Egyptians, Hindus, Persians, Greeks, and other peoples. Each of the twelve signs of the zodiac represented a "house" of the sun for a particular month; and at the end of a year the sun would be seen in the same sign. This solar zodiac was made the principal foundation of the astronomies of Egypt and Greece—and through them of the western astronomical systems—and with its symbols, their respective systems of mythology were associated.

In the more eastern countries, however, and especially in India, in the earliest times of which we have knowledge, although the solar zodiac was known, the progress of the moon through different groups of stars in the course of a month was also observed and used as a measure of time. This lunar circuit was divided into twenty-eight parts called lunar mansions or stations, each division corresponding nearly with the space of the moon's daily motion as marked by bright stars or groups of stars along the circuit. At a later period Hindu astronomers reduced the number of divisions from twenty-eight to twenty-seven, which is a closer approximation to the length of the sidereal month, and makes the "asterisms" agree more nearly with the moon's daily motion. They did not make a catalogue of stars, but confined their attention to stars which lie in or near the moon's path and are liable to be obscured by the moon or be in occasional conjunction with the planets. Lists of such stars, or asterisms, are given in several ancient Hindu works on astronomy, and are recorded in Sanskrit literature.<sup>1</sup> The Arabs also from early times possessed a scheme of "lunar mansions", in which the constellations were arranged in groups corresponding to the positions of the moon in them, therefore forming a lunar zodiac, as was also recognized in Mesopotamia.

<sup>1</sup> See *Hindu Astronomy*. By W. Brennand. (London: Chas. Straker & Sons, Ltd., 1896.)

The distribution of stars along either the sun's or the moon's path in the heavens is unequal, but astronomers in early times divided the path into equal parts, each of which was a sign of the zodiac. There seems first to have been six such signs, and then twelve, in the year. Each sign represented a month of thirty days, and one-third of a sign corresponded, therefore, to a week of ten days, as used in Egypt and in Greece. The signs began at the spring equinox ; and when the present order of the signs was adopted, the sun at that time of year must have been near the constellation of Aries—the Ram. On account of a secular change in the direction of the earth's axis, the positions of stars in relation to that of the sun at the time of an equinox vary in a cycle of about twenty-six thousand years, known as the precession of the equinoxes, with the result that the constellations of the zodiac move backwards in this period through the signs of the zodiac, consequently the star-group, in which the sun is now at the spring equinox, is not the Ram, but the Fishes. At an earlier period the Bull or Ox was the leader of the zodiacal figures, and before that epoch—about 4500 B.C.—the sun was in the constellation of the Twins at the time of the spring equinox.

The annual circuit of the sun in the heavens, and the established places and orderly appearances of the starry host at night and at different seasons, inspired many beautiful passages in the Bible. They are not, however, conceived as subjects of worship, but are regarded as revelations of the majesty of their Divine Creator. Thus, in the nineteenth Psalm, we read :

“ The heavens declare the glory of God ; and the firmament sheweth his handiwork.

Day unto day uttereth speech, and night unto night sheweth knowledge.

In them hath he set a tabernacle for the sun, which is as a bridegroom coming out of his chamber, and rejoiceth as a strong man to run a race.

His going forth is from the end of the heaven, and his circuit unto the ends of it : and there is nothing hid from the heat thereof.”

The relation of the constellations, and in particular those on or near the zodiac, to the seasons seems to be the interpretation of the words of Job (Chap. xxxviii) :

“ Canst thou bind the sweet influences of Pleiades, or loose the bands of Orion? Canst thou bring forth Mazzaroth in his season? or canst thou guide Arcturus with his sons? ”

There has been much discussion as to the meaning of the word Mazzaroth ; but, from an astronomical point of view, the most reasonable is that it signifies the divisions of the year, or the twelve signs of the zodiac, and corresponds to the word “ mizrata ” in the line of the Babylonian tablet of creation :

“ He ordained the year, and into sections (mizrata) he divided it.”

Job’s question would thus mean :

“ Canst thou so move the great celestial sphere that the varied constellations of the zodiac shall come into view, each in their turn, and with them the earth pass through its proper successive seasons? ” <sup>1</sup>

The rising of the Pleiades with the sun in the spring suggests that Job’s question relating to this group of stars signified :

“ Canst thou prevent the revival of all the forces of Nature in the springtime? ”

and similarly, with regard to Orion, which is a winter constellation :

“ Canst thou free the ground from the numbing frosts of winter? ”

As the twelve constellations of the zodiac were known a thousand years or more before the days of Joseph, the astronomical interpretation of his second dream is clear.

“ Behold ”, he said, “ I have dreamed a dream more ; and, behold, the sun and the moon and the eleven stars made obeisance to me.”

The sun signified his father ; the moon, his mother, and the eleven stars or constellations, his eleven brethren : hence the rebuke of Jacob :

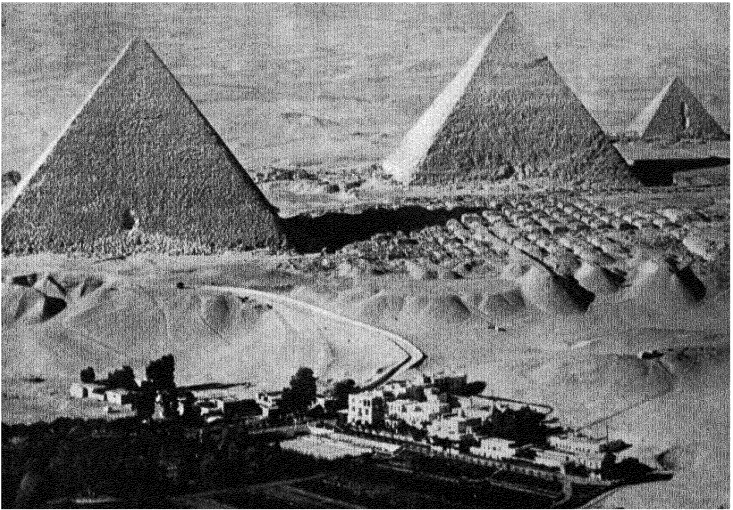
<sup>1</sup> *The Astronomy of the Bible.* By E. W. Maunder. (London, 1908.)

“ What is this dream that thou hast dreamed? Shall I and thy mother and thy brethren indeed come to bow down ourselves to thee to the earth? ”

There is a certain amount of evidence to associate all the twelve tribes of Israel with constellations of the zodiac, and the designations or descriptions given to each son in the blessing of Jacob affords support to this view. However this may be, the connection of the four chief tribes with the zodiac is shown by Jacob's references to Judah as “ a lion's whelp ” ; Reuben, “ unstable as water ” ; Dan, “ a serpent by the way ” ; and the association of Joseph with an ox or bull in the blessing of the tribes of Israel by Moses in the words : “ His glory is like the firstling of his bullock.” Moreover, the traditional devices upon the sacred standards of these tribes—for Judah, a lion ; for Reuben, a man and a river ; for Ephraim, a bull ; and for Dan, an eagle or serpent, all of which are identified with constellations of the zodiac, indicates an undoubted connection between them. These tribes always pitched their tents around the tabernacle in the four corners of the camp, representing the four quarters of the heavens.

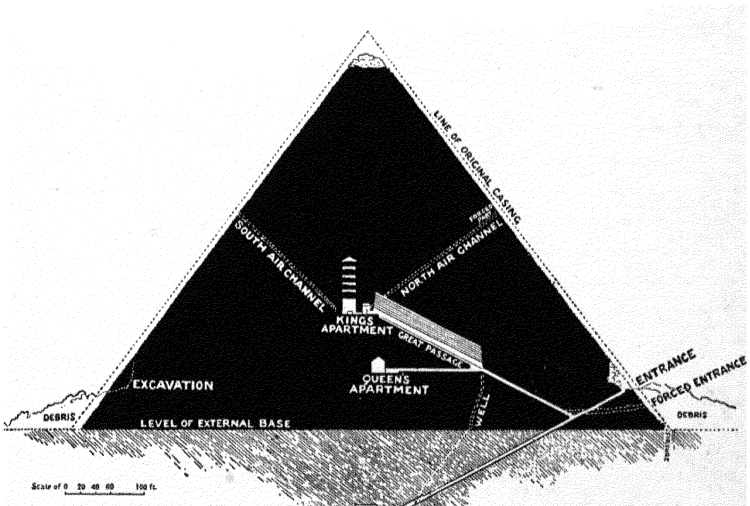
As this is not a work on astronomy, but rather one on aspects of civilization with which that science is closely associated, no attempt is made to show how the various celestial phenomena and events are due to particular movements of the sun, moon and planets in relation to the stars. As, however, the retrograde movement of the spring equinox has had to be taken into account in connection with the movement of the signs of the zodiac and the construction of the calendar, it may be worth while to explain briefly what this signifies. For this purpose, the celestial vault may be regarded as a sphere upon which the stars are fixed, even though we know that every star is in movement and that they are at immensely different distances from the earth.

Upon such an imaginary sphere, the celestial poles are the two mathematical points in the heavens exactly above the poles of the earth. They are the points where the earth's axis of rotation, if imagined to be extended in each direction, would touch the sky. Theoretically, at a point on the earth



*E.N.A.*

An aerial view of the Pyramids of Gizeh, showing the Mena House Hotel in the foreground



*British Museum*

Section of the Great Pyramid of Gizeh, Tomb of King Khufu (Cheops) of the Fourth Dynasty (about 2850 B.C.). The north passage is believed to have pointed at the Pole Star at the time of construction, and the south to the Pleiades at midnight in November



exactly at the north or the south pole, there would be no rotation ; and this applies also to the poles of the heavens. On account of the rotation of the earth on its axis once a day, the stars appear to describe circles around the celestial poles. The centre of such circles of apparent movements seen in the northern hemisphere of the earth, is the north celestial pole, and that of similar diurnal movements seen in the southern hemisphere is the south celestial pole.

It happens at various epochs that a bright star is near one or other of the two celestial poles ; and such a star is then called the Pole Star. The North Star, seen in the northern hemisphere on any fine night, is not exactly at the north celestial pole, but describes a circle around it at a distance equal to twice the apparent diameter of the full moon. A thick cedar-wood lead pencil held upright at arm's length roughly represents the apparent separation of the North Star from the north pole of the heavens. For practical purposes, however, the North Star may be regarded as being at the north celestial pole, and therefore as being at a fixed point. This is the sense in which Shakespeare makes Julius Caesar say :

“ I am constant as the northern star,  
Of whose true-fix'd and resting quality  
There is no fellow in the firmament.  
The skies are painted with unnumber'd sparks,  
They are all fire and every one doth shine,  
But there's but one in all doth hold his place.”

Just as the poles of the heavens are exactly above the poles of the earth, so the celestial equator is the great circle in the sky corresponding to the earth's equator. Any star exactly overhead to an observer at the earth's equator is therefore on the celestial equator. If a luminous circle be imagined drawn upon the sky to mark the position of the celestial equator, the sun would have been seen to cross this line from the south to the north side in 1939 at precisely March 21 days 12 hours, and in 1940 on March 21 days 18 hours. The part of the sky behind the sun at that time is occupied by the sign of the zodiac known as Aries, or the Ram : and the exact point at which the sun crosses the equator is

known as the first point of Aries, or the vernal equinox. The group of stars, or constellations, now behind that point on March 21 is, however, not that of the Ram, but of the Fishes.

On account of this slow westward or retrograde movement, referred to as the "precession of the equinoxes", the length of the seasonal year differs from that determined by the heliacal rising or setting of stars. The difference had been noticed long before the Greek astronomer Hipparchus, in the second century before the Christian era, used observations of Babylonian astronomers to assign a value to it. It amounts to about twenty minutes a year, and carries the spring equinox completely around the sky in about twenty-six thousand years. Whatever position the "first point of Aries" occupies in relation to the stars, the signs of the zodiac are twelve equal divisions of the circuit of the sky, beginning with it. The signs of the zodiac, therefore, move around the sky on account of precession, but the constellations of the zodiac, which are irregular groups of stars in the sky, maintain their positions unaltered.

Astrologers construct their horoscopes from the positions of planets in the zodiac at the time of birth, and claim that these determine the temperament and mental and physical health of people, as well as prospects of success or failure in future activities or interests in life. As, however, they base their predictions on the assumption that the stars themselves influence human destinies, they should use the constellations of the zodiac, and not the signs, in the construction of horoscopes. The signs of the zodiac are purely geometrical divisions of the sun's apparent annual circuit of the sky caused by the revolution of the earth around it. This was divided into twelve parts as a convenient measure of time, each representing a month, but these parts, or "houses" of the astrologers, are distinct from the background of stars and have no cosmic significance. They were made by man; and to think that the position of a planet in any of them will decide the characteristics and fortunes of human beings is the height of folly.

Even if it be conceded that, in the time of ancient Babylonia, astrological predictions based upon positions in the

zodiac of the sun, moon and the five planets then known, were correct, the fact that, on account of the precession of the equinoxes, the constellations behind the zodiacal signs are no longer the same, has changed the conditions entirely. To be consistent, the constellations which were then behind the signs should be used instead of the shifting framework with its squares, trines, quintiles, sextiles, and other geometrical divisions through which modern astrologers are able to do their fortune-telling and impose upon human simplicity.

To encourage belief in such a farcical scheme of control or guidance of conscious life is to insult knowledge and degrade intelligence. Astrology is a faith which belongs to the period of human history when the earth was believed to be a flat plane with the vault of heaven above it. In this canopy, the planets and other celestial bodies were carried along their courses by particular gods or angels having direct influences upon individuals or communities. As an element in the history of civilization, this variety show is of interest, but as a factor determining human character or action, it is a pernicious anachronism in an age of scientific enlightenment, and a reversion to idolatry of primitive times.

## *Chapter Nine*

### THE MONTH, EASTER AND THE CALENDAR

**I**n the dawn of astronomy, the moon was used before the sun as a time-measurer, on account of its rapid motion and the ease with which its position could be located in the heavens. The interval between one new moon or full moon and the next, gave the length of a month of nearly thirty days and provided the basis of a lunar calendar. As time went on, however, the inconvenience of having a variable number of months in a year, and of having the solstices and equinoxes occurring on different dates, caused the lunar system to be abandoned and a purely solar calendar to be substituted for it.

Use of the positions of celestial bodies to determine the dates of religious festivals is represented by the celebrations of Passover and Easter. The Passover is celebrated by the Jews as a spring festival commemorating their exodus from Egypt, and is regarded as the festival of freedom. According to Robertson Smith,<sup>1</sup> the Israelites, being a pastoral people, sacrificed the firstlings of their stock in the spring as a thank-offering, and when they settled in Canaan they found there an agricultural festival connected with the beginning of the barley harvest, which coincided in point of date with the Passover and was accordingly associated with it. This suggests a connection between the sacrifice of a Pascal lamb on the fourteenth of a month and also the Feast of Unleavened Bread on the following day, when a peace-offering of a sheaf of barley was to be made. The first

<sup>1</sup> *Encyclopaedia Britannica*, Fourteenth Edition, "Passover".

Christians observed the Jewish festivals, but in a new spirit, and the Passover, with a new conception added to it of Christ as the true Pascal Lamb and the first fruits from the dead, continued to be observed, and became the Christian Easter.

Though the seasons are determined by the sun, and the regular succession of light and darkness gives the length of the day, the period of the moon's monthly changes provides an obvious means of dividing up time into months of thirty days or so. In Babylonia, the year consisted of twelve months, the first of which began when the crescent moon was first seen in the spring. The Egyptian year also contained twelve months of thirty days derived from the length of a lunation. The ancient Jewish calendar was of the normal lunar type with twelve months, each of which began with the first visibility of the crescent moon.

The time of new moon as given in a modern calendar is that of the instant when the moon is in the same direction as the sun. When the moon is directly between the earth and the sun, there is an eclipse of the sun, but usually the moon is above or below the sun, and not exactly in the same line. The month of the Babylonians and other early peoples did not begin at the time of astronomical new moon, but when the thin sickle was first seen about a day later. The shortest possible interval between the true time of new moon and that at which the crescent becomes visible above the sun in the evening sky is twenty-three hours, but it obviously depends upon the state of the sky and the position of the observer on the earth.

The date of the death of Christ has been determined by astronomers from a knowledge of the dates of the moon's phases in past times. (It is not necessary to consider here the view that Christ was not a person but a myth.) The Crucifixion took place on the 14th day of Nisan, the first month of the Jewish year, and on a Friday. Between the years A.D. 28 and A.D. 34, the only new moons which occurred on the 14th Nisan, and also on a Friday, were on April 7, A.D. 30, and April 3, A.D. 33. There are reasons for concluding that the former date, April 7, A.D. 30, was the

date of Christ's death, and historical evidence supports this view.

The Athenians began their year with the first new moon after the summer solstice, and this year was divided into twelve months, containing alternately thirty and twenty-nine days. Each month was again divided into three weeks of ten days each. The Romans also divided their months into three parts, and the first day of each month was called Calends, meaning "to call out", because proclamation was then made to the people that it was the day of new moon.

At the time of Julius Caesar various calendars were in use, many of them purely local, with the result that there was no standardized relation between the months of the year and the seasons. With the assistance of the astronomer Sosigines, of Alexandria, Caesar constructed a revised calendar based upon the knowledge derived from the Egyptians that the mean length of the solar year is  $365\frac{1}{4}$  days. The additional quarter of a day was allowed for in the calendar by making every fourth year contain 366 days instead of 365. Caesar decreed that the new calendar should come into force in the year 45 B.C. on January 1, being the day of the new moon immediately following the winter solstice of the year before. The calendar had become so greatly disordered at that time that to introduce the new system it was necessary to enact that the year 46 B.C. should consist of 445 days, which led to its being described as "the year of confusion". The Roman or Julian calendar remained in force throughout most of the civilized world until it was reformed by Pope Gregory in A.D. 1582.

The original Roman calendar is believed to have been one of 304 days divided into ten months beginning with March. According to tradition, Numa Pompilius, the second legendary king of Rome, introduced a lunar year and added the months January and February. The twelve lunar months were named Martius, Aprilis, Maius, Junius, Quintilis, Sextilis, September, October, November, December, Januarius, Februarius.

As the true length of the seasonal year is not 365 days 6 hours, as used by Julius Caesar for his calendar, but

365 days, 5 hours, 48 minutes, 46 seconds, his year was 11 minutes 14 seconds too long. This may seem too small a difference to be worth consideration, but it amounts to three days in four hundred years, and in the sixteenth century had accumulated to ten days.

When Julius Caesar introduced his calendar, the year was decreed to begin in January instead of March, and in his honour the name of the month Quintilis was changed to Julius, or July. Later the name Sextilis was changed to Augustus or August, in honour of Augustus Caesar. No other names have been altered, so that all the names now used for months in the English language are of Roman origin.

The Muhammadan calendar is reckoned from the flight of Muhammad from Mecca to Medina, which took place in A.D. 622 on July 15. Its principle is essentially lunar, the year being made to consist of twelve lunar months, or about 354 days; the first month being given 30 days and the next 29 days alternately. In order to adjust this lunar calendar to the length of the solar year, the twelfth month is given 29 days nineteen times, and 30 days eleven times in a cycle of thirty Muhammadan years. This gives the length of a year as 354-367 days, which is 10·875 days short of a true tropical or solar year. As a result, the Muhammadan year retrogrades through all the seasons in about thirty-three years.

As all the movable feasts of the Christian Churches depend upon the date of Easter Day, and as this date is determined by the spring equinox, these religious events have thus a direct connection with astronomy. It is necessary to know the date of the spring equinox, and also the date of the first new moon after it, before the date of Easter Day can be fixed. It was pointed out by Roger Bacon in the middle of the thirteenth century that the day of the spring equinox was gradually receding, so that a calendar date for the equinox at one period was not true after a certain interval of time. On account of this astronomical effect, as well as differences of opinion between the western and eastern Churches as to the day on which the Paschal feast should commence, each side pleading different apostolic traditions

in support of its custom, the Council of Nice was summoned by the Roman emperor Constantine the Great in A.D. 325 to arrive at an agreement for the date of Easter. The date upon which the Jews kept their Passover was the fourteenth day of the new moon which happens upon or next after the twenty-first of March ; and the Council of Nice decided that this should determine the date of Easter.

Socrates, the church historian of the fifth century, records the announcement of the Council in their epistle to the Church of Alexandria in the words :

“ We also send you good news concerning the unanimous consent of all, in reference to the celebration of the most solemn feast of Easter ; for the difference also has been made up by the assistance of your prayers : so that all the brethren in the east, who formerly celebrated this festival at the same time as the Jews, will in future conform to the Romans and to us, and to all who have of old observed our manner of celebrating Easter.”

It is worth while to point out here that the fourteenth day after the new moon is not necessarily the day of full moon. The Act of Parliament which decided that the day of full moon should be substituted for the fourteenth day of the moon and the moon of the heavens for the “ calendar ” moon was adopted in the *Book of Common Prayer* of the Church of England, and computations of the date of Easter are based upon the dates of full moons.

When the Julian calendar was introduced by Julius Caesar, the spring equinox occurred on March 25, but the date of the equinox adopted by the Council of Nice was March 21, which was really the date of the equinox in the preceding century according to Julian reckoning. The Council not only decided that the fourteenth day after the first new moon upon or after the spring equinox should regulate the date of Easter, but also that Easter Day should be on a Sunday, and not any other day of the week. If it had been determined that Easter Day should be celebrated on the day of the first full moon following the vernal equinox, the dates could be easily calculated in advance from the knowledge of the length of the lunar month. What

the Nicean Council decreed was that Easter Day must be celebrated on a Sunday, which made the determination of the dates much more complicated.

To avoid the confusion which must occasionally arise as to the date of Easter Day, a fictitious or ecclesiastical moon is used for the construction of the tables given in the Prayer Book, and not the true moon. It thus happens that sometimes, as, for example, in the year 1900, the ecclesiastical full moon fell on a different day at Greenwich from that of the real full moon ; and in reply to a question asked in the House of Commons as to the reason for this difference, the Attorney-General had to explain that the fourteenth day of the moon as laid down by Church authority was not necessarily the fourteenth day of the true moon's age. For the preparation of the tables used in the *Book of Common Prayer*, the lunar month is taken as having the lengths alternately of twenty-nine and thirty days, and this departure from the usual lengths of the months renders certain adjustments necessary to make the dates of the ecclesiastical moon correspond closely with those of the true moon.

To construct tables giving the actual calendar dates of Easter is, therefore, no simple matter. The spring equinox occurs on March 21, and Easter Day is the first Sunday after the full moon following this equinox, so that both the solar year and the lunar month are involved in the calculation. With the Hebrews, Assyrians and Babylonians, the calendar was based upon the lunar month, and the month began when the thin crescent of the moon was first seen. With the Egyptians, Greeks and Romans, however, the calendar became a solar one, and "new moon" could, therefore, occur on any day in a month, as it does at the present time.

The length of the interval between two successive new or full moons was accurately determined by Babylonian astronomers from observations made during many centuries ; and this, together with other precise knowledge, was adopted by the Greeks. Four centuries before the Christian era, they had discovered, from observations made in the preceding four hundred years, that there was a nineteen-year cycle

of eclipses. It had been found that eclipses happened after an interval of 223 lunar months, or 18 years  $11\frac{1}{3}$  days, called the Saros. This period consists of 6585.32 days; and as 19 eclipse years are equal to 6585.78 days, the same succession of eclipses occurred after every nineteen years. The Babylonian astronomers had noticed that there was a slight error in the times, as the eclipse cycle is really about eleven hours short of nineteen years, but they did not know that this was due to the westward movement of the point where the sun's apparent path intersects the celestial equator, known as the "precession of the equinoxes". Their observation of the amount of the departure of the sun from the predicted place was, however, so accurate that it could be used as the canon of eclipse at the present time.

In the fifth century B.C. a Greek mathematician, Meton, found that there was the same number of days, within a couple of hours, in 19 solar years as in 235 lunar months. This relationship was regarded as of such importance that it was inscribed in letters of gold on Greek monuments from 1 to 19, and was called the Golden Number. The Metonic cycle was used by the Christian Church to determine the date of Easter during more than one thousand years. If a full moon occurs on any particular date in the cycle, no other full moon will occur on the same date for nineteen successive years, but the cycle will begin again in the twentieth year with a full moon on that date. New tables were constructed for determining the date of Easter on this cycle by a Scythian monk, Dionysius Exiguus, in the year A.D. 532, and the Golden Number 1 was given to that year.

It has already been mentioned that the date of the spring equinox in the time of Julius Caesar was March 25 and that the Council of Nice adopted March 21 as the date. In the sixteenth century the date of the equinox according to the Julian calendar, which was then in use, was March 11, and at the present time, on the same calendar reckoning, it is March 8. It was the supposed necessity of making March 21, as decreed by the Council of Nice, the point of time from which to reckon Easter Day that led Pope Gregory XIII to introduce his reform of the calendar in 1582. The altera-

tion from the Julian style of time reckoning to the new or Gregorian style was not made in England until two centuries later, when Parliament enacted that the day following September 2, 1752, on the old style should be called the 14th instead of the 3rd, eleven nominal days being thus struck out of the calendar. It was also enacted that the year 1752 should begin on January 1, and not on March 25, as it had done previously in ecclesiastical and legal usage.

Referring to this change Professor De Morgan wrote :

“ There is much reason to suppose that this violent change placed as great a difficulty in the way of Protestant governments acceding to the new calendar, as religious feeling. When, in England, in the eighteenth century, it was at last introduced, the mob pursued the minister in his carriage, clamouring for the days by which, as they supposed, their lives had been shortened : and the illness and death of the astronomer Bradley, who had assisted the government with his advice, were attributed to a judgment from heaven.”

After the change from the Julian to the Gregorian calendar in 1582, adjustments had to be made in the tables used for the determination of Easter, to suit the new style. In 1724 the date of the full moon according to the Gregorian calendar was Sunday, April 9, while the date given by a certain table in use was the day preceding. In that year, therefore, and also in 1744, Easter was celebrated by Catholics and Protestants on successive Sundays. Agreement was brought about by Frederick the Great in 1776 on the basis of the Gregorian calendar. The tables used even now for the Church calculations of the dates of full moon, and therefore of Easter Day, do not always give the actual dates of full moon ; and the difference between the “ ecclesiastical ” and the true moon may be as much as a week. This is of no particular importance, but the fact remains that the date of the Christian festival upon which most other festivals depend is to-day decided by religious authorities just as the dates of festivals were ordered by the priests in ancient Egypt five thousand years ago on the basis of astronomical observations.

Even though the actual dates of Christmas Day and certain holy and saints' days were not affected by the change of style of the calendar, their positions in the seasonal year were changed. In the time of Pope Gregory the difference was ten days, and this became eleven days when the reform was adopted in England in 1752, and is now thirteen days. Christmas Day of the old style is thus now thirteen days later than December 25 of the new style. From 1500 to 1700, May Day—the first day of the month—was kept in England on the day corresponding by the season to what is now May 11 ; after 1700, until the alteration of the calendar in 1752, it would be May 12 by the new reckoning. At that time, therefore, the dancing around the maypole took place in England at what is now nearly the middle of the month, and not the beginning. This difference has to be borne in mind in connection with relationships between the dates of old festivals and the season. Thus St. Swithin's Day is July 15, but as he died in A.D. 862 that date corresponds in our calendar to July 28. *Poor Robin's Almanack*, published in 1697, refers to the well-known legend associated with St. Swithin in the words :

“ In this month is St. Swithin's Day,  
On which if that it rain they say,  
Full forty days after it will  
Or more or less some rain distil.”

There is a certain amount of evidence that about this time of year showery weather is likely to occur in England, but there is none to support the belief that the weather for forty days after July 15 will be mainly wet or dry according to the conditions on that date. Moreover, from the point of view of the season, the beginning of the period over which St. Swithin's influence is supposed to exist ought now to be taken at the end of the month instead of the middle.

St. Swithin's Day is an example of a holy day observed on a fixed date in the year, and it differs from those which, in the ecclesiastical calendar, are movable festivals dependent upon the date of Easter. The following list of these holy days is given in the *Nautical Almanac*, which contains a

very complete and readable account of the origin and character of calendars used by the chief peoples of the world :

	Days before Easter		Days after Easter
Septuagesima Sunday	- 63	Low Sunday	- 7
Quinquagesima Sunday	49	Rogation Sunday	- 35
Ash Wednesday	- - 46	Ascension Day	- 39
Quadragesima Sunday	- 42	Whit Sunday	- 49
Palm Sunday	- - 7	Trinity Sunday	- 56
Good Friday	- - 2	Corpus Christi	- 60

The division of the day into twenty-four hours, each divided into sixty minutes, and these into sixty seconds, had its origin in ancient Mesopotamia. The year was divided into twelve months, each of about thirty days. Following this analogy, the Sumerians divided a day into twelve parts, each of which was sub-divided into thirty. The Babylonians afterwards divided day and night each into twelve hours, which changed in length with the seasons. The Egyptians also followed this arrangement. Sixty is twice the number of days in a month, and was an important number in the Chaldean system of numeration. It was natural, therefore, to use it in dividing the hour into sixty minutes, and later, when accurate timepieces were constructed, for minutes also to be divided into sixty seconds.

There is no evidence that the Hebrew week of seven days, the last of which was hallowed, as described in the Holy Bible, was associated with any astronomical period, or with the lunar month. The names formerly used to designate the days of the week were, however, of astrological origin, inasmuch as they suggest planetary influences upon human affairs. In early charters and deeds they are given as follows :

Dies Solis or	Dies Dominica	-	-	Sunday
	Dies Lunae	-	-	Monday
	Dies Martis	-	-	Tuesday
	Dies Mercurii	-	-	Wednesday
	Dies Jovis	-	-	Thursday
	Dies Veneris	-	-	Friday
Dies Sabbati or	Dies Saturnii	-	-	Saturday

The last day of the week was always called the Sabbath Day in the Middle Ages, and its designation as *Dies Saturnii* came in later.

The present English names of the days of the week are of Scandinavian and Anglo-Saxon origin. Sunday remains the day of the sun and Monday the day of the moon ; Tuesday is derived from the name of *Tiw*, the Scandinavian Mars or god of war ; Wednesday is the day of *Wotan*, ruler of heaven and earth, and corresponding to *Dies Jovis* or Jupiter of the Romans ; Thursday is the day of *Thor*, god of thunder ; Friday is the day of *Friga*, queen of *Wotan*, and goddess of love ; and Saturday in Anglo-Saxon is *Seterne's* day.)

The number seven has always had a magical or mystical significance in religious beliefs. In Egypt the idea that a man has seven souls can be traced back to the earliest dynasties, about six thousand years ago. In Babylonian and Assyrian magical texts, seven evil spirits of the deep are mentioned ; and the Mesopotamian underworld possessed seven gates. Each of the seven planets (the sun and moon among them) was given divine attributes. There were seven champions of Christendom in medieval times, seven cardinal virtues and seven deadly sins.

The seven deadly sins, frequently personified in mediæval literature, are : Pride, Lechery, Envy, Anger, Covetousness, Gluttony, Sloth. Several of these would scarcely be called deadly sins to-day ; and the list omits murder and adultery.

The seven principal virtues are said to be : Faith, Hope, Charity, Prudence, Justice, Fortitude, Temperance. The first three are called theological virtues, and the other four are known as cardinal virtues. What are conventionally regarded as virtues or sins depend, however, upon the community, which itself decides the standards of ethical values. Truth, beauty and goodness are human inventions, whatever may be the origin of them. They are not essential principles, but reflections of human thought at different stages of civilization.

The relation of the ecclesiastical festivals to an earlier

calendrical system and pagan creeds is indicated both by the season of the year at which they are held, and by a number of popular observances associated with these seasons which are found or were found until recently among the European peasantry, and of which the character clearly points to the fact that they are survivals from a long-forgotten and pre-Christian form of religious belief. Just as the Jewish feasts of the Passover and Unleavened Bread were an inheritance from the practices of a pastoral and an agricultural people respectively, so the Christian festival of Easter took the place of a pagan celebration of the renewal of the energies of the living forces of Nature with the coming of spring.

In like manner and on similar evidence it can be shown that each of the major festivals of the Christian calendar carries on the tradition of earlier pagan beliefs, which the early Church, with a wisdom which still persists in Roman Catholic missionary effort in its relations with primitive peoples, had adopted into and transformed in the service of the Christian faith. For example, the feast of Candlemas in early February is a fire festival in which, at the renewal of agricultural operations, the evils of the past dead season of winter are driven out by the magical powers of fire, while the Festival of Our Lady in the same month represents the invocation of the mother-goddess in a ceremonial for the renewal of the powers of fertility in the coming spring.

Easter, as is shown by a number of customs and beliefs, is in the main a festival of sun-worship as the sun begins to regain strength ; while Whitsuntide, a feast around which folk-dancing clusters, in a large number of widely distributed customs, is a ceremonial of carrying out an actor who impersonates the dead winter and his rejuvenation in the character of the young and vigorous spring.

May Day Eve and May Day, which do not appear in the Church calendar, their function there having been assumed in part by Whitsuntide, in part transferred to the Feast of St. John at midsummer, were until recent times the most important rustic festivals of the year over the greater part of

Europe. It was a time when witches and the powers of evil were specially potent. Hence the fire festivals and May fires which protected man, his crops and his farm animals against these evil influences ; and it was also the period of the renewal of fertility and of the forces of life in high spring, symbolized in the phallic observances, dances and ceremonial of the maypole.

The popular observances which obtained among the peasant population of the countryside in connection with the Eve and Feast of St. John at midsummer were of a kind to be attributed for the most part to a survival of sun-worship. Such, for example, are the vigils associated with Stonehenge and other stone circles, and also in part the midsummer bonfires—measures which increase the power of the sun as the year progresses towards the harvest. But these bonfires were also effective to drive away evil influences from the ripening crops, thus carrying on the function of May fires.

At the feast of Lammastide in August, with the timely ripening and gathering of the harvest, a brief period of leisure in the farmer's year is in view. It is celebrated by family and tribal gatherings, at which marriages, transfers of land and property, and other matters are arranged, and athletic and other contests of skill take place. Memory of these gatherings is preserved in the athletic meetings still held among the Celtic-speaking peoples of Britain and Eire—the Highland Games, the Talltown Games, and the great gathering of Wales, the Eisteddfod, in which the glories of the Druidical contests in all the arts are renewed.

Michaelmas and the Feast of All Souls in November have subsumed in the Harvest Festival and the celebration of the memory of the Blessed Dead both the pagan feasts of the First Fruits, without which offering to the gods it was not safe for the farmer, his household, or his stock to partake of the newly-gathered fruits of the earth, and the November celebration of the feast of the dead, with which the Celtic and pagan year began. The memory of this Celtic year, beginning in November, long survived in the custom found in England, certainly down to only a few years ago, of

hiring farm hands, male and female, for the following year at the country fairs held at the beginning of November.

Many interesting survivals connected with the Feast of St. Nicholas on December 6—among them the German Santa Klaus has been transferred to Christmas—must be passed over, in order to touch briefly on the festival of Christmas, which is, from this point of view, the most interesting and illuminating in the whole calendar. As is well known, while in theory the Christmas season celebrates the birth of Christ, in fact it does nothing of the kind, as the date on which Our Lord was born is uncertain. Christmas is a pagan festival, which was adopted for the celebration of the Nativity about the middle of the fourth century in order to wean converts from pagan ceremonials taking place at that season. In Northern Europe it is the mid-winter festival of Yule, which the associations of the Yule log and other customs would assign to a derivation from sun-worship; in Southern Europe it is mainly, though not solely, a festival of the mother-son worship (with a shadowy father, Joseph, in the background, as seen in the Mangers of the Christmas celebrations of Mediterranean peoples to-day) which can be traced back through the ages as the dominant cult of the Mediterranean. This cult is derived from the prehistoric Anatolian plateau, for which view there is support in the numerous images of mother and child found among the earliest antiquities of the fourth millennium B.C. from Erech in Mesopotamia.

An interesting point arises out of the celebration of Christmas as popularly observed in Britain. A double strain is to be observed. While as a whole the feasting and rejoicings of the Yule ceremony predominate, the manger, which is the most conspicuous feature of the popular celebration in Mediterranean countries, also appears in England with other associated customs. It was once customary for children to construct a manger, which they carried round soliciting alms. The two forms of celebration belong to entirely different systems of belief, and it is evident that in Britain a double strain of tradition, deriving from north and south, has survived.

Whether the second element in the Christmas tradition, the manger, was introduced into England in post-Christian times, or is a genuine survival from the prehistoric Mediterranean strain in the British racial make-up, cannot be discussed here. It is, however, interesting to note that the racial strains which make up the British population appear each to have contributed something to the traditional non-Christian calendar. The basis of this calendar, on the evidence of popular rustic custom, was a year divided into two six-monthly divisions, beginning the one in May and the other in November.

This is a pastoral year, in which the ceremonies and observances of the May festival mark the removal of the flocks and herds to their summer grazing grounds; while in November the animals were brought back with appropriate ceremonial to their winter quarters, and those animals for which the sparse pasturage of the winter would not suffice were slaughtered and the meat preserved. In Scotland, down to quite recent times, the custom survived of salting all beef at this period of the year. On this pastoral calendar was superimposed an agricultural year divided into four quarters, in which, as has been seen above, the division was marked by festivals showing their mainly agricultural origin, at the beginning of February, May, August and November. Even this, however, does not complete the tale of the development of the British calendar. The intrusion of northern European peoples, predominantly Nordics, with a tradition of sun-worship, once more diverted the divisional points of the year to December and midsummer with a spring festival at what is now Easter.

## Chapter Ten

### GREEK COSMOLOGY AND SPECULATIVE PHILOSOPHY

Plato (428-348 B.C.) founded the first academy or university for the systematic pursuit of philosophic and scientific research ; and in the *Timaeus* he makes an astronomer of that name the expositor of the cosmology, physics and biology of the time.

“ When the Father who begat the world saw the image which he had made of the Eternal Gods moving and living, he rejoiced ; and in his joy resolved, since the archetype was eternal, to make the creatures eternal so far as was possible. Whereupon he made an image of eternity, which is time, having an uniform motion according to number, parted into months and days and years, and also having greater divisions of past, present and future. These all apply to becoming in time, and have no meaning in relation to the eternal nature, which ever is and never ‘ was ’ or ‘ will be ’, for the unchangeable is never older, or younger, and when we say that he ‘ was ’ or ‘ will be ’, we are mistaken, for these words are applicable only to becoming, and not to true being. . . . These are the forms of time, which imitate eternity and move in a circle measured by number.

Thus was time made in the image of eternal nature ; and it was created together with the heavens in order that if they were dissolved it might perish with them. And God made the sun and the moon and five other wanderers, as they are called, seven in all, and to each of them he gave a body moving in an orbit, being one of the seven orbits into which the circle of the ether was divided.

He put down the moon in the orbit which was nearest the earth, the sun in that next, the morning star and Mercury in the orbits more opposite to the sun, but with equal swiftness—this being the reason why they overtake and are overtaken by one another. And their bodies became living creatures and learnt their appointed tasks, and began to move, the nearer more swiftly, the remoter the more slowly, according to the diagonal movement of the other. And since this was controlled by the movement of the same, the seven planets in their courses appeared to describe spirals, and that appeared fastest which was slowest, or that which overtakes others appeared to be overtaken by them. And God lighted a fire in the second orbit from the earth, which is called the sun, to give light over the whole heaven, and to teach intelligent beings that knowledge of number which is derived from the revolution of the same. Thus arose day and night, which are the periods of the most intelligent nature ; a month is created by the revolution of the moon, a year by that of the sun. Other periods of wonderful complexity and length are not observed by men in general ; there is a movement of a cycle or perfect year, at the completion of which they meet and coincide. To this end the stars came into being that the created heavens might imitate eternal nature.

The gods were made in the form of a circle which is the most perfect figure and the figure of the universe. . . . Two kinds of motion were assigned to them—first the revolution in the same and around the same in peaceful unchanging thought of the same, and to this was added a forward motion which was under the control of the same. Thus the fixed stars were created, being divine and eternal animals, revolving on the same spot, and the wandering stars in their courses were created in the manner already described. The earth, which is our nurse, clinging around the pole extended through the universe, he made to be the guardian, artificer of night and day.”<sup>1</sup>

<sup>1</sup> From B. Jowett's Translation. (Oxford, 1892.)

This conception of "Necessity" or "Law" (which Greek thought personified or virtually deified) underlying or behind these motions of the Universe was no doubt in Meredith's mind when he wrote *Lucifer in Starlight*, especially the last lines :

" He reached a middle height, and at the stars,  
Which are the brain of heaven, he look'd, and sank.  
Around the ancient track march'd, rank on rank,  
The army of unalterable law."

An interesting sidelight is cast on public opinion in Athens in the fifth century B.C., in relation to these physical and astronomical speculations, by Aristophanes' play *The Clouds*, which was presented at the great Dionysiac festival in 423 B.C. In this play Aristophanes satirizes the speculations of the natural philosophers and attacks the Sophists, the expositors, so to say, of higher education.

Although the play failed to win the prize in the dramatic competition, it achieved, in a revised version, a considerable popularity. It may seem remarkable that the poet should have expected to attain success through his handling of so abstruse a subject ; but although his hope of raising a laugh by his references to physical and astronomical enquiry argues confidence in the familiarity of his audience with the subject, it must not be made the ground of too exalted a conception of the learning and intelligence of the Athenian public, any more than a reference to Einstein, which might create laughter in a music hall, would be evidence in a modern audience of a knowledge of the details of the theory of relativity.

Socrates, who is made the butt of the play, with his grotesque appearance, his bald head, snub nose and protuberant stomach, his scanty and dirty clothing, and his irrepressible habit of asking questions, was a familiar and derisive figure in the streets of Athens ; and although so far from being a Sophist, he was the greatest and most inveterate opponent of those who, instead of seeking the truth, taught "how to show the worst the better cause", this was all one to the Athenian populace, and to hold such a figure up to

ridicule consorted well with their not too refined sense of humour.

The plot of *The Clouds* turns upon the resolve of Strepsiades, an old rustical Athenian, brought to the verge of destitution by the extravagance of his horse-loving son, Pheidippides, that either he or his son must go to school to the Sophists to learn how to argue in the courts so as to evade payment of his debts. The scene opens outside

“ the Thinking House of sapient souls.

There dwell the men who teach us—Aye, who persuade us  
That Heaven is one vast fire-extinguisher  
Placed round about us, and that we are the cinders.”<sup>1</sup>

This was a muddled allusion to the structure of the heavens and the doctrine of the natural philosophers that fire is the essential principle of all being.

On the refusal of the son to have anything to do with this method of meeting his father's difficulties, Strepsiades determines that he himself will approach the Sophists. He is admitted to the Thinking House and is informed of some of the marvels of Socrates' wisdom—how he measured the jump of a flea in terms of its own feet, how, when the students were short of meal, Socrates took a spit and bent it double (into the form of dividers) and by a novel kind of mensuration, “ fetched a compass ” and filched a cloak from the Wrestling School, and so forth. He is then shown astronomy and geometry, and sees students bent down looking intently at the ground. Some, he is told, are peering into the remote secrets of the depths of the earth ; others are observing the stars “ through a stern aspect ”. Finally he sees Socrates suspended in a basket, who, when asked what he is doing, says :

“ I walk on air and contemplate the sun . . .  
I could not have searched out celestial matters  
Without suspending judgment and infusing  
My subtle spirit with a kindred air.  
If from the ground I were to seek these things  
I could not find : so surely doth the Earth  
Draw to herself the essence of our thought.”<sup>2</sup>

<sup>1</sup> B. B. Rogers' translation.

<sup>2</sup> *Ibid.*

When Strepsiades undertakes that whatever price for his tuition Socrates demands will be paid, swearing by all the Gods, he is informed that the Gods "now don't pass for current coin". He is then told of the true nature of rain and thunder and the part played by the clouds, all of which before he had attributed to Zeus. He learns that Zeus has been dethroned and God Whirl rules in his place—again an allusion to theories of the physical philosophers.

While there is little in the subsequent development of the plot which will bear direct quotation, up to the point when the dialectical contest between the Worse and the Better Logic begins, the whole play is an instructive, if exaggerated, picture of the attitude of traditional thought and religious belief towards those who since the time of Thales in the earlier part of the fifth century had been engaged in speculation.

The play ends fittingly with the triumph of the Better Logic. Strepsiades is convinced and repents. He storms and burns the Thinking House, and when Socrates protests that he will be suffocated, Strepsiades replies in effect, "Serve you right" :

" For with what aim did ye insult the Gods,  
And pry around the dwellings of the Moon?  
Strike, smite them, spare them not, for many reasons,  
BUT MOST BECAUSE THEY HAVE BLASPHEMED THE GODS! "

By nature the Greek was endowed with an insatiable curiosity, while his training in carrying out his duty as a citizen in the law courts and the assembly, which he performed assiduously, made him a realist, habituated to examining facts, weighing evidence and evaluating argument. The commercial and maritime basis of Greek economy developed his powers of observation and judgment still further. Thus by temperament and training he was well equipped to take part in the advancement of scientific and philosophical thought according to the needs and opportunities of his time. Whereas, however, in other early civilizations—Egypt, Mesopotamia, India—cosmological and ontological speculation had been linked to the develop-

ment of religious belief, in Greece the failure to evolve anything like a general or national system of organized religion, such as that of other early cultures, precluded the Greeks from a similar spontaneous movement in a like direction.

The first impulse of the Greeks to rationalize the world around them was practical rather than speculative, and was directed to meet the requirements of a community composed above all of sailors and traders. Hence the earliest stirrings of Hellenic thought in the post-Homeric period arose out of the observation of the stars, the properties of numbers, and the location and characteristics of the lands and peoples with whom their maritime and commercial activities had brought them into contact. Herein, whatever may have been their own first steps, they were not venturing into untrodden country, and in the Asiatic colonies, at least among great commercial centres such as Miletus, they were in touch with the developments in astronomy, mathematics and geography, more especially in its bearing on cartography of Egypt, Mesopotamia, India and the Phoenicians.

The earliest names in the chronicles of Greek science and cosmological speculation are those of Thales of Miletus, the astronomer, possibly a pupil of Berosus, who founded a school of astronomy at Cos ; Pythagoras, who had studied in Egypt, but whose doctrines of number and transmigration of souls need no argument to vindicate their origins in India ; and Hekataeus of Miletus, historian, geographer and map-maker, the predecessor and herald of Herodotus—the Father of History—who first attempted systematic ethnographical description of peoples.

Whatever the extent to which practical considerations may have directed attention to such enquiries, they did not exhaust the interests of the adventurous and questing mentality of the Greek when in contact with the East, nor do they complete the tale of his intellectual indebtedness to its thought. In India speculation had broached the problem of a spiritual unity underlying the manifold manifestations of godhead in the pantheon ; in Mesopotamia and Iran the universe had come to be regarded as a battleground of the spiritual forces of good and evil. The mind of the Greek,

seizing upon this problem of the forces of the universe with characteristic quickness of perception and feeling for form and order, transmuted the mystical speculation of religious dogma into the search for a rational solution of the riddle of the One and the Many—in other words, the formulation of a universal law of being underlying the world of manifold appearance which lies around us.

Thus for the first time was formulated the problem to which it is still the task of modern theology, metaphysics and science, each in its own field, to contribute towards a solution. Admittedly in the history of modern scientific thought the conception of an order in the universe owes much to the Israelitish conception of the Will of a Divine Ruler; but this is a dogma of Hebrew theology which became a central doctrine of the Christian Church. It was the Greeks who, departing from the mystical and dogmatic approach to the problem, formulated for all time the rationalistic method of science in its approach to the cosmic problem by making the observation of phenomena, the road to the discovery of its underlying general principles or laws. It is true the lesson was for long forgotten among the peoples of Western Europe; but with its re-discovery at the Revival of Learning, modern science begins.

It is unnecessary to dwell upon the work of the early Greek philosophers and cosmogonists—Thales of Miletus; Aristarchus of Samos, the only astronomer and philosopher who taught that the earth moves round the sun, thus anticipating the heliocentric theory of Copernicus; Anaxagoras; Democritus of Abdera in Thrace; Heraclitus; Parmenides; and the rest. Their methods of observation were crude and primitive, and to the modern idea the results of their speculation, for the greater part, negligible. Yet in the history of thought they stand as the authors of the doctrine of the elements, of earth, of air, fire and water as entering into the composition of the universe, which are truly fundamental.

The atomic theory of Democritus, who has been called the Aristotle of the Fifth Century B.C., and was an extensive traveller, reappears in the scientific doctrines of the Latin poet Lucretius, and so is transmitted to the later thought of

the western world, while in the pessimism of Heraclitus, who could find no fundamental abiding reality, but maintained that "all is flux", some have seen the earliest germs of a theory of evolution. Plato, however, whose all-embracing philosophy overshadowed the work of all others, with the exception of Aristotle, represents a reaction against the materialistic concepts of natural philosophy, and in his doctrine of ideas, while still seeking universal law, reverts to the animistic conceptions of eastern thought. This was to have marked effect in the reawakening of learning and the revival of thought in the Renaissance.

Great as was the contribution to civilization of the discoveries of Greek science in astronomy, in mathematics, more especially in geometry and mechanics, in geography and medicine (Hippocrates) and the like, all be it noted disciplines with a practical bearing, these are all but eclipsed by the achievement of Aristotle, the great systematist, who "made all knowledge his province" and even formulated the laws of thought itself. There is perhaps nothing more crucial in the history of the development of the method of science than Aristotle's demonstration of the principle that science is a system of generalizations based upon a body of observed fact. This he demonstrates, for example, in his *Politics*, where the principles contained in the main thesis were supported by the evidence of a series of monographs dealing with the constitutions of the various Greek states, but of which the constitution of Athens alone has been recovered in recent times from oblivion.

The real significance of Aristotle's work as man of science and scientific methodologist was obscured by the speculative interests of later schools of philosophy, Stoics, Epicureans, Peripatetics and neo-Platonists, in ontological or intrinsic conceptions and metaphysical theory; while, as "Aristotelianism" developed, his ethics and the more formal side of his logical teaching tended to usurp attention. Neither the theological discussions of the early Fathers of the Christian Church nor the formalism of the later Schoolmen redressed the balance. Rather they weighted the scales, until revolt against dogmatic exegesis and formal logic forced

the budding branch of reawakened scholarship in the direction of Platonism and postponed a true view of Aristotelian teaching until at least the age of Francis Bacon and the seventeenth century.

In a sense this was no doubt unfortunate at a time when men of the Reformation, in their reaction from the weight of papal authority, were seeking truth at the original sources, not only in the biblical text, but also elsewhere. Unquestionably Plato offered them a spiritual view of the universe which they were able to accept without prejudice to their Christian prepossessions, owing largely to the fact, as already mentioned, that intrinsic and ethical conceptions were not overtly linked with a pagan theology. It was, in fact, that rationalistic point of view of Greek philosophy and ethics, which had been the cause of the failure of Greek thought to maintain its hold on the minds of men as a practical guide to life as against the Christian ethic, that in the Revival of Learning appealed to many minds. This much, indeed, may be said, that preoccupation with the cosmological and ontological theories of Plato freed speculation from the shackles of theology and paved the way for the unprejudiced examination of facts on their own merit, which was to be recognized as a fundamental doctrine of scientific investigation. This was based on the work of Galileo and Copernicus, and is the essential core of Francis Bacon's contribution to the foundations of modern science.

In post-classical times, otherwise after the conquests of Alexander and the break-up of his empire, Greek influence entered upon a period of remarkable expansion, comparable only with the spread of modern western civilization to the remote parts of the earth in the nineteenth and twentieth centuries. It reached the confines of the whole known world, from China to the boundaries of the Roman empire in the west—Spain, Gaul and Britain. This appears more particularly in art, and outside the eastern Mediterranean, in varying degree of dilution, as, for example, in Graeco-Buddhist art.

In science, as in letters, Greek culture led the world, more especially when Alexandria, founded by Alexander, under

favour of the Ptolemies, assumed the position of the greatest centre of learning and the foremost university of its time, a position which it maintained, with some vicissitudes, down to its capture by the Arabs in A.D. 640. Not long after its foundation it became the centre of study of Greek astronomy and mathematical science. Among its more distinguished *alumni* were Ptolemy, the astronomer and geographer, and Archimedes, best known in his own times for his inventions in practical mechanics while at the court of Hiero of Syracuse at the close of the third century B.C., but who, so far as concerned his personal interests, was devoted to research in pure mathematical science, and gave precision to the somewhat vague concepts of Aristotle in physical science. Among other achievements he solved what was in effect the problem of the integral calculus in terms of geometry.

In ethics and philosophy, however, the development of Greek thought tended to become more and more widely divorced from the fields of science and from contact with reality, developing on formal and abstract lines in the doctrines of such schools as the Peripatetics, Stoics, Epicureans and neo-Platonists. Yet the schools derivative from Plato and Aristotle represent a reaction which was not without its bearing on later development. The Stoics endeavoured to lift philosophic thought out of the narrow bounds of Hellenic parochialism by making their ethical system transcend political boundaries. In the emphasis they laid on the brotherhood of man, and in the revolt of the neo-Platonists against the dominance of the intellect in Platonic doctrine, they paved the way for Christianity, the former in conjunction with the Jewish concept of the equality of man before God, which had taken the place of earlier tribal particularism, the latter by their insistence that salvation lay in things of the spirit rather than of the intellect.

It was indeed remarkable that the efforts of those few among the early Fathers, who were not averse from pagan philosophy, should have failed to bring about a measure of union with the neo-Platonists. It has, however, to be remembered that not only did this school of philosophy tend

to withdraw from outside contacts, but also that, to early Christians, pagan thought and intellectual development were anathema. The element of ritual which entered into the public life of the Greek citizen enforced upon Christians, in the early days of the Church, a strict segregation in social and intellectual intercourse, with disastrous results for the development of thought. Science died out in the Christian world and passed to the Arabs. Nevertheless, the Stoic doctrine, which was in conformity with the political practice of the empire, not only fostered the growth of Christianity, but also formulated an ideal of fellowship of mankind in things of the spirit, as well as in material advancement and social relation, which many still hold to be the aim of civilization, and is the practice of the modern world of science and cultural development.

The experimental method of scientific inquiry was practically unknown to the Greeks; and the chief one of the early philosophers whose philosophy was concerned with measurements was Pythagoras. He was the first to show that there was a numerical relationship between the pitch of a musical note given out by a vibrating string and the length of the string. If two strings of the same kind and under the same tension are set in vibration, and one is half the length of the other, the shorter string will have a pitch an octave higher than the other. With strings having lengths in the ratio of 3 to 2, the musical interval of a fifth, or three tones and a semi-tone, is produced, and when the ratio is as 4 to 3 the interval is a fourth. Pythagoras thus established the basis of the musical scale. He was more interested in these relationships as properties of numbers; and he applied the principle to the heavens, in which the planets made harmony as they moved in their spheres. "We cannot hear the melody", said Pythagoras, "because our ears are accustomed to it from our birth, so that we have nothing with which to compare it." This celestial concert was taught by Plato, who says in his *Republic* :

"Upon each of the spheres is a siren, who is borne round the sphere, uttering a single note; and the eight notes compose a single harmony."

Shakespeare introduced this conception of a musical cosmogony in the *Merchant of Venice* (Act V. Scene 1), but makes all the celestial bodies—stars as well as planets—sing together, without any suggestion of the harmonious relation of the planetary circles of movement. His words are :

“ There’s not the smallest orb which thou behold’st  
 But in his motion like an angel sings,  
 Still quiring to the young-eyed cherubims ;  
 Such harmony is in immortal souls ;  
 But whilst this muddy vesture of decay  
 Doth grossly close it in, we cannot hear it.”

In extending the origin of celestial music to the stars, without regard to the harmonious relationship believed to exist between the distance of the planets from the earth, Shakespeare followed Job, who wrote :

“ When the morning stars sang together  
 And all the sons of God shouted for joy.”

The Book of Job belongs to about the fourth century B.C. ; and in some respects its form resembles the philosophical dialogue of the Greeks. It reveals Job as a close observer of Nature and a philosopher with acute insight and vivid power of expression.

The advanced views of the Greek philosophers in the latter half of the fifth century before the Christian era did not meet with general acceptance even in that enlightened period. Because Anaxagoras taught that the sun was a mass of flaming matter, he had to leave Athens to save himself from death ; and Protagoras (481-411 B.C.), the first of the Sophists, died when fleeing from Athens after he had been convicted of blasphemy. There was, however, no organized repression of liberty of thought ; and personal or political reasons were the causes of condemnation for impiety or disturbing teaching to the people. It was because Socrates would not cease to “ corrupt the young ” and invite public discussion of his philosophy of life that he was condemned to die. Rather than be untrue to his convic-

tions, he accepted death ; and he justified his position in words vibrant with exalted principles :

“ If you propose to acquit me on condition that I abandon my search for truth, I will say : I thank you, O Athenians, but I will obey God, who, as I believe, set me this task, rather than you, and so long as I have breath and strength I will never cease my occupation with philosophy. I will continue the practice of accosting whomsoever I meet and saying to him, ‘ Are you not ashamed of setting your heart on wealth and honours while you have no care for wisdom and truth and making your soul better? ’ I know not what death is—it may be a good thing and I am not afraid of it. But I do know that it is a bad thing to desert one’s post and I prefer what may be good to what I know to be bad.”<sup>1</sup>

An example of Greek regard for freedom of speech and liberty of religious thought is afforded by St. Paul’s mission to Ephesus, as related in the Acts of the Apostles. Cybele, the Great Mother of the Gods, whose worship began in Asia Minor and afterwards became the most popular cult in ancient Greece and Rome, had as her sacred symbol a small object which had fallen from the skies, evidently a meteorite. She was the Diana of the Ephesians whose images and silver shrines were the “ gods made with hands ” of the craftsmen who objected to the Apostle Paul preaching a gospel which would deprive them of their chief source of wealth. “ Ye men of Ephesus,” spoke the town clerk in appeasing the people, who had cried out for two hours “ Great is Diana of the Ephesians ”, “ what man is there that knoweth not how that the city of the Ephesians is a worshipper of the great goddess Diana, and of the image which fell down from Jupiter ? ”

Diana and the Greek goddess Artemis were, like the more primitive Asiatic goddess Cybele, representations of universal motherhood and fertility in Nature. As Rhea, she appears as the wife of Saturn—the first ruler of the Universe—and the mother of Jupiter, Neptune, Pluto, Juno,

<sup>1</sup> *A History of Freedom of Thought*, by Dr. J. B. Bury. (London, 1913.)

Vesta and Ceres ; and also the mother by Mars of Romulus and Remus.

When St. Paul preached at Ephesus, the uproar of makers of silver shrines of Diana against him was raised by Demetrius, a silversmith, who called together the workmen of like occupation to create disorder at his meeting, as men have done in much later times when their source of living seemed to be in jeopardy. The words in which the town clerk appealed to the assembly for liberty of speech afford another example of the intellectual freedom cherished in ancient Greece. After referring to the acknowledged greatness of Diana, as mentioned in the above verse from the Acts of the Apostles, he continued :

“ Seeing then that these things cannot be spoken against, ye ought to be quiet, and to do nothing rashly.

For ye have brought hither these men, which are neither robbers of churches, nor yet blasphemers of your goddess.

Wherefore if Demetrius, and the craftsmen which are with him, have a matter against any man, the law is open, and there are deputies : let them implead one another.

But if ye enquire any thing concerning other matters, it shall be determined in a lawful assembly.

For we are in danger to be called in question for this day’s uproar, there being no cause whereby we may give an account of this concourse.

And when he had thus spoken, he dismissed the assembly.”

A wise chairman in our own days could appropriately close a disorderly meeting in similar words to those used by the town clerk of Ephesus nineteen hundred years ago.

## *Chapter Eleven*

### THE SPIRIT OF ANCIENT GREECE

**T**he contributions of the Greeks to the development of human culture were due essentially to their appreciation of “ a sense of form ”. The characteristic of Greek mentality was to “ avoid excess ”, or in more expanded form to “ practice moderation and in all things conform to good taste ”. In all the branches of art in which the Greeks excelled, in sculpture, architecture, the drama, and letters, both prose and verse, and including history and philosophy—all activities, be it noted, in which form is of the essence of perfection—their achievement affords the classic standard of excellence, in comparison with which all other schools of divergent thought, outlook or technique are commonly evaluated.

The canons of dramatic art, for example, formulated by Aristotle are still held to be fundamental in constructive technique and basic in dramatic criticism ; and, whether rightly or wrongly, the western failure to appreciate that other great branch of early imaginative literature, that of India, is commonly to be traced to its non-compliance with the Aristotelian canon of form ; and the same applies to Chinese dramas. At the same time, it has to be admitted that Greek practice was not in all respects in conformity with modern canons of good taste. Their use of colour was to our sense crude (possibly an effect of climate and light—the soft northern light does not blend harsh colours, as does the brilliant southern sun). They used colour in buildings of which the excellence lay in form and line, and their highest praise in sculpture was lavished on ivory gilded or covered with plates of gold. Nevertheless, the general statement holds good.

The Greek canon of moderation, balance, form, is the canon of classic and academic taste in the best sense, which modern developments in art have not yet succeeded in overthrowing from its position as the highest point yet attained in the "evolution" of art. To anyone who approaches aesthetic criticism from the historical and anthropological point of view, modernist development in the arts of painting and sculpture is an attempt to revert to a more primitive type of art, which, whatever its excellences, especially as exemplified in some schools of African sculpture, is alien to the line of development of modern western civilization.

The attempt to understand Greek art and the practice of the Greeks in the arts is not irrelevant to the question here under consideration. In order to evaluate the contribution of the Greek world to the development of modern civilization, it is essential to appreciate that in the brief efflorescence of the classical period, which reached its peak in the supremacy of Athens in the fifth century B.C., and of which the Hellenistic and Alexandrian culture, widely influential as it was in the ancient world, was but an aftermath, the Greeks, partly as a result of their temperament, partly owing to their geographical and political environments, grasped the principle, stamping it on the development of culture for all time, that, the human mind being finite, "form" is essential to comprehension. In the terms of their philosophy and their doctrine of causation, matter is cognizable only through the imposition of form. It was in virtue of this principle that Greek science and philosophy attained and still maintain their hold on the development of thought.

It is remarkable that a people numerically so small, and except for a brief period, politically unimportant, should, by sheer force of intellect, have exercised so strong a dominance over both the ancient and the modern worlds. Only after the end of the Persian wars in 479 B.C. did the Greeks under the hegemony of Athens present anything like a united front to the outside world, and even then for a brief period only. By the end of the fifth century B.C. the Peloponnesian war had brought about the dismemberment of the Athenian empire. Henceforth the triumphs of the Greek world were

won under alien leaders, such as Alexander of Macedon, the Seleucids and Ptolemies, whose claims to be Greek were of less than doubtful authenticity. Further, their achievement was not in world affairs, but in the arts, in science and philosophy, in which Athens and Alexandria led the world ; while the energies once devoted to political discussions of the affairs of the city-state in the Assembly had been diverted to trade—and that not on the grand scale of later Roman industrialists, but rather in the spirit of the shopkeeper.

The contempt of Greek philosophy for the art of trade probably did not express the general attitude of the Greek people towards huckstering, though it is generally so understood, but was more likely a reaction against a very real popular weakness. Nevertheless, the more austere Romans, who had a very clear understanding of the volatility and possibly displeasing characteristics of the average Greek, bowed to the supremacy of Greece in all appertaining to the arts and learning, and in the last days of the Republic a course at the University of Athens was the culminating point of the Roman system of higher education.

Greek character and mentality were undoubtedly markedly influenced by environment. Just as the pellucid atmosphere and clear-cut contours of the limestone ranges fostered their feeling for form, so these same mountain chains, though of moderate height, intersecting the country, and their deep valleys with precipitous sides, afforded no ready facilities for political unity. On the contrary, they fostered a love of independence and political liberty. The small city-state became the political unit. It was only under stress of external danger, such as that of the Persian invasion, that these states united for joint action ; and when once the danger had passed the league of co-operation began to crumble away.

Within the city-state, the relatively small number of citizens, economically dependent on slave labour, had both leisure and opportunity for personal contacts and the political discussion of public affairs in the Assembly, which not only trained them in intelligence and independence of judgment, but gave them a passionate loyalty to democratic

ideals. Thus it was that although the "tyrants" who had freed the democracies of the various city-states from the rule of the aristocracies were representatives of a popular movement, and were probably in most instances not tyrants in the modern sense of the term, their rule nowhere endured for any length of time, and was speedily overthrown to give way to democracy.

The Greek contribution to social ethics was thus in the first place freedom in thought and freedom in action in so far as compatible with the freedom of action of other members of the community. This was combined with a form of democratic government, in which each member of the community had the right to hold his own opinion on affairs of public interest and give effect to that opinion through his right to vote. The idea of the city-state as the form of social and political organization in which such a democratic ideal could be realized appears again in the city-states of medieval Europe, where its weaknesses without a system of representative government in a community of any size became apparent, control tending to fall into the hands of an aristocracy or plutocracy, as in Florence, Genoa, Venice, or of a closed corporation, as happened in the English cities.

Where the Greek city-states failed was in neglecting to recognize that their restricted interest in their own affairs was "parochial", and their inter-state quarrels and disputes and lack of union a weakness. They were an extreme example of the centrifugal force in political development. On the other hand, the Greek city-state, and more especially Athens, was the first to practise the modern form of colonization, in which the daughter settlement is a free and independent entity, bound to the mother-state by ties of sentiment, and not as in the colonies of other ancient powers, such as Rome, a source of wealth to be used for the benefit of the ruling state and her citizens.

It was perhaps in part a further manifestation of this spirit of independence—or lack of cohesion—among a people, who recognized their common bond of kinship as against an outer world of barbarians, that they failed to develop anything in the nature of a general and organized system of

religious belief, such as developed in India. The religion of the Homeric world, which is called most readily to mind when we refer to Greek religion, is a pantheon of the type common to Aryan-speaking peoples, in which a sky-god, Zeus or Jupiter, or the war god, Ares or Mars, stands out but little among a group of gods and goddesses, almost his equals, like the Homeric king among his nobles, or the tribal chieftain with his sub-chiefs and tribal elders. Homer, however, represents a particular racial group and class, the Aryan-speaking and Nordic invaders, whose institutions had barely emerged from the tribal stage. In post-Homeric and classical times, when indigenous cults appear among intrusive beliefs in the mosaic presented to us in the literature and the cultural evidence brought to light in archaeological discovery, the Homeric tradition survives more or less as a convention, literary and artistic, which had failed to impress itself on men's minds and on the older system of religious beliefs.

In very general terms it might be said that, in so far as it constituted a single system, Greek religion had retained its original characteristics of a large number of local cults, appertaining for the most part to the worship of some form or other of the mother-goddess or sun- or sky-god, which had come to be regarded as a manifestation of a member of the Aryan pantheon—Zeus (Jupiter), Phoebus (Apollo), Athena (Minerva), Hera (Juno), and the like—to whom other gods, mostly of Mediterranean origin, had been added from time to time. Such local cults, however, were a disintegrating force, rather than a unifying influence, and just as a Greek in a city other than his own was an alien without rights or standing, unless he was fortunate enough to be able to rely on a tradition of friendship with one of the prominent families, so the follower of a locally unrecognized cult was without a claim, or more probably without desire to participate in the rites of religious observance of any locality in which he might find himself, when away from his native town. The altar erected in Athens “to the Unknown God” is not so much a manifestation of religious tolerance as a mark of the cosmopolitan character of the inhabitants,

among whom there was a sufficient floating population of foreigners following rites not represented among the cults established within the city to warrant the erection of an altar without specific dedication for their use.

There were, however, within Greek religious practice two developments which approached more nearly to a general appeal. Of these one was the oracle of Delphi at the shrine of Apollo, a cult associated with the snake, of which the priestess was credited with prophetic inspiration, and the other the mystic cults which gained a numerous following. It would be erroneous, however, to regard either of these as pointing to a movement of the Greek mind in the direction of a universal or national religion. The influence of the Delphic oracle, which certainly was international, was an accident of its geographical position at the end of a trade route across Europe from the Baltic to the head of the Adriatic, which had been in existence since early prehistoric times. It represents the spread of an international reputation depending on a general belief in oracles, but not of a cult as such. The fertility, orgiastic and mystery cults, cults of Cybele, of Dionysus, of Demeter, and the like, which seem to have met a real need for emotional release, were admittedly of eastern origin. In these, in so far as we know anything of their character, although they indoctrinated a mystic community with the deity, there appears in actual fact to have been little advance beyond the crude fertility rites from which they originated.

The most considerable contribution of the Greeks to the development of religious thought is to be sought in the conceptions of the classical drama rather than in the religious beliefs of the people. In the great series of tragedies presented at Athens at the festivals of Dionysus—not be it noted the mystic god of the orgiastic mystery cults, but the rustic god of plenty—there was given to the people a view of the divine purpose, Fate or Destiny, working itself out in the lives and characters of men and women, of whom the stories were familiar to every spectator. The cosmos of the tragic muse was no world of compassion and mercy or of love. Its purpose was relentless and fatalistic, a world in which man

was at the mercy of his destiny, whether that lay in the event or in his character, just as the man of the north in Scandinavian belief must submit to the decrees of the Norns. Tragedy, as Aristotle said, was a purge of the emotions of pity and terror.

In recognizing the necessity to define the limits which must not be exceeded, if tragedy were not to fail of its object, Aristotle laid his finger on what must be regarded in the Greek character as a failure to attain complete balance. Aristophanes satirized the same failing when he said in *The Clouds* that Zeus had been dethroned and God Whirl set in his place. In the desire for clarity of vision and definition of form the Greeks stressed reason unduly to the neglect of emotion. Just as in religion ritual overshadowed belief, and in politics devotion to the forms of democracy sometimes obscured the true end of the State, in ethics rationalism failed to give to the rule of conduct that colour of emotional appeal which binds men in unswerving devotion to the right. Intellectual jugglery appealed to the average Greek more than probity. This is indicated by the diatribes against the Sophists, which have come down to us in the literature and afford the most significant of sidelights on the character and leanings of the Greek populace.

## Chapter Twelve

### ROME AND RATIONALISM

Part from her contributions to cultural literature, law and political organization, the great gift of Rome to civilization was the *Pax Romana* and the definition of the status of every one who came under her rule. All were members in some degree or other of one empire. Further, whatever may have been the local religion, all participated in one cult, the godhead of the emperor. Hence everyone looked to Rome. In this lay the strength of Christianity and the Roman Church when, with the rise of Christianity to power under Constantine, the Bishop of Rome was able in due time to take over the character of the spiritual head of the world without any undue strain on the loyalty of remote members of the Church organization. Christianity, however, took little interest in art or learning, except in so far as it bore on theology and religion. The weakening of the empire in the fourth and fifth centuries gave over Central and Northern Europe for a time to paganism. The disruption of the empire and the great schism which cut off Byzantium from the western world—another result of pressure from the east—still further accentuated the lack of interest of the western Church in purely intellectual matters. The final blow to Christian learning was the fall of Alexandria in A.D. 640. All further opportunity for the development of science in Christendom passed away with it.

The expansion of Muhammadan power after the Hegira of A.D. 622 ultimately reached Spain, where universities were founded at Toledo and elsewhere. A crucial event in the development of civilization was the introduction in the seventh century of the so-called Arabic numerals from India,

which freed scientific calculation from the handicap of a cumbrous and unwieldy system of notation. The Arabs took up Greek learning with avidity, devoting themselves to the study of mathematics, mechanics, astronomy, chemistry, and the Aristotelian scientific and philosophical curriculum. Their outstanding names are Avicenna (980-1037), the most famous scientist of Islam, and Averroes (1126-1198), the greatest Arabian philosopher ; but credit must also be given, among others, to Maimonides (1135-1204), a renowned Jewish philosopher, whose works had a profound influence upon religious thought of Arabs, Jews and Christians.

The Roman Church aimed at the retention of the temporal and spiritual power over the known world which had been held by the emperor. It was the great international and unifying force in the intellectual and political world of the Middle Ages, a force which gained much from the fact that it had in Latin a common language which was understood by all its educated members in every part of the known world. Its claim to temporal power could not be made good, especially in view of the tribal movements in Central Europe. These culminated in the supremacy of the Franks in the west over the forces pressing from the east, and resulted in the formation of the Holy Roman Empire under Charlemagne (A.D. 801).

In theory, Roman Church and Roman empire were to work together in maintaining spiritual and temporal control over the greater part of the known world (leaving out Byzantium). In actual fact, the quarrels of Charlemagne's sons over the partition of his empire, and the insubordination of later emperors, made this anything but a reality. The great quarrel between Henry IV and Hildebrand (Gregory VII) led to the emperor's surrender at Canossa, but it was already too late. The supremacy of the Pope in temporal matters had been pressed too hard, and what might have grown into a great "international" European organization fell to pieces, except for formal recognition, through the rise of nationalism.

In the ninth century a collection of ecclesiastical canons or decrees, many of which were afterwards found to be

forgeries, were issued under the name of Isidore Mereator, who was identified as the Archbishop of Seville. The promulgation of these "False Decretals" by Pope Nicholas raised in an acute form the question of the allegiance of the French prelates to the Crown. The Pope, relying on the decretals, claimed to be superior to the Crown in matters temporal as well as spiritual affecting the clergy, who held large temporal possessions. The reconciliation at Canossa was only temporary, and France and Britain, and then the German states, broke away. The Holy Roman Empire ceased to be anything more than a form, or a dynastic asset, as under the Habsburgs and Spanish emperors; and the rise of the various nationalities, as well as of the city-states of Italy, destroyed the possibility of even a European federation, while the Church began to be less and less the international force it had been in its earlier history. The quarrels of the Popes, which led to the transfer of the allegiance of part of the Church to the seceding Popes at Avignon, completed the disaster.

Such knowledge as the Middle Ages had of Greek learning came to them through Latin, with fragments of Pliny, but generally in early times pagan learning was eschewed. Some of the Schoolmen, however, knew of Arabic learning, and with the Crusades, knowledge began to filter through from the East. Gerbert, who afterwards became Pope, had been trained at a Spanish university, but he and others who had some learning, such as Roger Bacon and Michael Scot, ran the risk of accusations of witchcraft and heresy. Mainly through the intermediary of the Jews, translations of Arabic works on science began to spread through Europe. The epoch-making contribution of science to social development in this period was the invention or improvement of instruments for astronomical observation. The invention of the quadrant made possible deep sea voyages, which led to the discovery of America (1492) and the sea route to the Cape and India in 1498.

The spirit of inquiry which had been aroused by the Latin Revival of Learning was still further stimulated by the fall of Constantinople in 1453. Men had already begun to

question the authority of the body of tradition which Roman ecclesiasticism had imposed upon belief, and the translation of the Bible into the vernacular, which had been deprecated by the Church, sent men in a questing spirit to the original texts of Christianity. The Bible, it was felt, contained all that was necessary to salvation, and the text was such that it might be interpreted by the plain man without the intervention of authority and tradition. This view was that of Northern Europe, and once more set north against south as in previous history of Europe. The astronomical discoveries of Galileo were declared heretical by the Church ; but resting upon observations which could be and were checked, they still further widened the breach between ecclesiasticism and reformed doctrine. Men inspired by the New Learning in an increasing degree began to look at facts for themselves, and not to accept the dicta of authority.

This was the spirit of science which Bacon embodied in his *Novum Organum*, thus formulating the principles of scientific inquiry. In the meantime familiarity with the use of mathematical instruments, which had led to the discovery of America, had effected one of the most important revolutions in the history of the world. This was the transfer of the centre of cultural development from the centrally situated Mediterranean to the Atlantic littoral. Henceforward men looked to the west, and Rome ceased to be the centre of the world, except in the spiritual sense and for a limited proportion of the population of Europe. The disputes between Spaniards and Portuguese in exploiting their discoveries in west and east led to these disputes being submitted to the arbitration of the Pope. He declared that these new worlds belonged exclusively to the two nations and divided them by an arbitrary line, assigned the west to the Spaniards and the east to the Portuguese. This aroused the antagonism of the Protestant peoples, and led to the founding of the Dutch and English colonial companies and settlements. Further, the expansion of their dominions acted as a direct stimulus to intellectual activity in both these countries. The publication of the vast compendia of travels of Hakluyt and Purchas stimulated thought in every direction.

It was in this period that Grotius developed his theories of international law, while in natural science the speculations and inquiries of Bacon led up to the discoveries of Newton and the foundation of the Royal Society. In the field of political and ethical thought, the English philosopher Thomas Hobbes (1588-1679), whose views of society and its origins were based upon comparative study of the material which had been collected by travellers, is a precursor of Locke, Hume, Montesquieu, Voltaire, Rousseau and other thinkers whose views of the world, man and society led up to the rationalistic speculations of the Encyclopaedists—Diderot, Turgot and the others—and the ideas responsible for the French Revolution, while in the realm of pure speculation the monism of Spinoza and the egocentric system of Descartes prepared the way for the concepts which lie at the basis of the fundamental principles of modern science.

## *Chapter Thirteen*

### THE HEAVENS IN CLASSICAL POETRY AND MYTH

**T**he association of astronomical objects and events with religious and other festivals, and with theological teaching, is a characteristic of most early civilizations, and occupies attention in much of their literature. We have seen how closely it is connected with the cultures of Egypt and Mesopotamia, and it had also a place in the sacred literature of India. Among the material taken over by the Greeks from the Babylonians were the zodiac, the knowledge of the planets and their courses, and a method of predicting eclipses by means of the Saros, a period of eighteen years and eleven days. Some of this knowledge had descended to the Chaldeans, from whom ultimately it came to the Roman world.

How far this knowledge came directly to the Greeks is difficult to say. The Asiatic colonists in the big commercial cities would be in close touch with the first school of astronomy, founded by Berosus, who was probably of eastern derivation. The story that Thales, the first Greek astronomer, taught the Greeks to steer by the Little Bear instead of the Great Bear supports the view that the first interest of the Greeks in astronomy was aroused by the practical needs of navigation ; and this would be in accord with the inference that astronomy came to the Greeks through the Phoenicians. Thales himself is supposed to have been a Phoenician. Further, the recent archaeological discoveries in Syria show to how great an extent Euphratean learning and letters (cuneiform) had penetrated to the western Asiatic littoral, where in the second millennium B.C. there was constant contact with the Mediterranean. The astro-

nomical knowledge necessary for navigation might equally well have reached Greek sailors either directly or through the Phoenicians. Although the mythology of the Greeks connected with the constellations has a distinct Phoenician flavour, it can be argued that the western Asiatic influence, as distinct from Phoenician, is no less apparent.

The works attributed to Homer, the traditional epic poet of Greece, whose actual date is uncertain, various authorities giving it as from the twelfth to the eighth century B.C., contain many references to constellations and particular stars, some of which are said to have been sent by Zeus as portents for mariners. Homer mentions only one planet, Venus, which he seemed to regard as two separate objects as the "Morning" and "Evening" stars.

From the sixth century B.C. onward there are frequent references in the poets and other writers to legends connected with the stars. Among earlier records are Epimenides, the Cretan, who referred to the constellation Capricornus and also to the star Capella; Pherecydes, of Syros (500-450 B.C.), recorded the legend of Orion, and stated the astronomical fact that when Orion sets Scorpio rises. Aeschylus and the Greek historian Hellanicus (fifth century B.C.) narrate the legend of the Pleiades, while a weather calendar compiled by Euclemon mentions Aquarius, Aquila, Canis major, Corona, Cygnus, Hyades, Pleiades, and other groups of stars. The earliest Greek work on astronomy is that of Eudoxus of Cnidus (403-350 B.C.), transmitted in verse by Aratus (about 270 B.C.), who enumerates forty-four constellations. A commentary upon their works was written by Hipparchus, who was as great an astronomer as Aratus was a poet. Ptolemy (A.D. 100-178), who was the definitive authority on astronomy of the ancient world, enumerates forty-eight constellations. These constellations, with few changes, are still used by astronomers to mark the grouping of stars in the sky.

In his *Works and Days*, which dates from about 800 B.C., Hesiod has many references to the constellations. The following are of interest :

"When the Pleiades, daughters of Atlas, are rising,

begin your harvest, and your ploughing when they are going to set. Forty days and nights they are hidden and appear again as the year moves round, when first you sharpen your sickle ” (383-387).

“ When the piercing power and sultry heat of the sun abate, and almighty Zeus sends the autumn rains, and men’s flesh comes to feel far easier—for then the star Sirius passes over the heads of men, who are born to misery, only a little while by day and takes greater share of night—then, when it showers its leaves to the ground and stops sprouting, the wood which you cut with your axe is least liable to worm. Then remember to hew your timber ” (414-422).

“ . . . on a winter’s day when the Boneless One [the octopus] gnaws his foot in his fireless house and wretched home ; for the sun shows him no pastures to make for, but goes to and fro over the land and city of dusky men (the Egyptians or Ethiopians) and shines more sluggishly upon the whole race of the Hellenes ” (524-528).

“ When Zeus has finished sixty wintry days after the solstice, then the star Arcturus leaves the holy stream of Ocean and first rises brilliant at dusk. After him the shrilly wailing daughter of Pandion, the swallow, appears to men when spring is just beginning. Before she comes, prune the vines, for it is best so ” (564-570).

“ But when the House-Carrier [the snail] climbs up the plants from the earth to escape the Pleiades, then it is no longer the season for digging vineyards, but to whet your sickles and rouse up your slaves ” (571-573).

“ But when the artichoke flowers and the chirping grass-hopper sits in a tree and pours down his shrill song continually from under his wings in the season of wearisome heat, then goats are plumpest and wine sweetest ; women are most wanton, but men are feeblest, because Sirius parches head and knees and the skin is dry through heat ” (582-588).

“ Set your slaves to winnow Demeter’s holy grain, when strong Orion first appears, on a smooth threshing floor in an airy place ” (597-599).

“ But when Orion and Sirius are come into mid-heaven, and rosy-fingered Dawn sees Arcturus, then cut off all grape-clusters, Perses, and bring them home (609-611). . . . But when the Pleiades and Hyades and strong Orion begin to set, then remember to plough in season ; and so the completed year will fitly pass beneath the earth.”

“ But if desire for uncomfortable sea-faring seize you ; when the Pleiades plunge into the misty sea to escape Orion’s rude strength, then truly gales of all kinds rage ” (614-621).

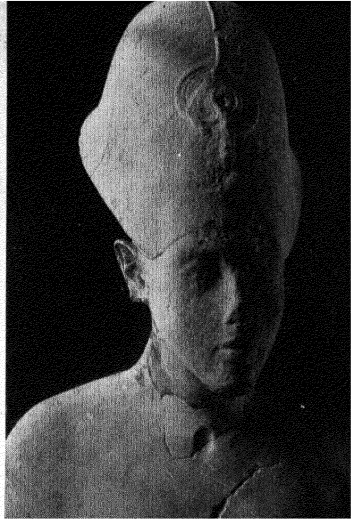
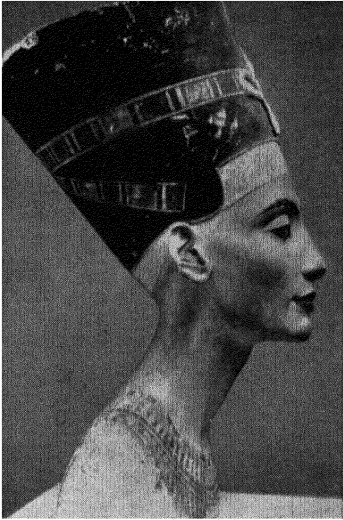
“ Fifty days after the solstice, when the season of wearisome heat is come to an end, is the right time for men to go sailing. Then you will not wreck your ship, nor will the sea destroy the sailors, unless Poseidon, the Earth-Shaker, be set upon it, or Zeus, the king of the deathless gods, wish to slay them ” (663-668).<sup>1</sup>

The most renowned Greek poem on astronomy is the *Phenomena* of Aratus, who obtained his knowledge of the subject from Eudoxus of Cnidus, and of weather portents and signs, described in another poem, *Diosemeia*, from Theophrastus. His astronomical poem was for several centuries very popular among the Athenians, who regarded it as comparable to Homer’s *Iliad*. It was translated into Latin by Cicero and other authors, and quoted largely by several Latin poets, especially Virgil. He was esteemed by both Christian and pagan philosophers. The Apostle Paul lived in the midst of later Greek civilization, and was therefore familiar with Hellenistic literature and philosophy. During his second missionary tour he came to Athens, where “ certain philosophers of the Epicureans, and of the Stoics, encountered him ”, and Paul spoke to them of his new doctrine from the midst of Mars’ Hill, in the words recorded in the Acts of the Apostles (xvii. 22-28) :

“ Ye men of Athens, I perceive that in all things ye are too superstitious.

For as I passed by, and beheld your devotions, I found an altar with this inscription, TO THE UNKNOWN

<sup>1</sup> Translated by Hugh G. Evelyn-White. (London : William Heinemann, 1914.)



Portraits of Queen Nefretiti and King Ikhnaton, found



*British Museum*

Semites from Palestine or Syria bringing tribute to the Egyptian Court. About 1400 B.C.



GOD. Whom therefore ye ignorantly worship, him declare I unto you.

God that made the world and all things therein, seeing that he is Lord of heaven and earth, dwelleth not in temples made with hands ;

Neither is worshipped with men's hands, as though he needed any thing, seeing he giveth to all life, and breath, and all things ;

And hath made of one blood all nations of men for to dwell on all the face of the earth, and hath determined the times before appointed, and the bounds of their habitation ;

That they should seek the Lord, if haply they might feel after him, and find him, though he be not far from every one of us ;

For in him we live, and move, and have our being ; as certain also of your own poets have said, For we are also his offspring."

There is no doubt that the poet to whom St. Paul particularly referred was Aratus, who was, like St. Paul himself, a native of Cilicia, though he lived three centuries earlier. As the poem of Aratus was a classic among the Greeks, the audience could not fail to be impressed by St. Paul's quotation from it, though they were not convinced by the application of the words to the new doctrine. The actual words of Aratus embodied in St. Paul's address were as follows ; and if the word " God " is used instead of " Jove ", the spirit of the two exhortations is clearly the same :

" Let us begin from Jove. Let every mortal raise  
His grateful voice to tune Jove's endless praise.  
Jove fills the heaven—the earth—the sea—the air :  
We feel his spirit moving here, and everywhere.  
*And we his offspring are.* He ever good  
Daily provides for man his daily food.  
Ordains the seasons by his signs on high,  
Studding with gems of light the azure canopy.  
What time with plough and spade to break the soil,  
That plenteous stores may bless the reaper's toil.

What time to plant and prune the vine he shows,  
 And hangs the purple cluster on its boughs.  
 To Him—the First—the Last—all homage yield,  
 Our Father—Wonderful—Our Help—Our Shield.”<sup>1</sup>

Aratus described twenty constellations north of the celestial equator, the twelve constellations along the zodiac and twelve south of the celestial equator, making forty-four in all. The poem is purely a didactic picture of the division of the heavens into regions represented in stories of Greek mythology, yet for half a dozen centuries its influence upon writers who followed Aratus was immense.

The use of the constellation of the Great Bear (Helice) by Greek mariners and of the Little Bear (Cynosyra or Cynosure) by Phoenicians is referred to in the lines :

“ Pleasing to sight is Helice’s bright team,  
 And Grecian sailors hail her guiding beam.  
 When toss’d by adverse winds and tempest black  
 Mid wintry seas their dubious course they track.  
 But hardier sons of Tyre, who love to brave  
 The unknown monsters of th’ Atlantic wave,  
 By Cynosyra’s surer guidance steer  
 And safe return to wife and children dear.”<sup>2</sup>

The astronomical poem of Aratus describes the constellations, the planets, the zodiac and the sun’s course through it, and the positions of the chief circles on the celestial sphere—the Tropics of Cancer and Capricorn and the celestial equator. The description of Hephaestus’s shield in Homer’s *Iliad* refers to these objects and movements in the words :

“ There shone the image of the master mind ;  
 There earth, there heaven, there ocean he design’d ;  
 The unwearied Sun, the Moon completely round ;  
 The starry lights that heaven’s high convex crown’d ;  
 The Pleiads, Hyads, with the northern team ;  
 And great Orion’s more refulgent beam ;

<sup>1</sup> *The Phenomena and Diosemeia of Aratus*, translated into English, verse, with notes, by John Lamb. (London : John W. Parker, 1848.)

<sup>2</sup> *Ibid.*

To which around the axle of the sky  
 The Bear revolving points his golden eye ;  
 Still shines exalted in the ethereal plain,  
 Nor bathes his blazing forehead in the main." <sup>1</sup>

Aratus could scarcely be called an astronomer, but what he did was to bring together in a remarkable poem the traditional knowledge of the constellations and certain stars in them. The heavens as described by Aratus did not actually represent conditions in his time, but about a couple of thousand years earlier. The star-list of Hipparchus and Ptolemy agrees with that of Aratus with a few exceptions. Hipparchus, " who had ventured to count the stars, a work arduous even for the Deity " (Pliny, *Hist. Nat.*, ii, 26), made a catalogue of 1680 stars. Ptolemy's catalogue included 1022 stars, of which 914 form constellation figures. He placed two additional constellations among the unformed stars, while recognizing the ancient groups. The constellations of the Greeks were adopted by the Romans and other peoples, and are still used to designate divisions of the celestial sphere.

Though it is known that the Greeks derived their knowledge of the zodiac and particular groupings of stars from the Babylonians the origin of the association of constellation figures with characters in Greek mythology has been the subject of much discussion. As several of the constellations represent characters in the voyage of the Argonauts, and none is named after the heroes of Troy, the grouping must have been settled after the expedition of the Argonauts and before the destruction of Troy.

Whatever the origin of the names, all the characters in a particular drama or legend are represented together in the heavens. Thus one group of constellations consists of Cepheus and his wife Cassiopeia, with Andromeda, their daughter, waiting to be devoured by Cetus, but rescued by Perseus, who was flying through the air after slaying the Gorgon and who turned the sea-monster into stone by showing it the head of Medusa.

<sup>1</sup> Alexander Pope's translation of the *Iliad*. (1715-1720.)

The apotheosis of all these figures is easy to understand if the myth was the origin of the constellations bearing names imposed upon them by imaginative observers, but the history of many such star-groups goes back much beyond Greek times ; and it is closely connected with astronomical relationships. From this point of view the story of Hercules, which was derived from a group of cosmic myth going back to very remote times in Mesopotamia and Western Asia, originated in the sky, the giant being a solar hero, and his twelve labours, represented the sun's course along the zodiac, quenching the starlight of the twelve signs one after another, and renewing every year his round of labours. A brilliant presidential address by Sir D'Arcy Thompson, delivered to the Scottish Classical Association in 1936, contains many similar explanations of early astronomical origins of constellations independent of Greek mythology.

#### LUCRETIUS' "DE RERUM NATURA"

When early Greek philosophers began to speculate upon the nature of the universe and the meaning of life, they founded the principle of intellectual freedom essential for the advance of science, literature, or any other aspect of civilized culture. They established the most precious heritage of the human race ; and to their spirit of liberty of thought in inquiring into all things—sacred, social or political—untrammelled by authority, European science and philosophy owes its chief debt. Many of the speculations seem crude in the light of modern knowledge, but they were all attempts to apply reason to the solution of problems presented to our senses, and some have proved to be of fundamental significance. Democritus (460-370 B.C.), for example, extended the views of earlier Greek philosophers to construct an atomic theory in which the atoms were eternal, indivisible, incompressible, indestructible, and in ceaseless motion.

According to this view, all forms of matter are due to combinations of such unalterable atoms, and the universe is a vast concourse of them under the control of fixed laws

and independent of a providence or intelligent cause continually guiding their movements. It is a tribute to the free intellectual atmosphere of Greece at the time that such an amazing and impious theory should have been conceived at all. Epicurus (340-270 B.C.) used the theory of Democritus as the basis of ethical teaching in which divine providence had no part. Lucretius (99-55 B.C.) adopted this system of philosophy, which embraced both ethics and physics, and expounded it in his poem *De Rerum Natura*.

In his opening verses Lucretius apostrophizes Venus to persuade her lover Mars to make "the savage works of war to sleep and be still over every sea and land", so that the mind can turn to philosophy and nature in peaceful contemplation, and without control of traditional beliefs. Lucretius says that he essays "to fashion teaching the Nature of Things"; and early in his poem he remarks:

"For I shall begin to discourse to you upon the most high system of heaven and of the gods, and I shall disclose the first beginnings of things—how from these nature makes all things and increases and nourishes them, and into these the same nature again reduces them when dissolved:—which in discussing philosophy we are wont to call matter, and bodies that generate things, and to entitle the same first bodies, because from them as first elements all things are."<sup>1</sup>

The first two books of Lucretius' poem deal with atoms and the void, and embody the teaching of Democritus and Epicurus that the universe may be analyzed into two elements only—atoms and space—in different relationships. The atoms are indivisible and infinite in number, and by their motions and combinations with one another the world and all it contains were produced. This atomic theory of the Greeks remained a philosophic speculation for about eighteen hundred years before attention to it was revived; and it was established as the foundation of modern chemistry by John Dalton early in the nineteenth century. The theory is

<sup>1</sup> *Lucretius' De Rerum Natura*, with an English translation, by Dr. W. H. D. Rouse. (London: W. Heinemann, Ltd.; Cambridge, Mass.: Harvard University Press.)

thus a remarkable tribute to Greek philosophic genius ; and Lucretius' fervid exposition of it, even as an explanation of life, the mind, and the soul, makes his poem a great contribution to science as well as to literature. From the point of view of atomic physics, the introduction into the theory of the new idea that atoms may "swerve" from time to time in space, thus giving them an element of spontaneous movement, the cause and instant of which are unknown, is remarkable, particularly when its meaning is extended to the freedom of will of man.<sup>1</sup>

Lucretius' poem is concerned with astronomy and meteorology, and contains descriptions of celestial and terrestrial things and phenomena, with various explanations of them which satisfied the state of knowledge at the time, but many of which now seem crude or uncritical. He knew, however, that he was presenting many theories or causes of phenomena, and that judgment of the true cause was a matter of opinion. Thus, Lucretius explains the phases of the moon as possibly being caused by the moon reflecting the light of the sun differently in various positions ; or by its offering various phases of its own light as it revolves ; or because another globe revolving around it obscures its light ; or by its having one half bright and the other dark, and displaying the various phases as it turns ; or by each phase of the moon being newly created every day. In many other parts of the poem Lucretius gives a number of explanations of the "nature of things", and therefore includes a variety of wrong causes, as well as the cause which satisfies fuller knowledge.

Lucretius' poem is not concerned with imaginative conceptions of objects, phenomena and events on earth or in the sky, but with the natural causes which produce them. It aims at showing that the study of the universe, and all that is therein contained, should be sufficient in itself to satisfy the minds of men. The work is, therefore, more appropriately regarded as a description of natural philosophy in

<sup>1</sup> Modern works upon this subject, from the points of view of atomic physics and philosophy, are discussed in the Rev. Dr. M. Davidson's recent book, *Free Will or Determinism?* (London : Watts & Co., 1937.)

the century before the opening of the Christian era than as a contribution to imaginative literature. In this respect Lucretius was a disciple of Epicurus, who placed the study of the laws of Nature above that of the gods and their fables, and whom Lucretius addresses as "O glory of the Grecian race". His poem combined disbelief in a future life with a high moral code.

### VIRGIL'S SKY AND SEASONS

Cicero and other writers translated Aratus' poems into Latin, and several Roman poets, including Virgil (70-19 B.C.), quoted largely from them. In his great didactic poem, the *Georgics*, Virgil, with stimulative imagination, brings man into intimate contact with Nature.

Agriculture and its relation to the seasons and deities associated with them is the theme of the first book of this poem. To know the proper times of sowing and other operations on the land, the stars must be watched as closely by the farmer as by the navigator. At the autumnal equinox, when days and nights are equal in length, the sun is in the constellation of the Balance. The constellation of the Scorpion was regarded at one time as occupying two-twelfths of the zodiac, but later the Balance was introduced between the Scorpion and the Virgin. When the sun enters the constellation of the Bull on April 17, certain seeds may be sown, but the sowing of some other seeds should be postponed until the setting of Maia (one of the Pleiades) and of Boötes in November. The movement of the sun through the twelve signs of the zodiac guides the husbandman in his annual tasks. The changes of the seasons are thus connected with celestial signs and reveal orderly design and purpose.

Virgil's five zones of the sky and the earth are derived from a work by Eratosthenes (276-196 B.C.), and the description is not altogether clear. The earth is regarded as flat, with the celestial sphere revolving around it on an axis, one end of which rises towards the north (Scythia), while the other pole is in the gloomy Styx of the underworld. Arctos, the constellation of the Bear, or, in plural, the Great and

Little Bears, is so close to the pole that, unlike some other groups of stars, it does not sink into the ocean which surrounds the world. Virgil's story of these relationships between earth and sky has been beautifully rendered into English as follows :

We yeomen, moreover, must watch Arcturus' star, and the rise  
Of the Kids, and the gleaming Serpent, with no less heedful eyes  
Than do they who over the wind-scourged waters homeward-  
bound

On Pontus venture their lives, and Abydos' oyster-ground.  
When the hours of day and of slumber the Balance hath equal  
made,

And now hath parted the world in twain, 'twixt light and shade,  
Goad, yeomen, your steers to their toil, wide sow with barley the  
plain

To the very verge of baffling winter's stormy rain.

Then, too, is the time when the flax and the poppy of Ceres  
should lie

Earth-veiled, and ere then, while thou canst, while yet the ground  
is dry,

Bend over the plough, while the clouds burst not, but still hang  
high.

For beans is the sowing-time spring ; then, child of the East,  
lucerne,

Soft furrows receive thee, and care for the millet must yearly  
return

When gleaming-white the Bull with his golden horns, thrusts wide  
The gates of the year, and the Dogstar backward sinks in the tide.

But if for a harvest of wheat and of sturdy spelt thou wilt till

The ground, and on naught but the golden ears hast fixed thy  
will,

Let the morning setting of Atlas' Daughters be seen of thee,

And the eventide plunge of the stars of the flaming Crown in the  
sea,

Or ever thou yield to the furrows their debt of seed, and ere

Thou haste to entrust to the grudging earth the hope of the year.

Many before the setting of Maia begin, but they

See their dreams of a harvest vanish in empty ears away.

But and if it be vetch thou wilt sow, and the bean of little price,

And the care of the Nile-born lentil be not contemned in thine  
eyes,

Boötes' setting will flash unto thee no doubtful token :  
 Begin, and till frost's mid-season thy sowing may stretch un-  
 broken.

For our guidance the sun directeth his golden car's career  
 In portions fixed, measured out through the twelve great Signs  
 of the sphere.

Five Zones span all the heaven, whereof one flusheth aye  
 Red in the flame of the sun, and is scorched by his fire alway ;  
 And around this far to the right and far to the left sweep twain  
 Stiff-frozen with pale-blue ice, and dark with stormy rain.  
 'Twixt these and the midmost are twain bestowed by the bounty  
 of Heaven

On afflicted mortals, and through them a highway celestial is  
 driven

Where slantwise wheels the procession of Signs for seasons given.  
 High as the world towers up toward norland hills of snow,  
 So low doth it slope and sink toward Libya's torrid glow.  
 This pole hangeth over our heads evermore : that other, 'tis told,  
 Dark Styx and the netherworld Ghosts far under their feet behold.  
 With sinuous coiling here doth the giant Serpent glide,  
 And around and between the Bears in river-fashion slide—  
 The Bears that fearfully shrink from plunging in Ocean's tide." <sup>1</sup>

<sup>1</sup> *The Georgics of Virgil in English Verse*, by Dr. Arthur S. Way. (London : Macmillan & Co., Ltd., 1912.) Georgic I, lines 204-246.

## *Chapter Fourteen*

### OBSERVATION AND LITERARY INTERPRETATION

Nature-poetry is at its best when direct observation of natural objects or events inspires creative ideas concerning them. The heavens have always been a favourite theme because of their mystery and their association with conceptions of divinity. Faithful description of celestial scenes, when combined with imaginative insight, reflects scientific truth as well as emotional response to what is seen. The purpose of poetry is not to unveil mystery, but to express it in imagery, yet knowledge obtained by observation has inspired some of the greatest poets and provided them with their wealth of allusion. It is of interest to bring together a few of these interpreters of the science of their times.

#### OMAR KHAYYAM

After the destruction of the Alexandrian Museum in the year 415, some of the Greek men of science went to Persia, and there for a couple of centuries carried on the intellectual learning of Greece. After the Muslim conquest of the country, and from the ninth to the fifteenth centuries, there was a great awakening of interest in all branches of science, and during that period the Arabs cultivated the advancement of natural knowledge with conspicuous success. Their gifts and knowledge were carried into Spain and other European countries, and influenced such great teachers as St. Thomas Aquinas, Albertus Magnus, and that paragon of scientific learning in his time, Roger Bacon. It was in the latter half of the eleventh century that Omar Khayyam lived. Few who admire his poetic genius, through Edward FitzGerald's

translation of his *Rubaiyat*, know that his most original works were not in literary fields, but in those of mathematics and astronomy, and that he devised a very accurate form of the calendar. Three quatrains in the familiar translation (fourth edition) of his poem refer to the sky and objects upon it : they are—

“ Up from Earth’s Centre through the Seventh Gate  
I rose, and on the Throne of Saturn sate,  
And many a Knot unravel’d by the Road ;  
But not the Master-knot of Human Fate.

Ah, but my Computations, People say  
Have squared the Year to better reckoning?—Nay  
'Twas only striking from the Calendar  
Unborn to-morrow, and dead Yesterday.

And that inverted Bowl they call The Sky,  
Whereunder crawling coop’d we live and die,  
Lift not your hands to *It* for help—for *It*  
As Impotently moves as you or I.”

Mr. E. Heron-Allen, in a scholarly work,<sup>1</sup> gives the following literal renderings of the first of these three quatrains :

“ From the nadir of the earthly globe, up to the zenith of Saturn  
I solved all the problems of heaven ;  
I escaped from the bondage of all trickery and deceit  
All obstacles were removed save only the Bond of Fate.”

The opening line of the second quatrain refers to Omar’s reformation of the calendar, which Gibbon, in his *Decline and Fall of the Roman Empire*, described as

“ a computation of time which surpassed the Julian, and approached the accuracy of the Gregorian style ”.

Mr. Heron-Allen’s translation of the third quatrain reads :

“ The good and the bad that are in man’s nature,  
The happiness and misery that are predestined for us,  
Do not impute them to the heavens, for in the Way of Wisdom,  
Those heavens are a thousandfold more helpless than thou art.”

<sup>1</sup> *Edward FitzGerald’s Rubaiyat of Omar Khayyam, with their Original Persian Sources, Collated from his own MSS. and Literally Translated.* (London : Bernard Quaritch, 1899.)

The spirit of these passages, and of the whole of Omar's poem, is obviously different from that represented in most references in literature to celestial objects or events and their reflections in human life. There has, indeed, been much discussion whether the poem should be regarded as the work of a degraded voluptuary or a sublime philosopher. The greatest authority upon Omar, Prof. E. B. Cowell, who introduced FitzGerald to the *Rubaiyat* in 1846, said that he admired his work as literature, as he admired Lucretius, but could not take him as a guide. The relation between the two philosopher poets is expressed as follows in the preface of the fourth edition of FitzGerald's translation :

“ Lucretius, indeed, with such material as Epicurus furnished, satisfied himself with the theory of a vast machine fortuitously constructed, and acting by a Law that implied no Legislator ; and so composing himself with a Stoical rather than Epicurean severity of attitude, sat down to contemplate the mechanical Drama of the Universe which he was part Actor in ; himself and all about him (as in his own sublime description of the Roman Theatre) dis-coloured with the lurid reflex of the Curtain suspended between the Spectator and the Sun. Omar, more desperate, or more careless of any so complicated System as resulted in nothing but hopeless Necessity, flung his own Genius and Learning with a bitter or humorous jest into the general Ruin which their insufficient glimpses only served to reveal ; and, pretending sensual pleasures as the serious purpose of Life, only diverted himself with speculative problems of Deity, Destiny, Matter and Spirit ; Good and Evil, and other such questions, easier to start than to run down, and the pursuit of which becomes a weary sport at last! ”

#### DANTE

Comparable with Virgil, the next great poetic genius was Dante (1265-1321), in many ways a typical university scholar of the period, but also a poet who made accurate use of existing scientific knowledge, a politician, and a patriot.

He was steeped in the learning of his times, and he combined this knowledge with mysticism and Christian faith in his immortal poem, the *Commedia*, which after his death was given the title *The Divine Comedy*. The theme opens with Dante being met in a gloomy forest by the poet Virgil, who promises to show him the punishments of Hell, and those of Purgatory, after which he is conducted into Paradise. The three stages of his journey are represented in the *Inferno*, the *Purgatorio* and the *Paradiso*.

To Dante, Aristotle was the master mind of all time. He leads the list of the philosophers mentioned in the *Inferno* :

“ Then when a little more I raised my brow,  
I spied the master of the sapient throng,  
Seated amid the philosophic train.  
Him all admire, all pay him reverence due.  
There Socrates and Plato both I mark'd,  
Nearest to him in rank, Democritus,  
Who sets the world at chance, Diogenes,  
With Heraclitus, and Empedocles,  
And Anaxagoras, and Thales sage,  
Zeno, and Dioscorides well read  
In Nature's secret lore. Orpheus I marked  
And Linus, Tully and moral Seneca,  
Euclid and Ptolemy, Hippocrates,  
Galenus, Avicen, and him who made  
That commentary vast, Averroes.”<sup>1</sup>

When Virgil leaves Dante on the summit of the Earthly Paradise, Beatrice guides him through the celestial spheres, which are described according to the astronomy and theology of the time. The outermost of ten heavens is the Empyrean—the heaven of pure light and the seat of the Godhead. Within it are nine celestial spheres, the first in order below the Empyrean being the Crystalline Heaven, or *Primum Mobile*, which moves the others. Then come the heaven of the fixed stars and the seven lower heavens of Saturn, Jupiter, Mars, the Sun, Venus, Mercury, and the Moon, which are kept in motion “by blessed movers”, or

<sup>1</sup> Cary's translation of the *Divine Comedy*. (Bohn's Standard Library, 1909.)

angels. Dante is finally taken to the heaven of the fixed stars and apostrophizes the constellations, stating that the sun was in the constellation of the Twins when he was born, and thus fixing the date of his birth. In 1265 the sun entered this constellation on May 18 and left it on June 17.

Much interesting information relating to the astronomical knowledge of Dante is contained in *A Dictionary of Proper Names and Notable Matters in the Works of Dante*, by Paget Toynbee (Oxford, 1898), and is here summarized. Dante's ideas of the Celestial Universe were derived from the work of Aristotle, known to the Middle Ages in Arabic and Latin translation under the title *De Caelo et Mundo*, by which Dante refers to it; although on occasion it may be that he is to be taken to refer rather to the work with the same title by Albertus Magnus (1193-1280). Albertus was a voluminous writer, and the first Schoolman and great Aristotelian scholar. He was the teacher of Thomas Aquinas (1225-1274); and to these two naturalists and theologians belong the credit of being the first to reconcile the Christian and Aristotelian philosophies.

The evidence of Dante's more detailed knowledge of the astronomical system must be sought in that unfinished commentary in philosophical prose and verse and written in Italian on his *Canzonetti*, commonly known as the *Convito*, but more correctly the *Convivio*, "The Banquet" (1309), rather than in the more widely-known works. This knowledge, which was derived ultimately from Ptolemy, through a Latin translation, *Elementa Astronomica*, of a notable work by the Arabian astronomer, Alfraganus.

Dante was indebted to Aristotle's *De Caelo* for the Pythagorean theory as to the constitution of the universe, with the central place occupied by fire, round which revolves the earth, and a "counter-earth". From Albertus Magnus he obtained the Aristotelian and Platonic conception of the number and order of the heavens.

The ninth heaven, *Primum Mobile*, or Crystalline Heaven as understood by Dante, was the origin of the motion of all the others. Its existence was first conceived by Ptolemy, who added it to the eight heavens of Aristotle to account for the

complex motion of the heaven of the fixed stars, *Cielo Stellato*. Its revolution is completed in something under twenty-four hours, and it is imperceptible to the senses except by its motion. It has two poles firm or fixed as regards all things, and not, as of the lower heavens, fixed only in relation to themselves. Also it has an equator. If its motion were to cease a third part of the heavens would be invisible to every part of the earth, while there would be neither life nor time on the earth, and the whole universe would be in disorder.

This largest of the corporeal heavens is encircled by the Empyrean, which surrounds all others. It is the most rapid of the heavens ; its motion is not measured by that of any other, but theirs by it. Hence it is the origin of time. It "has no otherwhere but the mind of God." If the *Primum Mobile* below it ceased, all motion would cease, except the almost insensible motion of the Starry Heaven, the Precession of the Equinoxes, and as this motion is exceedingly slow, only about one degree in one hundred years, and as since the beginning of the world (say 6400 years) the movement has therefore been only about 60 degrees, one-third of the stars would become invisible.

As has been said already, the Ptolemaic system of the universe known to Dante consisted of ten concentric heavens. The earth was the fixed immovable centre with an equally fixed outer Empyrean, the abode of the Blessed, surrounding the Universe. Desire towards this dwelling of the Deity leads to the next, the ninth or Crystalline Heaven, so rapid a motion that in spite of its immense circumference it revolves in twenty-four hours, carrying with it all other heavens without interfering with their special revolutions.

The eighth heaven has a special revolution of one degree in one hundred years, the slowest. In this heaven are the fixed stars, receiving their light from the sun and at equal distances from the earth. Then follows the heavens of the seven planets, Saturn, Jupiter, Mars, the Sun, Venus, Mercury and the Moon, all of them having beside the movement common to all, their special revolutions. The movement is not by inanimate gravity, but by the will of a supernatural

being, an angel or intelligence, each inhabiting a separate heaven (*Par.* ii, and *Conv.*). The motion of the planets is the force of their thought. It is this thought which exerts influences upon earth, which astrologers attribute to planets and constellations—this imparts certain tendencies and inclinations into man, but these can be combated by free will.

Dante obtained the data for his knowledge of the planets from Alfraganus' book on astronomy already mentioned. He himself had calculated the periods for Saturn, Jupiter, Mars, the Sun, Venus, Mercury, and the Moon. The working of the system is explained to Beatrice (*Par.* xxvii, 78-120).

Alfraganus (Alferghano Ahmad ibn Muhammad ibn Kathir, al Ferghani, so-called from his birthplace of Fergana in Sogdiana, now Samarkand), whose account of astronomy was used by Dante, was a celebrated Arab astronomer who flourished at the beginning of the ninth century of our era. He wrote in Arabic on sundials, the astrolabe and the elements of astronomy, the last a work in thirty chapters based on the principles of Ptolemy. His work was translated into Latin, it is supposed about 1143, by Johannes Hispanensis under the title of *Alfragani Elementa Astronomica*, or alternatively, *Liber de Aggregatione Scientiae Stellarum*. This work became very popular, as is shown by the large number of manuscripts still in existence, and was in common use in the Middle Ages. Three printed editions appeared, at Ferrara (1493), Nuremburg (1537) and Paris (1546). Other and independent versions appeared in 1590 and 1669.

In addition to relying generally for his astronomical knowledge on Alfraganus, Dante makes two specific references to him or his work. He quotes him as his authority for the size of the earth and Mercury (*Conv.* ii, 14), and refers to the *Elementa*, under the title *Libra dell' Aggregazione delle Stelle*, as the authority for the demonstration of the threefold motion of the Heaven of Venus.

Dante was also indebted to Alfraganus for the following :

The projection of the shadow of the earth as far as the sphere of Venus (*Par.* ix, 118-119).

The Syrian calendar and the Arabian usage of reckoning the commencement of the day from sunset (*Vita Nuova*, 30).

The poles and equators of the various heavens (*Conv.* ii, 4).

The motion of the heaven of the fixed stars from west to east—one degree in one hundred years (*Conv.* ii, 6, 15 ; *V.N.*, 2).

The diameter of Mercury (*Conv.*, ii, 14).

The distance of Venus from the earth (*Conv.* ii, 7).

The periods of the revolutions of the planets (*Conv.* ii, 15).

The circumference of the earth (*Conv.*, iii, 5).

The difference between “equal” and “temporal” hours (*Conv.*, iii).

The diameter of the sun (*Conv.*, iv).

From the data of the fixed planets given by Alfraganus, Dante calculated the half-revolutions roughly, giving the following figures :

Saturn,  $14\frac{1}{2}$  years, that is, doubled, 29 years, as against  $29\frac{1}{2}$  years.

Jupiter, 6 years, that is, doubled, 12 years, as against  $11\frac{4}{5}$  years.

Mars, nearly 1 year, that is, doubled, 2 years, as against  $1\frac{9}{10}$  years.

Sun, Venus and Earth, 182 days 14 hours, that is, doubled, 365 days 4 hours, as against  $365\frac{1}{4}$  days.

Moon,  $14\frac{1}{2}$  days, that is, doubled, 29 days, as against  $29\frac{1}{2}$  days.

In *Paradiso*, xxvii (Cary's translation, lines 131-134), Dante is believed to have referred to the reform necessary in the calendar afterwards instituted by Pope Gregory XIII in 1582. The difference between the year of 365.25 days of the Julian calendar and the tropical year of 365.24 days representing the interval between two successive returns of the sun to the vernal equinox, is one hundredth part of a day, and if it is neglected in the calendar, January would, in the course of time, cease to be a winter month. Dante's words, as rendered in Cary's translation (*P.* xxvii, lines 131-134), were :

“ Yet before the date,  
When through the hundredth in his reckoning dropt,  
Pale January must be shoved aside  
From winter's calendar.”

In Dante's time the study of any branch of science other than astronomy, especially of experimental natural philosophy, was regarded as belonging to the "black arts" and any who practised it as magicians. It was believed that they could see into the future by supernatural means obtained by selling their souls to Satan. One of the foremost wizards of the Middle Ages was the Scottish astrologer and alchemist, Michael Scot, who died about 1235, and with another astrologer, Guido Bonatti, of Forli, and Asdente, of Parma, a shoemaker who became a diviner, are placed in Hell by Dante, together with witches :

" That other, round the loins  
So slender of his shape, was Michael Scot,  
Practised in every slight of magic wile.  
Guido Bonatti see : Asdente mark,  
Who now were willing he had tended still  
The thread and cordwain, and too late repents.  
See next the wretches, who the needle left  
The shuttle and the spindle, and became  
Diviners : baneful witcheries they wrought  
With images and herbs."

(*Inferno*, xx, 113-122.)

Though Michael Scot was an intellectual giant in his day, his name is associated in the popular mind with legends relating to his magical powers. He translated into Latin several of Aristotle's works, and also Arabic works on astronomy ; and he was the author of treatises on astrology, alchemy and physiology. Sir Walter Scott's *Lay of the Last Minstrel* refers particularly to Michael Scot.

After the discovery of America and the voyage of Vasco da Gama around the Cape of Good Hope, both Seneca and Dante were credited with the gift of prophecy. In his tragedy of *Medea*, Seneca wrote : " Venient annis saecula seris quibus Oceanus vincula rerum laxet, ut ingens pateat tellus." This " throwing open of the great spaces of the earth " was taken to be a prevision of the discovery of America.

Dante, in *Purgatorio* (22-24), wrote : " Io mi volsi a man

destra, e posi mente all altro polo, e vide quattro stelle, non vista mai, fuor ch'alla prima genta." ("I turned on my right hand, and I looked upon the other pole, and there I saw four stars, which had never been seen since the days of earliest men.")

As Dante had written nearly a hundred years before the voyage of da Gama, this was considered to be a prevision of the constellation of the Southern Cross. Voltaire referred to both prophecies in his treatise on the voyages of the Portuguese sailors. With reference to the passage in Dante, he held that, like so much else that the poet wrote, it must be taken symbolically. The pole is the terrestrial paradise, and the four stars are the four cardinal virtues which disappeared from the earth with the days of innocence (Paget Toynbee's *Influence of Dante on English Literature*).

It has, however, been pointed out that Marco Polo, who returned to Italy from the East in Dante's time, might well have seen the Southern Cross on his voyages in Asia, while Pietro d'Abano, Dante's contemporary, mentions that Marco Polo had delineated to him a star, which might have been one of the four to which Dante refers.

Samuel Rogers, the English banker-poet (1765-1855), in *The Voyage of Columbus* (Canto vi, 265), apparently had in mind the above passage of Dante when he wrote :

" and now in opener skies  
 Stars yet unnamed of purer radiance rise!  
 Stars, milder suns, that love a shade to cast,  
 And on the bright wave fling the trembling mast!  
 Another firmament! the orbs that roll  
 Singly or clustering, round the Southern pole  
 Not yet the four that glorify the night!  
 Ah, how forget, when to my ravished sight  
 The Cross shone forth its everlasting light! "

Like Dante, Tennyson was not only an observer, but was also familiar with current astronomical thought about the stellar universe and the formation of the solar system. The evolution of worlds by the contraction of a mass of gas is given poetic expression in several of his works, as, for

example, in his notes on *The Palace of Art*, where the lines appear :

“Regions of lucid matter, taking form,  
Brushes of fire, hazy gleams.  
Clusters and beds of worlds, and bee-like swarms  
Of suns, and starry streams.”

Though the nebular hypothesis, which was evidently in Tennyson's mind when he wrote these lines, has had to be revised in the light of new knowledge, his phrases are still perfect descriptions of what can be seen in the heavens.

#### CHAUCER : ASTRONOMER-POET

Chaucer (1340-1400), like Dante, was an astronomer-poet, who was indebted to Arabian science for much of the astronomical knowledge revealed in his works. In the last quarter of the fourteenth century, he won for English literature a distinctive place in the history of letters, such as had been held since the Norman Conquest by the literature of France and Italy. After Chaucer's death English literature declined, and did not again attain a supreme place until the time of Shakespeare and his contemporaries. He was the first great master of English verse, and his poems contain many references to celestial objects and movements, chiefly from the point of view of their relationships to human life and events. The planet Saturn is thus associated with a malign influence ; the sun's position in the zodiac at different times of the year is mentioned ; the *Primum Mobile*, or motive power of the system of the universe described by Ptolemy, to whom Chaucer refers ; and within it are the celestial spheres carrying the fixed stars, the planets, the sun, and the moon. In the Franklin's story in the *Canterbury Tales*, the zodiac is placed in the outermost of the nine spheres or circles, and the astrologer is represented as calculating the precession of the equinoxes by the distance between the true equinoctial point in Aries and the bright star Alnath. His words were :

“For his equacions in every thyng ;  
And by his eighte speere in his wirkyng

He knew ful wel how fer Alnath was shove  
 Fro the heed of thilke fixe Aries above,  
 That in the nynte speere considered is ;”<sup>1</sup>

In his poem, *The Complente of Mars*, Chaucer refers to the planet Venus being in conjunction with the planet Mars in the zodiacal sign of Taurus, and to the sign of Gemini.

Chaucer's prose writings included a *Treatise on the Astrolabe*, written for the instruction of “Lytel Lowys my son”. This is a simple and clear description of the parts of the oldest form of astronomical instrument and their uses in measuring altitudes of stars and other celestial objects for the determination of latitude and time. The treatise was based upon a Latin translation of a work by a ninth-century Arabian astronomer, Messahalla, entitled *De Compositione et Utilitate Astrolabii*, supplemented by extracts from a treatise written in the thirteenth century by an English mathematician and astronomer, John of Halifax or Joannes de Sacro Bosco. This work was entitled *Tractus de Sphaera*, and the astronomy in it was derived from Alfraganus' work on astronomy already mentioned, which was translated from Arabic into Latin in the twelfth century, and was the basis of Dante's knowledge of astronomy, as well as that of other European writers.

An edition of Chaucer's treatise with full notes on the astronomical work involved, by Prof. W. W. Skeat, was published in 1894 by the Chaucer Society, and is known as the *Oxford Chaucer*. Four years later the Globe Edition of Chaucer's works appeared with a full commentary by competent authorities.<sup>2</sup> In this edition Chaucer's original text is followed, so far as it was possible to reproduce it. It represents an important period in the literary use of the English language, but since that time there have been many changes in the spelling and meaning of the words used. On this account the text is difficult to follow by readers unfamiliar with the form of the English language in the four-

<sup>1</sup> *The Franklin's Tale*, ll. 1279-1283.

<sup>2</sup> *The Works of Geoffrey Chaucer*, edited by Alfred W. Pollard, H. Frank Heath, Mark H. Liddell, W. S. McCormick. (London : Macmillan & Co., Ltd.)

teenth century. Dr. R. T. Gunther has, however, published a modernized form of Chaucer's treatise on the astrolabe, with the Latin text of Messahalla's work upon which it was based, and an English translation of it, as well as with Chaucer's original figures to illustrate his description of the instrument and its uses.<sup>1</sup> The interest in Chaucer's treatise is, however, purely instructional, and to illustrate his knowledge of the construction and use of an ancient astronomical instrument.

### MILTON'S "PARADISE LOST"

Three centuries after Dante, Milton (1608-1674) in *Paradise Lost* described many astronomical objects and phenomena. His picture of the universe included the three regions of Heaven, or the Empyrean, Chaos, and Hell, with a New World or Starry Universe attached to Heaven by a single cord :

" Far off the empyreal Heaven, extended wide  
In circuit, undetermined square or round,  
With opal towers and battlements adorned  
Of living sapphire, once his native seat,  
And, fast by, hanging in a golden chain,  
This pendant world, in bigness as a star  
Of smallest magnitude, close by the moon."

This poetical description of divisions of universal space is of particular interest because the New World which hangs drop-like from the Empyrean represents our starry universe in Milton's scheme : " All that Universe of orbs and galaxies which man's vision can reach by utmost power of telescope, and which even to his imagination is illimitable."

Upon his second visit to Florence, during his continental journey in 1638-1639, Milton obtained permission to meet Galileo, who was then seventy-five years of age and blind, in his villa near Arcetri. " There it was ", he wrote a few years later, " that I found and visited the famous Galileo, grown old, a prisoner to the Inquisition, for thinking in

<sup>1</sup> *Early Science in Oxford*, Vol. 5. *Chaucer and Messahalla on the Astrolabe*. (Oxford, 1929.)

astronomy otherwise than the Franciscan and Dominican licensers thought." His talks with Galileo, and possibly what he saw with Galileo's small telescope, are reflected in several well-known lines in *Paradise Lost*. Thus, referring to Satan's ponderous shield, he says :

" The broad circumference  
Hung on his shoulders like the moon, whose orb  
Through optic glass the Tuscan artist views  
At evening from the Top of Fesole,  
Or in Valdarno, to descry new lands,  
Rivers or mountains, in her spotty globe."

Fiesole is a hill above Florence, and Valdarno (the valley of the Arno) is the valley in which Florence lies.

Milton believed himself to be inspired in the same way that biblical writers are understood to have been inspired in general Christian and Jewish teaching. He had no doubt himself that God had inspired him as He had the prophets of the Old Testament.

In the seventh book of *Paradise Lost*, after referring to the creation of man, Milton describes the Creator as ascending to his high abode and looking down upon the world to which, the angelic host sang, he would "send his winged messengers on errands of supernal grace".

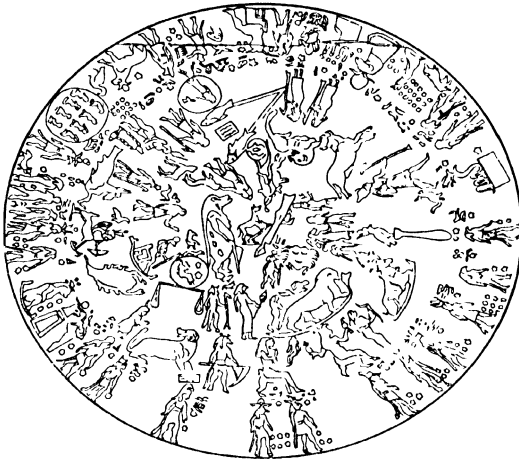
" He through Heaven  
That opened wide her blazing portals, led  
To God's eternal house direct the way—  
A broad and ample road, whose dust is gold,  
And pavement stars, as stars to thee appear  
Seen in the Galaxy, that milky way  
Which nightly as a circling zone thou seeist  
Powdered with stars."

In Milton's time the earth was believed to be the centre of the material universe, as had been taught by Hipparchus (190-120 B.C.), the greatest astronomer of antiquity, and elaborated in detail by Ptolemy in the second century of our era, though Aristarchus, in the third century B.C., had taught that the earth revolved around the sun. In the

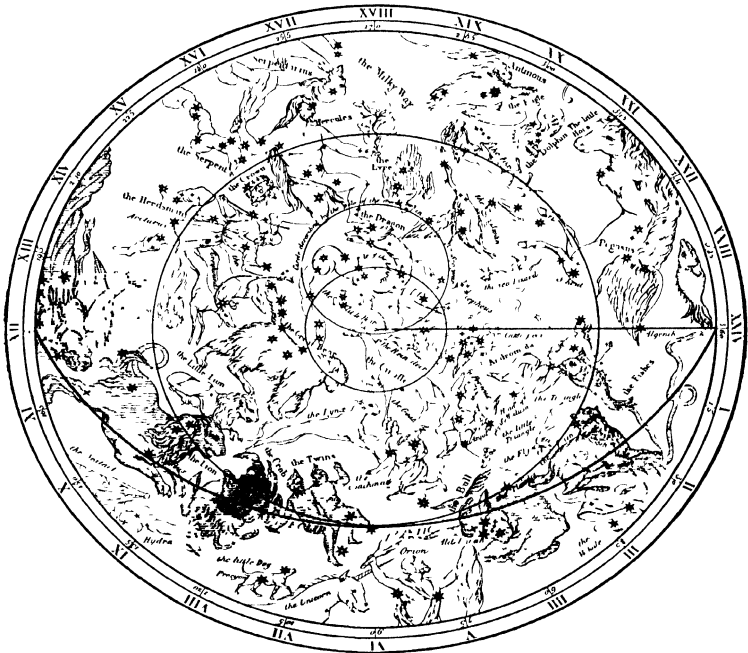
Ptolemaic theory of the universe, the sun and the planets were supposed to revolve around the earth in their own transparent hollow "spheres", and on the outermost sphere the stars were fixed. This scheme involved very complicated movements of the planets, but if such movements were assumed to exist, the theory could be used to predict the positions of the sun, moon and planets to a close degree of approximation, and was, therefore, so far satisfactory. It was indeed accepted and unquestioned until fourteen hundred years later, when it was overthrown by the theory of Copernicus, and by the observations made by Galileo with his small telescope.

No other theory of the universe than that of Ptolemy was known to Shakespeare, who refers to "stars starting from their spheres", or had been taught to Milton, and none other was generally accepted even by scientific people until after Milton's death. He lived in a critical period of astronomical progress. The discoveries of Galileo and Kepler had shown the great probability of the truth of the Copernican system, but Newton had not yet established it as a gravitational consequence. Hence, though Milton seems himself to have been unable to accept the Copernican system, he understood the complications involved in the Ptolemaic system. In *Paradise Lost* there are many passages, particularly in the discourse between Adam and the angel in the eighth book, which show that he saw and appreciated the simplicity and beauty of the Copernican theory. He represents Raphael, as speaking with scarcely-veiled sarcasm of the celestial sphere being supposed to be girded with "Centric and Eccentric scribbled o'er, Cycle and Epicycle orb in orb", and Adam's difficulty at conceiving "how nature, wise and frugal, could commit such disproportions".

Milton was, therefore, familiar with the Ptolemaic and the Copernican systems, and he refers to each of them in *Paradise Lost* without passing judgment upon either. In Book III we read, "They pass the planets seven, and pass the fixed and that crystalline sphere", this being the Ptolemaic view; while in Book VIII he presents the Copernican system very clearly in a conversation between the angel



Constellation figures on a zodiac from the temple at Dendera, Egypt



Constellations of the northern celestial hemisphere, with their figures derived from Greek mythology



Raphael and Adam. Raphael begins the conversation with the words :

“ To ask or search I blame thee not ; for Heaven  
Is as the book of God before thee set,  
Wherein to read his wondrous works, and learn  
His seasons, hours, or days, or months, or years.  
This to attain, whether Heaven more or Earth  
Imports not, if thou reckon right.”

Later, obviously referring to the Copernican system, Raphael says :

“ What if the Sun  
Be centre to the World and other Stars  
By his attractive virtue and their own  
Incited, dance about him various rounds?  
Their wandering course, now high, now low, then hid,  
Progressive, retrograde, or standing still  
In six thou seeist ; and what if, seventh to these  
The planet Earth, so stedfast though she seem,  
Insensibly three different motions move.”

The Ptolemaic and Copernican schemes are compared in a description of about 160 lines, but the question as to which should be accepted is left unanswered. Professor David Masson, however, in his scholarly introduction to Milton's poems,<sup>1</sup> describes the differences between the heliocentric and geocentric theories of the universe in relation to the treatment of cosmological conceptions generally presented in *Paradise Lost*. He acknowledges, of course, that Milton's astronomy was geocentric, and that the Mundane Universe was thought of as a definite succession of orbs revolving around the earth, but referring to the conversation between Raphael and Adam already mentioned he says :

“ In this last passage Adam is represented as arriving by intuition at the Copernican theory, or at least at perceiving its superior simplicity over the Ptolemaic ; and though the drift of the angel's reply is that the question is an abstruse one, and that it is of no great consequence for

<sup>1</sup> *The Poetical Works of John Milton*. (Globe Edition. London : Macmillan & Co., Ltd., 1934.)

man's real duty in the world which system is the true one, yet the balance of the angel's remarks is also Copernican. There is no doubt that these two passages were inserted by Milton to relieve his own mind on the subject, and by way of caution to the reader that the scheme of the physical Universe adopted in the construction of the poem is not to be taken as more than a hypothesis for the imagination."

It should be remembered that before the time of Milton all imaginative literature relating to man and his earthly abode was based upon the view that they were at the centre of the physical universe. The traditional belief of ages that all objects in the universe were designed for the particular benefit of man was enshrined in all literature, sacred and profane. It is remarkable, however, how soon the observations and conclusions of scientific pioneers like Kepler, Copernicus and Galileo became known in intellectual circles of their times and were introduced into imaginative literature.

#### JOHN DONNE AND FRANCIS BACON

John Donne (1575-1631), who has been described as the greatest of the metaphysical poets—a term applied by Dr. Johnson to the school of poets who strove to catch the meaning "after the physical"—responded, in his prose and poetry, to the teachings of the "new philosophy" of his time. He was familiar with William Gilbert's pioneer work on magnetism, and he invested some of the observations with poetic imagination in his poem *The First Anniversary* published in 1610.

Donne was also aware of the astronomical work of Tycho Brahe and the difference between his system of the relationships between the sun, the planets and the stars, and the system of Copernicus. In his poem *Ignatius his Conclave* Donne not only introduces Copernicus and shows himself acquainted with Copernican astronomy, but also mentions Kepler and Galileo. In his *Second Anniversary* he brings in the doctrine of the earth's motion, and refers to other principles of the new astronomy, as well as to the views of Paracelsus regarding the so-called elements. Like Lucretius,

Dante and Milton, Donne let his poetic imagination play upon new knowledge of natural causes and events, and his ingenious mind gave them a new significance. He had a wide and deep influence upon English literature, and stimulating tributes have been paid to it by several authorities. The most substantial survey of his work is Professor C. M. Coffin's *John Donne and the New Philosophy* (New York : Columbia University Press, 1937), which volume is distinguished also by a brilliant chapter on poetry and science.

Though many eminent men, astronomers and others, anterior to or contemporary with Francis Bacon (1561-1620), adopted and taught the Copernican theory, he himself persistently rejected it. The theory had been before the world for nearly eighty years before his *Novum Organum* was published, and he gave great attention to the methods by which astronomy ought to be studied, yet he refused to accept the theory, and constructed an elaborate celestial system of his own. Even after the discovery of the satellites of Jupiter by Galileo in 1609, seventeen years before his death, he opposed the Copernican view that the earth moved in an annual orbit around the sun. It is unfortunate that a philosopher with such a wide range of knowledge, whose object was to show others how science could be advanced, did not appreciate the simplicity of the Copernican theory as an explanation of celestial movements. In this respect, however, his attitude was that of most of his contemporaries, including those not influenced by theological prejudices, as well as Catholics and Reformers. It was not until after the middle of the eighteenth century that Rome permitted the Copernican theory to be taught, and Galileo's books remained on the Index until a century ago.

In spite of his neglect of the actual application of scientific method to observation and experiment, Bacon's influence was great, inasmuch as he held that much of the evidence from which English investigators drew their conclusions had no basis in fact, and that, if progress was to be made, methods must be radically revised. The advice he gave in his *Novum Organum* was just the kind of advice to be expected from a great lawyer : first get your facts. His voice was that of a

great herald, compelling people to wake up, and startling them so much that they kept awake. He distrusted speculative hypotheses : nothing satisfied him that could not be brought to the test of verification and to the court of cold reason, and on every subject he brought to bear his incomparable power of cross-examination. \

#### LEONARDO DA VINCI

Many cultural contacts of science were manifest in the works of Leonardo da Vinci (1432-1519), who ranks as one of the most brilliant universal geniuses in the history of intellectual achievement. He was an ardent student and close observer of all knowledge, and he expressed his familiarity with it in his drawings and paintings. Not content with representing the outward appearance of Nature or of human form, he considered it part of his function as an artist to investigate the laws which produce these appearances or govern the form. He put the crown upon the artistic and mechanical arts of the two centuries before him, and was also a pioneer in the fields of observational and experimental science. His intelligent curiosity was insatiable, and he applied it into inquiring into all things, to experiment and verify, to let his eyes see, his hand express, and his reason judge. His anatomical drawings were referred to with enthusiasm by the great physician and anatomist, William Hunter.

Leonardo was also an observant botanist, who described in his great treatise *On Trees and Vegetation* the spiral arrangement of leaves on the stems of plants, and thus anticipated an order of growth of which the discovery is usually attributed to observers of a later age. He was the first also to observe and describe how the ages of trees could be determined by counting the rings in a cut trunk, and how these varied in symmetry because of variations of conditions of moisture and direction of the trunk during growth. This botanical knowledge, the result of acute observation, is embodied in his artistic rendering of plant life ; as also his

geological knowledge, which appears in his drawings of stratified, basaltic and other rock formations.

Sir Charles Lyell, in his *Principles of Geology*, referred to Leonardo as one of the first to apply reasoning to the facts of geology and to teach the organic origin of fossils. In his botanical and geological work, alike as in his studies in other scientific fields, he applied all the powers of his marvellous mind to observations of the objects and phenomena which surrounded him, and to the faithful recording of them by pen and pencil.

Of the contributions to geological science made by this renowned artist, sculptor, architect, engineer, geologist and physicist, it is recorded :

“ Leonardo da Vinci deserves an honoured place among the founders of geology, as one of the first who investigated the earth’s structure upon scientific principles. Not only did da Vinci recognize the true origin of fossils, but his artistic sense of form and his close observation of Nature revealed to him in the North Italian valleys the agency of running water in sculpturing the earth’s surface. He showed how rivers erode their valleys, and deposit pebbles on valley terraces ; how a fine detritus accumulates at river mouths, and plants and animals are buried in it ; how the organic remains then pass through physical changes and become petrified while the river mud hardens into solid rock, and finally the rock containing the embedded fossils rises above sea-level and becomes dry land.”<sup>1</sup>

#### GOETHE

Goethe (1749-1832), like Leonardo da Vinci, was an ardent collector of minerals, rocks and fossils, which he regarded from the point of view of a naturalist. His activity as a collector impressed upon him the importance of good maps, and the interest thus stimulated led to the preparation of mineralogical maps of several regions. As a geologist he gave particular attention to the problem of the history of

<sup>1</sup> Zittel’s *History of Geology and Palaeontology*. Translated by Maria M. Ogilvie-Gordon. (London : Walter Scott, 1901.)

the earth, but did not attach himself to the particular theories of either the Platonists or Neptunists of his day. Goethe strongly opposed the views of the nature of colour demonstrated by Newton's experiments with a prism. White light when passed through a prism is broken up into a series of colours, and was therefore interpreted as a mixture. Goethe held that the prism itself added something to simple white light, so as to give it the different tints seen, and he carried out a number of experiments to convince himself and his friends that his theory was correct. No one now, however, accepts his explanation of colour.

Throughout his long life Goethe never lost his interest in geology and mineralogy. He held to the principle of uniformity in Nature. He would not accept the evidence of changes of level of the earth's surface indicated by the markings of a marine mollusc on columns of the Temple of Serapis thirteen feet above the existing level of the Bay of Naples, but held that the former submersion of the temple had been due to an enormous flood.

In Goethe's time most naturalists held that animal species were unalterable units. Goethe, however, strongly opposed this view of the immutability of species, and anticipated the conclusions afterwards established by Darwin.

Goethe's study of plant structures also had much influence upon botanical thought. His view was that certain exterior parts of a plant pass into the form of an adjacent part wholly or to a greater or less degree ; thus, a stamen could be considered to be a folded petal, and vice versa. He regarded all leaves (foliage and floral) to be modifications of some "ideal form", though he gave no clear idea of what his "ideal form" was. Though this view is not now accepted, it stimulated research, and the conception of the origins of parts of a plant is still the subject of inquiry and discussion.

In addition to his work on the metamorphosis of plants, Goethe occupied himself with comparative anatomy, to which he made some notable contributions. As a poet and philosopher he was impressed with "the high achievements by which all the phenomena of Nature have been gradually linked together in the human mind", and his contemplation

of the complex problems presented by Nature is expressed in a remarkable rhapsody entitled *Die Natur*, a translation of which was contributed by T. H. Huxley as the opening article in the first issue of the English weekly journal of science, *Nature*, in 1869.

The spirit of Goethe's scientific thought studies is represented in the words of Faust :

“ The parchment roll, is that the holy river  
From which one draught shall quench the thirst for ever?  
The quickening power of science only he can know  
From whose soul it gushes free.”

## *Chapter Fifteen*

### SCIENCE AND THE HUMANITIES

Art and literature are usually confined to the expression of what are understood to be the eternal verities of life ; and, so long as this is so, they may change, but supreme standards of excellence may be reached at any epoch. In the fourth and fifth centuries before the Christian era, the works produced by the artistic and literary genius of the Greeks are masterpieces which will command admiration for all time ; and ancient Rome, as well as India and China, has each had its golden age of artistic and literary culture. In Western Europe architecture, painting and poetry have similarly reached summit levels of excellence at various epochs and then declined. Apart from development in technique and methods of presentation, progress in these arts of expression can only be in the richness of creative ideas, and this store is essentially an individual possession. Artists may aspire to emulate the paintings of Raphael or Leonardo da Vinci, but they cannot use the works themselves as canvases upon which to add their own conceptions.

Science, however, differs from the fine arts in the fact that every discovery extends the boundaries of knowledge and may be the starting point of further progress. It was upon the foundations laid by Kepler and Galileo that Newton was able to construct the universal law of gravitation ; and it is by the succession of such discoveries that science advances, while the picture it presents is continually being enlarged and amplified in detail. The time may come when art and literature will be moved by such achievements of the human mind to make manifest their real meaning, and the imagination will be so quickened by the spirit of man reaching out

to the stars that artistic and literary response to the beauty and mystery of Nature will be deeper and nobler than ever before.

But though workers in scientific fields know well enough how science touches art and music, how it may enter into literature and how it makes history, there is no like appreciation of science from representatives of these schools of thought and teaching. It is commonly assumed that devotion to science inhibits all understanding of emotional expression, and that familiarity with the structures and processes of Nature breeds indifference to her charms and destroys the aesthetic veil which gives her both mystery and beauty.

The highest gifts in poetry are, however, closely akin to those required for the highest achievements in science. Some of the greatest poets have been masters of the science of their time. Wordsworth, in a famous passage in the preface to his second edition of the *Lyrical Ballads*, looked forward to the time when modern science, having entered into the mental equipment of all cultured men, would inspire a new order of poetry, as philosophy and rural lore inspired Lucretius and Virgil, and mediaeval science inspired Dante. The two orders of mental effort depend upon the imagination, but, whereas the man of science uses his imagination to weave events into laws and relations which may be verified and also used to predict future action, the poet sees them in their relation to the human soul. "Poetry", as Wordsworth tells us, "is the wealth and fine spirit of all knowledge . . . it is the impassioned expression which is in the countenance of all science." It may be added that, whereas science aims at the discovery of pure truth, poetry, having this emotional content, aims also at satisfaction of the aesthetic judgment. It implies a certain form and a certain emotional effect, though the substance must also be truth.

Religion, like poetry and art, is an expression of the human spirit ; and though the scientific method may be used to examine its forms, the spirit itself cannot be submitted to measurable analysis. In this respect they differ from natural science, which is concerned with phenomena

affecting our senses and bringing observed relationships within the proposition of a general law. The two fields are separate from one another, yet they are complementary, and Canon Streeter has shown how each may combine in the representation of ultimate reality.<sup>1</sup> There is no attempt in his work to bring the cosmogony of Genesis into conformity with scientific knowledge, or to provide a philosophical basis for Christian beliefs. What he was concerned with was the apprehension of the human mind to the ethical or spiritual aspects of religion and art in contrast with those of science. The two views were beautifully expressed by William Watson in the words :

Science and Art, compeers in glory :  
Boast each a haunt divine.  
" My place is in God's laboratory."  
" And in his garden, mine."

While, therefore, science is concerned with ascertained knowledge, the facts themselves are not the material of enduring literature however brilliantly they may be presented, unless they bear the impress of the discoverer's personality or strike sympathetic chords in the human heart. That science is continually advancing and revealing new truth is to many people an irritating quality which requires mental effort to be understood. It requires scientific thought to realize the great significance of Kepler's harmonic law of planetary motion, but the words used by him in recording his discovery belong to fine literature because of the human feeling expressed in them. In 1618 he wrote :

" Let nothing confine me, I will indulge my sacred ecstasy, I will triumph over mankind by the honest confession that I have stolen the golden vases of the Egyptians to raise a tabernacle for my God, far away from the lands of Egypt. If you forgive me, I rejoice ; if you are angry, I cannot help it. The book is written ; the die is cast. Let it be read now or by posterity, I care not which. It

<sup>1</sup> *Reality : A New Correlation of Science and Religion.* By the Rev. Canon B. H. Streeter. (London : Macmillan & Co., Ltd., 1926.)

may well wait a century for a reader, as God has waited six thousand years for an observer."

It was, perhaps, because Kepler was a scientific mystic that he was able to ascend into the realm of the humanities. In his views of the universe he was narrow and superstitious, and was very different in these respects from Galileo, or even Bruno. His words may, therefore, be regarded as an example of "literature of power" as distinct from "literature of knowledge", following De Quincey's division, and they survive because of their human feeling naturally expressed. However lucid the exposition of a scientific theme may be, it is not considered to belong to cultural literature unless it represents such an emotional response.

In literary circles, indeed, it seems to be believed that the pursuit of scientific knowledge produces a cold and mechanistic type of mind altogether opposed to the throbbing and compassionate heart of life to which literature aims to respond. Even the knowledge itself is regarded superciliously because it cannot claim to belong to the eternal verities, though science can provide hundreds of arresting ideas which await beautiful expression by pen and pencil. With a few brilliant exceptions, however, men of letters of the present day are, broadly speaking, indifferent to the knowledge gained by scientific study, and unmoved by the message which science alone is able to give.

Poetry and other forms of literary and artistic expression once followed more closely on the heels of knowledge than they do to-day. Greek and Roman philosophers often expressed their ideas in poetic form or even in verse, and directed their imaginative faculties to the contemplation of general concepts. Poetry, philosophy and science all, indeed, began life together as children of one family. Early poets, like the authors of the books of Genesis and Job, dealt with the origin of things and the story of creation. The greatest singers of antiquity were the most alive to science.

It would be difficult to show that the horizon of men of letters of our own times has been extended by the inspiring advances in modern science. There is not much evidence in the works of our leaders of literature of assimilation of the

new knowledge, or even of the slightest sympathy with it. Occasionally one finds a reasonable attitude toward the age of science and invention in which we live, but more usually there is an absence of an outlook which will regard science not merely as a storehouse of facts to be used for material purposes, but as one of the great human endowments to be ranked with art and religion as the guide and expression of man's fearless quest for truth.

It can, therefore, scarcely be said that Wordsworth's vision has come true, and that literary genius has found inspiring themes in the great achievements of modern science. John Davidson, however, in his *Testament*, made some remarkable references to the structure of matter and the transition of substance to a condition of self-consciousness. But while so few of our masters of literature are responsive to results of scientific study, a rich field from which precious gems of thought could be derived is neglected. Among men of letters who have brought the human spirit into contact with scientific themes in works of prose are Thomas Hardy, H. G. Wells, Rudyard Kipling, Sinclair Lewis and Aldous Huxley. Also, in the works of George Meredith, John Masefield, Robert Bridges, Laurence Housman, and some other leaders, the fringe of such knowledge is occasionally the source of poetic expression. Fuller response to the growth of observational knowledge is found in Alfred Noyes, who, in the three volumes of *The Torch Bearers*, has given us a stimulating epic of scientific discovery relating to the heavens, the earth, and man's control of natural forces. In this work there is no lack of appreciation of the devotion of scientific pioneers to the cause of truth and their influence for good throughout the ages.

The disinterested pursuit of truth must have a high moral and spiritual influence in whatever field it is the motive of action. Because of the belief that this principle underlies all "scientific" study, the word itself has, in the public mind, come to signify accurate and systematic inquiry and sound conclusions based upon ascertained evidence. It is no wonder, therefore, that science is trusted, and that fifty

years ago there were many who hoped that its spirit would bring about progressive development of humanity and society. There was then a gospel of science as an attitude of mind altogether independent of its practical applications in constructive industry or destructive warfare. The implications of the new outlook were regarded with apprehension in some circles, but with encouragement from those who looked to science for guidance not only in the conquest of Nature but also in the progressive evolution of social ethics. Gaston Paris, the great man of letters who did so much by his philological studies to maintain the renown of French science, said at that time :

“ Science, in the circles where it is honoured and comprehended, does not restrict to men of science themselves the moral benefit which it confers. It diffuses in wider circles the love of truth and the habit of seeking it without bias, of recognizing it only by unalloyed proofs, and of submitting docilely to it. I think that no loftier or more fruitful virtue can be inculcated in a nation.”

In literary and other intellectual circles the general view is that men of science are materialists insensitive to beauty and incapable of deep emotion. They are believed to be blind to everything that makes life worth living to other people, and to know nothing of the artist's raptures or of the hopes and despairs of passionate natures. In the great company of prophets, seers and poets they are given no place. This view is perhaps not so common to-day as it was formerly, when science was commonly associated with materialistic philosophy and its ends were regarded as being purely utilitarian. An increasing number of people now realize that the conception of a great scientific theory may be as great and significant an achievement, as high an activity, as the creation of a great work of pure literature.

The change of attitude toward science is connected with the fact that mechanistic principles no longer dominate scientific thought. It is refreshing to the mind and hopeful for intellectual progress to know that science and philosophy are finding closer contacts than were encouraged in Victorian days. The multitudinous avenues along which science

has developed have increased a thousandfold its points of contact with the unknown. To account for the many and diverse values which confront it, the scientific mind has had to enlist the support of methods other than those which made the laboratory supreme. Studies of the atom and of the universe have made metaphysics an essential part of physical theory, and philosophic speculations have suggested and assisted profitable lines of inquiry in practical fields. Experimental work in physics has led to theoretical conceptions which suggest that the movements of atoms and electrons cannot be explained by mechanical models, and are just as indeterminate as human action. What was formerly purely metaphysical speculation has thus become a principle of natural philosophy. Developments in mathematical physics seem to rule out the mechanical idea of determinism in Nature, and the acceptance of this view brings physical theory into the field of discussion of the philosophical and theological aspects of free-will and determinism, or of the associated doctrine of predestination.

During the past fifty years the scope of scientific thought has been greatly extended. Mechanical principles are still usefully employed to describe natural structures and processes, but not to explain them. The membrane between the exact and the descriptive sciences—between philosophy and science—has been dissolved, and a sounder and more philosophic view of mechanism in Nature is now taken. The change has been brought about by modern work and conceptions in the field of physical science, and biological thought has been profoundly affected by it. If mechanism is understood not as the explanation of natural forces and events, but as a description of them in simple language, physics, chemistry and biology are reduced to the same terms. For the understanding of the forms and movements of living things, the mind may construct different pictures from those which seem to represent conditions in inorganic Nature, but in both fields it must be remembered that they represent purely conceptual inventions. Scientific knowledge has advanced through such conceptions; and so long as the limitations inherent in them are accepted, they may

be used to construct a mechanistic view of life. But, as Karl Pearson pointed out long ago :

“This does not mean that life can be ‘explained’ as mechanism—on the contrary, mechanism explains nothing, not even physical nature—but that the bulk of natural science is a description of change, of motion in time and space, and that the invention of comprehensive and brief formulae of motion is the function of mechanics. In this sense, it seems impossible to contrast mechanism and ‘vital force’, or to maintain any rigid line of demarcation between the physical and descriptive sciences.”<sup>1</sup>

George Henry Lewes put forward in 1874 a new doctrine which aimed at reconciling the claims of religion and science.<sup>2</sup> “The great desire of this age is for a doctrine which may serve to condense our knowledge, guide our researches, and shape our lives, so that Conduct may really be the consequence of Belief.” Religion is not to die, but to be transformed. The new religion “Instead of proclaiming the nothingness of this life, the worthlessness of human love, and the imbecility of the human mind, will proclaim the supreme importance of this life, the supreme value of human love, and the grandeur of the human intellect”. Lewes coined the word “meta-empirical” to signify the province of inquiries which transcend the ascertained or ascertainable data of experience. The word is an exact correlation of empirical and a useful addition to the language of philosophy. By keeping the distinction clear between metem-  
pirics and metaphysics, all mystery, it was suggested, will vanish from the universe, as the shadows of the morning fly before the rising sun.

<sup>1</sup> *The Grammar of Science*. (London : A. & C. Black, 1900.)

<sup>2</sup> *Problems of Life and Mind*. First Series. “The Foundation of a Creed.”

## Chapter Sixteen

### RELIGION AS A SOCIAL FORCE

Since the beginning of the great scientific movement of the nineteenth century, many attempts have been made to comprehend science and religion in one philosophic system. The problem may be approached from two points of view—one of which is based upon naturalistic reasoning and the other upon what may be termed inner reason or faith. Prof. Emile Boutroux discussed these different aspects in a valuable volume published thirty years ago.<sup>1</sup> Whatever the relation between religious belief and religious practice, the essential principle in religion is faith in the existence of spiritual powers or action which transcend natural laws and life.

To many people universal belief in such supreme powers is sufficient proof of their reality. There is, of course, a difference between arbitrary belief founded upon spiritual conviction and conclusions derived from verified and verifiable scientific observations and hypotheses; and it is difficult to find a common standard for the two outlooks. Prof. Boutroux suggested that they can be reconciled in the ideal of duty or service which summons us beyond the specifically human to a noble struggle and a great hope, an ideal which implies faith and charity, and demands a Supreme Being with whom mankind can be in communion. His suggestion may not satisfy the rigorously logical minds of scientific philosophers or theologians; nevertheless, it is in the light of service to such high ideals that science and religion may unite in a common purpose.

<sup>1</sup> *Science and Religion in Contemporary Philosophy*. (London: Duckworth & Co., 1909.)

In Christian communities conceptions of God represent standards of perfection by which devout believers strive to shape their lives. Doctrines and creeds crystallize these ideals, and they vary in time, place and circumstance. The ethical ideal and the conception of God, like the organic world, undergo development and differ according to chronological period, geographical distribution and social environment. In the beginning it derives its compelling force from reference to the claims and needs of a given form of society, and affords no guidance for conduct between man inside and man outside the group. This is well illustrated in the history of the peoples pictured in the Old Testament, in which the moral code imposed by the Decalogue is a matter for strict observance only as between the people of Israel. They are a "chosen" people; and neither the sanctity of personal possessions nor the injunction "Thou shalt not kill" effect the warlike and aggressive followers of Jehovah when they fall upon and despoil a neighbouring tribe.

These warlike attributes of a tribal deity have always appealed to certain types of mind; they are represented in many Christian hymns sung with fierce fervour to-day, and have been adopted as ideals in the God of aggressive Nazi Socialism. Even though "God is love" to the Salvation Army, "Blood and Fire" is the motto, and the fight against Satan and evil is organized through officers who assume the titles of "generals", "colonels", "majors", "captains", and so on, of military commissions. As this army devotes much of its attention to social services which are for the good of the community, the primitive character of its religious teaching does not matter much; and it is the only form by which it can make converts to its gospel. Any form of belief should be judged by its influence in creating a desire to attain high ethical ideals. The process and the standard may vary, but if they result in the individual or the general good they are helping human development by making men understand that they must help themselves.

The day is past since when all that was necessary was to "Believe on the Lord Jesus Christ and thou shalt be saved". More is now needed of a professing Christian than to accept

this formula. It is understood that man is the potential master of his fate, and that goodness is not to be measured by unreasoning faith in creed or doctrine, but by his life and works. In the highest sense of Christian teaching, service to God means individual and corporate co-operation with Him in fulfilling a divine purpose in the scheme of a universe in which life is an experiment and man a stage in it. This view of life's purpose as one of working with God was expressed in an article which appeared in *The Times* of April 29, 1939, being one of the Saturday articles on aspects of religion. In the words of the writer of the article, "To the inquiry, 'Why was I born?' the Christian reply is: 'Because in this world, as a training for some infinitely better kind of existence hereafter, God has given you a part to do in the accomplishment of His eternal design. You are helping or hindering Him daily by what you do or fail to do, and, even more, according to the kind of person you are trying to become. It is this possibility of working with God and of helping Him that makes your life, irrespective of its outward setting, infinitely worth while.'"

There is no question here of personal reward for goodness or punishment for evil, but only encouragement to work for a higher human destiny, and thus render service to God and to man. It is unnecessary to define God if this ideal is accepted as the purpose of man's existence; and any rationalist should be able to subscribe to it, even though his philosophy does not include a divine personality.

It cannot be said, however, that evangelical Christianity offers any encouragement to the view that man can do anything to work out his own salvation on the earth or make the world better by his own efforts. Justification for existence is believed to be found in faith alone, and the words of the Apostles are considered to be sufficient to establish this doctrine. The hope of this gospel is not through living an upright and noble life, consideration for others, or the promotion of moral virtues, but the confession of sin and acceptance of the vicarious sacrifice of Christ. "The Way of Life" as presented in the New Testaments widely distributed by

the Scripture Gift Mission and the Naval and Military Bible Society is to acknowledge "I am a sinner ; beyond self-help ; but the Lord Jesus can save me : He is the bearer of my sin ; because God loved me ; Jesus Christ is my Saviour ; I acknowledge Him as my Lord ; and trust Him to keep me."

Each of these steps to salvation in this world or the next is supported in *The A.B.C. of the Gospel* by verses from the New Testament. Neither self-help, nor help for others, is of any avail ; for did not St. Paul say, "By grace are ye saved through faith : and that not of yourselves. It is the gift of God : not of works, lest any man should boast." This teaching may have served its purpose, but it is obsolescent, if not obsolete, in Christian communities of the highest intellectual type of modern times.

There are many definitions of religion, and the idea which is common to all of them is not that of beliefs in divinity, gods or spirits, but of doctrines and practices which unite people into a group with a common faith. After detailed consideration of the characteristics of religious beliefs and rites—primitive and advanced—Professor Durkheim arrived at the following definition : "A religion is a unified system of beliefs and practices relative to sacred things, that is to say, things set apart and forbidden—beliefs and practices which unite into one single moral community called a Church, all those who adhere to them." <sup>1</sup>

According to this view, religion expresses the collective ideals of a society, and its ethical or moral influence results from active co-operation with the spirit of this sentiment. All categories of thought, including that of science, are thus regarded as of religious origin : they are all concerned with the realities and meaning of Nature, man and society. Scientific thought is thus only a form of religious thought derived from further knowledge. Science cannot deny the fact of religion or the influence of religious faith, but it may examine them and seek to understand them. With increase

<sup>1</sup> *The Elementary Forms of the Religious Life : A Study in Religious Sociology.* By Prof. Emile Durkheim. Translated by J. W. Swaine. (London : George Allen & Unwin, Ltd.)

of knowledge, much of the mystery upon which religious speculations are based is revealed, and new ideals or gods have to be constructed to satisfy the rational mind. It is only when there is a refusal to recognize this essential function of progressive knowledge that any conflict arises between religion and science. "That which science refuses to grant to religion", Professor Durkheim wisely says, "is not its right to exist, but its right to dogmatize upon the nature of things and the special competence which it claims for itself for knowing man and the world."

The general principle that social structure, and the collective conscience which utters itself in this structure, underlie all religion, was developed in a scholarly work by Dr. Jane Ellen Harrison on social origins of Greek religion.<sup>1</sup> With Professor Durkheim she showed that the Greek conception of a divinity was determined by the social system of the group by which it was formed ; and she traced the development from mystery-gods reflecting primitive collective feeling and thinking as to natural life and order to the Olympians, who represent man's creation of a social order in which ideas of morality and "goodness" are introduced. Before Zeus there was Themis, the personification of law and justice and the projection of the collective social conscience, and it was to her vague shape that the Greeks expressed their emotions before they gave form to an Olympian god. The "High Gods" of Mount Olympus represent the patriarchal form of society, with Zeus, father of gods and men, as their head. He was the sky-god, Father-Heaven, but earlier than he was Themis, representing Mother-Earth and the matriarchal system of social structure centred in her is preserved in the Divine Mother of the Roman Church.

Much has been written in support of the view that matriarchy—the rule of women in a given society—was the original form of human association in social structure. It is held that, although a man would be needed to lead the horde, yet, owing to the transitional character of early

<sup>1</sup> *Themis : A Study of the Social Origins of Greek Religion.* (Cambridge : The University Press, 1912.)

matrimonial unions, property, as represented by place of abode, hut and its contents, would be in the hands of the women, through whom also, owing to the uncertainty of paternity, descent would be traced. The conclusion as to priority of the matriarchate type of social organization is based partly on the evidence of certain survivals in patriarchal societies, which are supposed to point to the pre-existence of, and a change-over from, matriarchal conditions ; but support is also found for this view in the frequent occurrence among primitive peoples of the custom of tracing descent through the mother, and the vesting of control of the family affairs not in the father, but in the mother's brother.

The view of an " evolutionary " development in which the matriarchate precedes, but gives way in a large number, if not in a majority, of instances, to the patriarchate is, however, not now generally accepted. In the history of the development of human societies some have probably always been matrilineal, while others have followed the paternal line of inheritance, for reasons appropriate in each. The simultaneous occurrence of both the patrilineal and the matrilineal systems of descent side by side for different purposes, as happens frequently among certain of the African peoples, it is now generally concluded, is due not to survival in an " evolution ", but more probably to a fusion of two peoples following different systems, one type surviving for certain uses, the other for certain other purposes.

When different groups of people mix with each other, an amalgamation of social customs and religious cults usually follows in the course of time. There are many instances of this, both in ancient and modern times. Rites associated with fertility and sex are common in most early social and religious structures, though the form they take may differ widely and are moulded by existing circumstances of life. Though, in classical Greece, Dionysus, who corresponded to the Latin god Bacchus, represented fruitfulness, his cult was essentially a woman's cult. This is shown in the legend of Pentheus, king of Thebes, immortalized by Euripedes in the play *The Bacchantes*, in which the king is torn to pieces

for his rashness in prying on the mysteries by the votaries, with his own mother at their head, and opposing the orgiastic rites. He had violated the tabu of the divine brides.

Dionysus personifies the exuberant fertility and vitality of animal life and vegetation. The cult is recognized as an accretion on a form of religion, in which the members of the Olympic pantheon obviously belong to a circle of sky-gods with attendant deities, such as Hephaistos, the god of fire. The Dionysiac cult, however, was in part a rustic cult, as was shown by its connection with the drama, which arose from the folk-play. Dionysus himself was not an Olympian. The introduced cult celebrated with orgies was amalgamated with the native fertility cult. The importation, even if the tigers attendant on the god did not point to an eastern derivation, would betray its oriental origin and character by the bands of inspired or maniac female attendants who accompany the god, and like the temple prostitutes are his brides.

In their world-wide distribution and their appearance in all ages, phallic cults, in which organs of sex symbolize the generative principle, are of the greatest significance for the human associations in the development of conceptions of the Divine. The rustic element in the Dionysiac cult in Greece appears also in the religion of Rome, in which an early stratum in that highly composite product of belief, associated most closely with agriculture and horticulture, consisted of the rustic deities to whom were entrusted the guardianship of fields and gardens, their boundaries and their crops. Often the statues and representations of these gods were of the crudest and roughest description, no more than a stone pillar or post, but invariably the character of their cult and their purpose in relation to fertility were plainly and prominently indicated by the presence of the phallic emblem.

Though changes in social structure and religious beliefs associated with it may come from within, they are more often the result of contacts from without, that is, by the impact of cultural or racial intrusion. In this respect most societies and religions represent amalgams rather than con-

tinuous evolution of characteristics of single elements. Christian societies have thus developed along different lines according to the conceptions of different peoples, and they all include survivals of popular paganism. Although Christianity had "one foundation", the impact of Celt and Saxon in Great Britain produced entirely different types of belief and worship in Ireland and north and south Britain.

It was a development of the native religion under the influence of the new teaching, and not an imposition of, or conversion to, Christianity itself, which produced these different attitudes of mind. In Ireland, for example, where Christianity impacted upon a number of local cults, the saints took the place of popular deities, whereas in the north of England, where it encountered the more highly organized and centralized faith of the tribal religion of the Nordic settlers, it produced a form which stressed the importance of the Supreme Ruler—the Chief—while in the south there was something of a compromise where Saxon and Celt met in the south-west.

Long before the introduction of Christianity the Aryan-speaking peoples had their "High Gods" and Supreme Ruler, and it is more than probable that the attitude of mind, which was natural to people holding such beliefs, played a part of no little significance in determining the course of many currents in later history. In most surveys of the origins and spread of the Christian belief in Europe in the early centuries of our era, it is usually overlooked that the earlier missionaries could have been in close personal touch only with the rulers and chiefs of the tribes and peoples to whom they were sent by the Church authorities. Hence in the wholesale conversions of peoples, which are said to have taken place among these pagan races, when several thousands were converted to Christianity and baptized on a single occasion, it is evident that, unless we are to believe in a direct and complete change in mental content by divine intervention (as many do), the amount of knowledge of Christian doctrine and ritual present in the minds of individual members of the general population, or tribe, must have been very small, if, indeed, any existed.

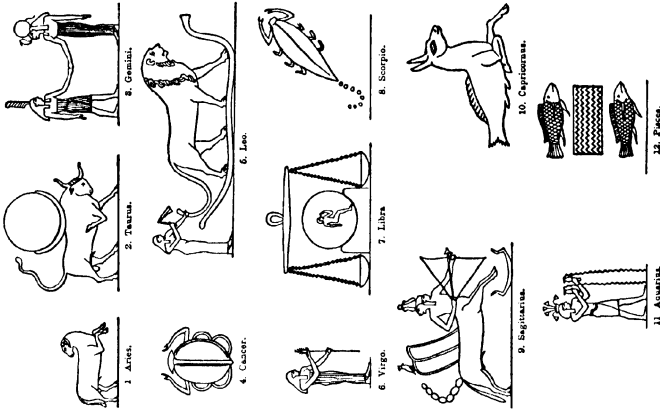
It is known that the missionaries, as for example, St. Patrick, did as a matter of fact harangue the people as a whole ; but from the nature of the case the chiefs alone would have had any opportunity of acquiring anything more than the merest superficial acquaintance with Christian teaching and mode of worship. This would have percolated to the general body of the people only with the advance in organization of the local Church body and the growth of familiarity with the form and content of Church worship. In the meantime, the continued prevalence of pagan ideas among the rank and file would determine their attitude to the unknown, and remain so deeply engrained in their mentality as to influence deeply the form which Christian belief would assume in their minds when finally it became more than a name to them.

As the bulk of any given population is descended from the tribal common stock rather than from the chieftain and noble class, it is not surprising to find that the popular religion of the European countries, especially perhaps in the north of the continent, where the contrast between paganism and Christianity in its early form was most marked, contains a large number of what the folklorist terms "survivals", showing evidence of its varied cultural origins.

The elements of ancient oriental faiths were taken up and transmuted by Christianity. Sir James Frazer has traced the development of the distinctive cults of ancient Syria, Phrygia and Egypt into other faiths in the volume on Adonis, Attis and Osiris in *The Golden Bough*.<sup>1</sup> Both Buddhism and Christianity represent ethical revolutions, aiming at a higher life for mankind ; and human nature effects a compromise between the old and the new ideals. Referring to these two faiths Sir James Frazer says :

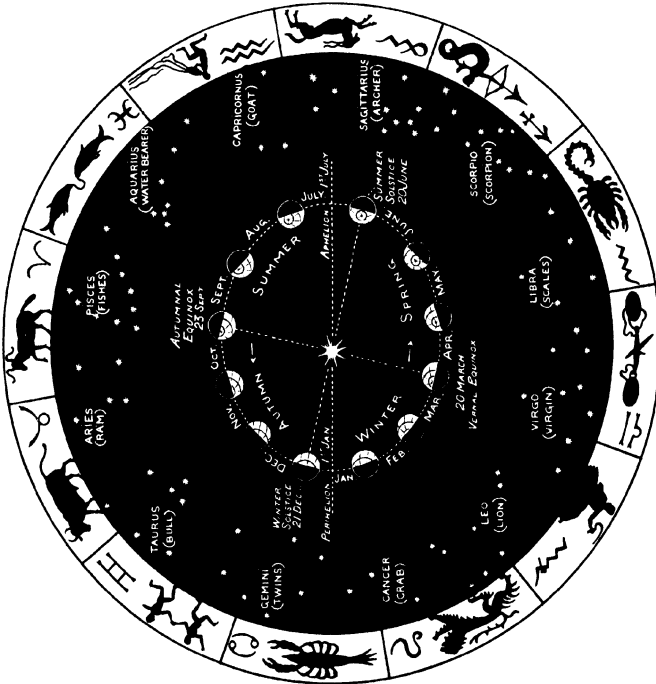
"Both systems were in their origin essentially ethical reforms, born of the generous ardour, the lofty aspirations, the tender compassion of their noble Founders, two of those beautiful spirits who appear at rare intervals on earth, like beings come from a better world to support

<sup>1</sup> *The Golden Bough: A Study in Magic and Religion*. Part IV. "Adonis, Attis, Osiris." (London: Macmillan & Co., Ltd., 1914.)



From Sir E. A. Wallis Budge's "Gods of the Egyptians" (Melhuem)

Egyptian signs of the Zodiac



Constellations and signs of the Zodiac in relation to the earth's annual course around the Sun. The Zodiacal signs and constellations no longer coincide



and guide our weak and erring nature. Both preached moral virtue as the means of accomplishing what they regarded as the supreme object of life, the eternal salvation of the individual soul, though by a curious antithesis the one sought that salvation in a blissful eternity, the other in a final release from suffering, in annihilation.”

## *Chapter Seventeen*

### UNIFYING INFLUENCE OF PRIMITIVE FAITHS

Something of the different ways of looking at a "fact" may be gathered from the attitude of the different phases of belief towards such a phenomenon as pain—one of the stumbling-blocks of the philosopher. To the materialistic man of science pain arises from a specific material cause, which can be diagnosed from previous experience, from inspection, or by further research. In the less sophisticated forms of belief in western religion, pain, both physical and mental, has been regarded as a trial sent by God, as Job was tried, to test faith and to exalt and purify human nature.

This belief that pain and disease originate from the action of a Divine Spirit is an act of faith, which is interesting when brought into relation to the beliefs of the peoples of simple culture. When, for example, an Australian aboriginal is ill and suffers acute pain, he seeks the assistance of a medicine man, who by conjurations of one kind and another, but especially by suction with his mouth, draws a stone, or a crystal, or some foreign substance from the body of the patient. An enemy has been responsible for the introduction of this foreign substance into his body, or in the words generally used by those who have recorded the facts, he has been bewitched. Broadly speaking this, or something analogous, is the theory of disease held by most of the less advanced peoples, both in the past and to-day, and it will be found to prevail widely among the less educated of modern European peoples.

Although in the more primitive forms of this belief, the introduction of something foreign into the body of the patient

may be due to the action of an enemy, it may sometimes be caused by the infraction of a tabu, or even, as among the European peasantry when visited by illness, it may appear to happen gratuitously. The point of importance in this connection, however, is that although it is sometimes said that such a view of pain and disease is materialistic in the sense that something material—in the crudest form a stone or crystal—has been introduced into the body, which has to be expelled, the significant element in the belief is the spiritual power that lies behind it all. This is the true efficient cause, and it is the faith in this power to create such a situation, as well as in the power which can alleviate it, that constitutes the crucial fact. The production of the crystal by the medicine man at the close of the operation may be the material “proof” that the case was as diagnosed by him, but this theory of disease and cure derives its validity, not from the “proof”, but from the coherence of the explanation with the general theory of a world in which there are spiritual forces through which such things can happen. To hold to such a theory is an act of faith and in essence a religious belief, although there may be no overt act of worship, which some would make a criterion of religious belief, like attendance at or membership of a church in modern European civilization.

If this be a correct view, it would seem that in form an act of faith expresses a constant orientation of the mind of man throughout his history, from the purblind gropings of primitive man in his attempts to explain the happenings of the physical world around him, to the highest forms of religion and the speculations of philosophers, such as Socrates and Plato, and the modern theistic systems which find in scientific hypothesis and ontological theory a gradual unfolding of the divine purpose which underlies the phenomena of the material universe.

It follows then that if the form, an act of faith, is constant, in religious belief, if it can be regarded as evolving (the commonsense view, but not necessarily the anthropological view), it is not the form but the content that develops. If we select a monotheistic faith as the highest development of

religious belief, the content of an act of faith can be shown to progress from a belief in a vaguely conceived, but powerful, assemblage of spirits, embodied in the whole world of Nature, to that in a single omnipotent, omniscient and omnipresent deity. In brief, it progresses from animatism or preanimism, through animism to ancestor and hero-worship, thence to polytheism and a pantheon such as that of Olympus, in which one god may be the ruler, to dualism, such as Zoroastrianism with its principles of good and evil, and to monotheism, with or without fallen angels and a devil.

In the sense of this ascending scale we might speak of "higher" and "lower" forms of religion. This involves, however, the assumption, which may or may not be justifiable, that monotheism does really represent the highest form of belief of which man has as yet shown himself capable. This would be in accord with western philosophy, which seeks to formulate a single principle or "being" as basic in the universe—the Absolute.

Any attempt to assess religious values except by form and object, that is, an act of faith as form, spirit or spirits as object, may involve a departure from the objective point of view, which it is the aim of scientific study of man to maintain. For example, such a departure is inherent in a judgment which regards a religion as debased because it practises human sacrifice, cannibalism, head-hunting or temple prostitution. Such practices and rituals are not then condemned because they fail to obtain observance from the adherents of the religion in question—as they would deserve, if they failed, for being impotent, as "thou shalt not suffer a witch to live" is now impotent—but because they do not conform to the ethical standards of a western civilization.

This was the point of view of the sixteenth-century writer, who directed the attention of the reader to "ye beastlie devices of ye heathen". The respect for human life and personality, which lie at the root of attempts to check such practices in British colonial possessions, are derivative from an ethical system based on Old Testament teaching, so far as accepted by Christianity, and even now not wholly

adopted in practice by southern and eastern Europe. The suppression of such practices may be expedient, because the imperial government has the power, and believes it has the right, to suppress practices which are repugnant to its system of ethics, but not because they are of the devil or "irreligious". They are intensely religious when considered in relation to their own and peculiar environment.

It may be objected, however, that this line of approach, which rejects the Christian, or any but its own standard of ethics as a test of a given system of religion, is fitted only to the purpose of a student of a specific culture or group of cultures; for in order to attain objectivity it sacrifices the evidential value of cultural studies as contributory to an understanding of the mechanism of progress in the civilization of mankind at large. It is this which it should be the aim of general anthropological study to pursue, unless the science is to become merely a congeries of departmental studies, each directed to a specific people or a specific culture.

Setting aside for the moment the comparative method employed by Sir James Frazer, various lines of inquiry suggest themselves to meet such a criticism. To those who still hold that there is much to be said for the Darwinian concept of the struggle for existence as a prominent factor in the mechanism of evolution, a sociological criterion may afford a basis for the evaluation of a religious system. Religion, as its etymological derivation indicates, is a binding force in the community. Indeed, in a primitive community it may be said to be the binding force *par excellence*. This can be seen most significantly in the relation of social group and individual. Throughout the vast collection of facts relating to human races and customs, brought together during the last forty or fifty years, the outstanding feature is the way in which ritual, belief, social organization and the technique of living emphasize the importance of the group and subordinate to it the claims of the individual, except in so far as he stands in relation to or is a member of the group. Instances could be multiplied to the point of weariness. Certain of the more significant will suffice.

In marriage in Africa—the principle holds good for almost any of the African peoples, but take the Amazulu custom as recorded by Bishop Calloway—the bride-price goes to the father, not as parent and individual but as the representative of the family group, who share, while the cattle which form the bride-price come from the herds of the family group of the bridegroom. In the preliminaries—the marriage settlement and the ties and relations arising therefrom—time and again the rights and duties of the group are emphasized where in a western individualistic community the individual would appear.

Again, in the customs and rituals of a hunting or agricultural community, of which a vast number of instances have been brought together by Sir James Frazer, observance of the ritual, or the *rationale* of the belief, is inseparably bound up with the fact that the welfare of the whole community is made to depend upon it as an insurance of the food-supply. It is not intended to ensure the success of the individual *per se* as a hunter, or of the prosperity of the farmer as independent from all the other members of the community.

The supreme instance of this communal interest embodied in an individual and his state and actions is that to which Frazer's whole inquiry leads—the king or chief who is sacrificed for the good of the community when his powers begin to wane, or he is attacked by disease. A young and vigorous successor may then take his place, and thus prevent the crops from losing their fertility and the flocks and herds their vigour and ability to increase and multiply in sympathy with the declining powers of their ruler.

In parenthesis, it may be pointed out that an interesting instance of such a link between ruler and people, and the consequent close inter-relation between religious system, social organization and ethical standard, is afforded by the present situation in eastern Asia. Here in China and Japan western democratic institutions have been introduced into countries in which the ruler was regarded as the embodiment of a divine principle. No effort was made, or at least with success, to secure at the same time a reorientation of the attitude of mind of the people (assuming that such a thing

would have been possible) to bring it into accord with the social and ethical systems in harmony with which western parliamentary institutions had developed and which, it is more than probable, are essential for their successful working.

China was a country in which the really effective of the several religions professed was a system of ancestor-worship culminating in the person of the emperor as the embodiment on earth of all the divine ancestors. As such he commanded the loyalty and intense devotion of his people. His deposition was something of a paradox ; but the work of young China deprived the people of the central symbol of their unity—the tie which made them a nation. Notwithstanding the efforts of Yuan Shi Kai to substitute the symbol of the people as a whole and the country as the object of the individual's devotion, bereft of its emperor, China rapidly fell into a state of disunion and disintegration. Similar conditions to those of China prevailed in Japan, where the State also centred in the divine person of the emperor. The emperor, it is true, was not deposed, but parliamentary institutions were an infringement of his divine prerogative. Hence the clash between the parliamentarians and the military party, which has led to a number of conspiracies, and threatens to destroy the country through military ambition—if it does not make Japan the ruler of a considerable part of the world. In neither event will it be the Japan of which the whole culture centres in the divine person of the Mikado.

To return to the individual and the group, and one last, most telling, though not very obvious, example of the relation. Here at first sight the claims of the individual appear in part to override the claims of the group. Among the Australian tribesmen, when certain animals fall a prey to the hunter, they can be eaten—or certain parts of them—only by the elders or by certain groups. This right is not conferred as a privilege of the individual. It is their prerogative as the elders, who are responsible for the policy and government of the tribe, and whose wisdom and knowledge, therefore, are essential to its continued existence.

It is easy to see that the supremacy of the claims of the group over those of the individual may become no more

than a convention, as family ties are tending to become at times in modern western civilization. These claims are certainly breaking down in South and East Africa, where the natives are attracted away from their homes by the call of labour on the farms and in the mines of Europeans. Not only are they thus being weaned from the control of their tribal chiefs and family groups, but they are being accustomed to the idea of individual earning. In the community, however, which retains its traditional organization and atmosphere, the grip of the convention is unrelaxing. Among Australian tribesmen, even the hunter who is responsible for the kill would prefer to suffer extreme privation rather than partake of an animal which custom reserved for the elders. When an emotional attitude of such overwhelming force is involved, it is no exaggerated use of terms to describe the group tie as a religious force, binding the group together, especially when it is reinforced, as it usually is, by a wealth of sentiment, tabus and positive injunctions.

Now this basic element of a group-binding force, which possesses an emotional colouring that warrants it being regarded as in essence religious, may provide the clue to a test of the character and value of a system of religious belief and ritual, as an element in human progress. It is true that this is a sociological test and not theological, and possibly on that ground of greater objective validity. In a primary sense a religion is to be described as good or bad (or whatever terms may be chosen as best emphasizing the distinction, such as progressive and static or non-progressive) according as it promotes group solidarity and group qualities which will enable the group to survive. The struggle of the group for existence is against (1) Nature, in a food-gathering, hunting or agricultural community, and (2) against other communities, usually in the more primitive communities in tribal war to retain its water-holes, hunting grounds or agricultural lands, in more advanced communities in commercial or industrial rivalry or in organized warfare.

On the subject of war, it is worth while to remark here that primitive communities are not as a rule warlike. They

usually respect one another's water-holes and hunting grounds, but trespass leads to *mêlées*, not organized battles. Head-hunting may be the reason for individual or tribal raids, and may possibly lead to blood feuds. Blood feuds usually involve family wars, which may be continued over a long period and may eventually involve a whole tribe. Aggressive, organized raids usually belong to a higher or barbarous culture. The Indians of North America used to make such raids for scalps and loot ; but scalp-hunting is a modified form of head-hunting. Organized aggressive warfare comes in at a still higher stage of tribal progress, especially if it has for its object territorial aggression and acquisition. The occupation of the lands of a weaker and less advanced people, such as has taken place in Bantu Africa, is usually a racial migration rather than a territorial conquest.

In the struggle for existence of societies, if religion contributed to the qualities which promoted the survival of a community in relation to Nature and to other communities, it was of no less importance in promoting and fostering, among its own members, the characters and dispositions which would contribute to the stability of that community.

Here, again, the simplest culture of which we have direct knowledge, the Australian aborigines, affords one of the most striking examples. In the Australian tribes, women, as among most primitive peoples, and others, were the most frequent cause of quarrels among the men. A quarrel which started between two men might flare up and rage until all the males of the tribe, or at least all except the elders, were ranged on one side or another, and a regular pitched battle ensued. Such quarrels undoubtedly would have been of much greater frequency had it not been for the fact that the aborigines, simple people as they were, had a most complicated marriage system, which it is difficult for the ordinary civilized individual to unravel. Briefly, it was an elaborate system of what might be termed "forbidden degrees", in which the tribe was divided up into a number of groups and sub-groups, between certain of which marriage was permitted, but at the same time forbidden with all

others. Transgression of these prohibitions was regarded with horror as incest.

By this complicated system of divisions the fancy of the young tribal Romeo was constrained from wandering at will among the tribal Juliets, but had to confine itself to a single group, which probably at no time was very large, and now in the reduced number of the aborigines is very small. If, however, choice was thus restricted, it was at the same time guarded against the rivalry of others. Virtually each man was assured of a mate as from birth. This circumspection was a matter of the strongest religious feeling and surrounded by stringent tabus. It must have eliminated much tribal strife and ill-feeling. Obviously a community which can impose an ethical standard of behaviour that will eliminate so dangerous a potential source of internal strife must hold a strong and favourable position in survival value, as compared with one in which sexual strife is a frequent occasion of trouble. The survival of the Australian aborigines in so harsh an environment as Australia seems to lend support to this view. On the other hand, a belief in witchcraft is strongly anti-social, and in Africa to-day not only does it give rise to internal suspicion and distrust, but it also leads to weakening of the tribe through the massacre at times of even hundreds of inoffensive individuals.

Taking these two instances alone, we find in Australia what amounts in emotional intensity to a religious belief reinforcing a social regulation which in its effect is a respect for the rights of others—in other words, a sense of justice. Conversely, in the African belief in witchcraft an emphasis is laid on the need in a community for a belief in the integrity of other members of the tribe, accompanied by a respect on their part for the rights, well-being and personality of others against which the evil doings of the witch are directed.

Another belief which may be considered in this connection is tabu. Without entering into detail it may be said that, as practised in the islands of the Pacific, it has a wide and varied function. It may render the person and possessions of the chief inviolate. Its infringement may bring disease or other

penalties. It may be used as a protection of, or it may be the means of guarding, the property, such as the fruit trees, of the humblest individual in the community. Hence from the tabu arise loyalty and reverence for the chief, while honesty, in deed if not in spirit, may equally be an outcome of this religiously inspired fear of consequences.

Here we see how, from the religious feeling which underlies social regulation even in its simplest forms, a rudimentary ethical code is being built up, which not only promotes the well-being of the community internally, but in relation to other communities gives it an advantage in the struggle for existence over those which internally are less well or successfully adjusted. By this code are regulated the personal standards of the individual, his relations with his fellow-members of the community and his relations with the community at large.

The anthropologist may hold the view that for his purpose as a student of cultures, each of these systems must be considered *per se* and in relation to its particular social environment and cultural status. From the higher point of view of the development of religious and ethical ideals it is, however, possible to see in these crude systems of the simpler cultures, the germs of the fundamental principles of personal devotion to an ideal, justice, tolerance and respect for others and their personalities and ideals, in short, general fair dealing, of which the gradual unfolding can be traced as common elements underlying the most diverse forms of belief, and culminating in the ethical systems and the beliefs of the great religions of the world's history. In tracing this development it may be possible to discern wherein by falling short of the attainment of this ethical ideal in practice, these great religious systems have failed to command the full assent of those who are within, but not always of, their body.

## *Chapter Eighteen*

### OLD DOCTRINES AND NEW INTERPRETATIONS

Though the rites and sanctions associated with religion are important factors in social development, they do not necessarily imply belief in a god ; for Buddhism and Confucianism are ethical systems which guide the ways of living of millions of worshippers without such a belief. From the point of view of the community, the purpose of religion is to bind people together and to promote their common welfare. Its essential function, therefore, is the continuance of the human species by social service. In so far as asceticism signifies introspective contemplation in the interests of individual souls, it has little social value. Though it may represent an exalted type of betterment of individual life, it despises all that has been done by science for man's physical comforts, and finds satisfaction not in work for others, but in self-absorption in a universal abstraction. This does not apply to the modern Christian ascetic, who may be absorbed in a beatific vision, but not always in a universal abstraction.

Ascetic practices can, indeed, serve a good purpose in religion and in society by providing models of disdain of what are regarded as animal appetites in order to attain a condition of communion with the divine. They are examples of the repression of the body by the mind or the attainment of sanctity through suffering, as gold is refined by passing through the furnace. Among many primitive peoples, the pain endured and the mutilations inflicted are intended to add bravery and strength to performers in a sacred ritual. Such acts of violence to natural instincts raise men above

themselves, and have both a social and a religious significance.

To the Christian, sorrow is a means of purging the soul ; to the Buddhist, pain must not be self-inflicted, but the body can be raised above it by emancipating the mind from all that belongs to animal nature ; and to primitive people the purpose of personal suffering is to create additional strength of mind over body. " In fact ", as Professor Emile Durkheim says, " it is by the way in which he braves suffering that the greatness of a man is best manifested. He never rises above himself with more brilliancy than when he subdues his own nature to the point of making it follow a way contrary to the one it would spontaneously take. By this, he distinguishes himself from all the other creatures who follow blindly wherever pleasure calls them ; by this, he makes a place apart from himself in the world." <sup>1</sup>

To the mind that accepts the " universal " as unchangeable and aims at perfect absorption into it, prayers and sacrifices for protection against calamities or for the favours of Nature make no appeal. In contrast with this egocentric impassivity are the expressions of religious awe and consternation with which strange celestial phenomena are commonly greeted. Whenever the sky presents an unusual aspect, or an alarming object appears in the heavens, it is interpreted as an expression of Divine wrath or favour requiring human recognition.

When Jeremiah exhorted the people of Israel " be not dismayed at the signs of heaven ; for the heathen are dismayed at them ", it is believed that he referred to a comet. It is not surprising that the appearance of such an unusual object or any phenomena disturbing the apparent serenity of the heavens, should have been universally regarded as a supernatural sign of portent or disaster and be interpreted as a celestial warning to the peoples of the earth. While, however, they were seen with dismay, they were used also to induce acts intended to propitiate what was believed to

<sup>1</sup> *The Elementary Forms of the Religious Life : A Study in Religious Sociology.* Translated from the French by J. W. Swain. (London : George Allen & Unwin, Ltd.)

be signs of anger of deities at human iniquities. What was thought to be the cause of the anger, and how to appease or interpret it, depended upon the conditions of the times. From a religious point of view, it meant a call to repentance for evil ; and this admonition is represented by the inscription on a medal struck to commemorate a comet which appeared in 1472 :

“ God grant us from this comet-blast  
To learn amendment of our ways.”

These views concerning the influence of comets were held not only by teachers of religion, but also by other leaders of thought, including scientific writers. Shortly after the murder of Julius Caesar a comet appeared, and the belief in the association of the two events was referred to by Shakespeare in the lines :

“ When beggars die, there are no comets seen ;  
The heavens themselves blaze forth the death of princes.”

Josephus records that a comet hung over Jerusalem in the year A.D. 66, while the city was being besieged by Titus ; and the bright comet which appeared in 1066 was interpreted by William of Normandy as a sign of the coming conquest of England. Both these comets are now known to be the same object coming into view at intervals of seventy-six years. The same comet will appear again in 1985.

It is estimated that about one-fourth of the population of Europe, and fully one-half of that of England and Wales, were swept away by the Great Pestilence, or Black Death, in the years 1348-1349. This fearful epidemic of what is now known as plague took an equal toll in India, China and Persia before it reached Europe, and was connected in the East with great earthquakes and unusual atmospheric disturbances. It was associated in another way with important historical events. Edward III was at the height of his renown. France had been defeated at Crécy in 1346, and Calais was taken in the following year. By the irony of fate, the plague was first brought into England through ships from Calais to the small port of Melcombe

Regis in Dorsetshire. While, therefore, the martial successes of Edward III were being triumphantly celebrated in England and the Order of the Garter was established, France had its revenge by infecting England with a scourge far more deadly than that of human weapons of conquest.

At that time the chief defences believed in against plague were prayer and fasting. "To cure the malady," wrote Boccaccio, referring to Florence, "neither medical knowledge nor the power of drugs was of any avail, whether the disease was in its own nature mortal, or that the physicians (the number of whom—taking quacks and women pretenders into account—was very great) could form no just idea of the cause, nor consequently ground a true method of cure." Inquiries into the nature and origin of the disease were made by many physicians in various countries, but it is not surprising, in the light of modern medical knowledge of infection by micro-organisms, that the true agents of transmission were undiscovered.

In the absence of any knowledge of the real nature of the disease and its cure, it was natural for both laity and clergy to turn to the supernatural and to regard the scourge as a sign of divine displeasure. Everywhere in Christendom, therefore, people were urged to unite in prayer and walk in solemn processions "with heads bent down, with bare feet, and fasting; whilst with pious hearts they repeat their prayers and putting away vain conversation, say, as often as possible, the Lord's Prayer and Hail Mary". The mortality of the clergy in England from the epidemic seems to have been proportionately greater than among the laity, so that they were particularly enjoined to do penance for having "justly provoked the Divine wrath by a multitude of sins to this chastisement".

Cardinal F. A. Gasquet, a leading Roman Catholic authority on English history from medieval times to the Reformation, suggested that the Church needed such a catastrophe as that of Black Death to secure a revival of the Holy Spirit. The immediate effect of the pestilence was religious paralysis; for the righteous priests and nuns were struck down while evil-doers often survived. Unbelief in

the value of prayer as an effective means of preventing or treating the disease led to a condition of despair of divine intervention, and the growth of a new sense of human responsibility and independence. After the scourge had swept over the land, there was such a lack of labour available to till the ground that the working classes were able to claim wages and rights which had not before been given them.

On account of the great mortality among tenant farmers and the labouring classes generally, the traditional plan of cultivation had to be given up and a new system of land tenure introduced. "The people all at once learned their power," says Cardinal Gasquet, "and became masters of the situation, and although for the next thirty years the lords and landowners fought against the complete overthrow of the mediaeval system of serfdom, from the year of the great mortality its fall was inevitable, and practical emancipation was finally won by the popular rising of 1381."<sup>1</sup>

It is to the credit of the clergy of those times that they supported the people in securing the civil liberties which the great mortality gave them an opportunity of claiming. Their own dues had been reduced by the death of a large proportion of the people who had paid them, so that they had a common cause with the labourers and other classes in demanding increased payments for their services and freedom from restraints upon their liberty. With the social changes thus brought about, there was also a revolution of religious feeling and practice, the nature and significance of which are said by Cardinal Gasquet, in his work on *The Great Pestilence*, to have been "characterized by a more devotional and more self-reflective cast than previously".

All existing institutions were shattered by the great tragedy of the plague, but they were afterwards constituted on a broader and better basis. Regarded as a divine judgment upon a corrupt world, it was a failure; for, as Archbishop

<sup>1</sup> *The Great Pestilence* (A.D. 1348-1349), now commonly known as the Black Death. By Francis Aidan Gasquet, D.D., O.S.B. (London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd., 1893.)

Islip said at the time, "whether by chance or Providential design it strictly spared the most wicked". From a biological point of view, however, those who survived—whether just or unjust—were those best constituted to resist infection; and it was they and their descendants who created a new world out of a social and religious catastrophe. They owed their survival not to confession of sins or prayers for divine favour, but to the defences with which they had been endowed by Nature through their parents.

Indifference to the world and events in it, and contempt for all knowledge except that derived from spiritual experience through personal communion with the Supreme Being, are the characteristics cultivated by the mystics of all religions. The spirit is that of "weary of earth and laden with my sin", and of renouncing all associations with what are regarded as human desires and aspirations, to ensure ineffable union with what is conceived to be the divine nature.

The famous medieval work, the *Imitation of Christ*, ascribed to the fifteenth-century revered Augustinian monk, Thomas à Kempis, and translated into almost as many languages as the Holy Bible, is a supreme example of the expression of this type of piety or mysticism, in which historical writings, scientific knowledge, or any other intellectual considerations count as nought beside religious feeling from within. There is much wise advice and guidance in the work, for those in the Church and outside, but the main exhortation is that nothing done in a world which passes away is worth while in comparison with the joy of everlasting life in the world beyond the grave. "Better, surely," says Thomas à Kempis, following St. Augustine, "is an humble rustic that serveth God, than a proud philosopher that, neglecting himself, studieth the course of the heavens."

Auguste Comte (1798-1857), the great French philosopher, esteemed the *Imitation of Christ* as a noble mirror of devotion, and read a chapter of it every day, but for God or Jesus he substituted Humanity. He went so far as to modify some of the admonitions of the *Imitation* to fit his

new Religion of Humanity, thus : "Let me love thee, Humanity, more than myself, and myself only for thee. The noble love of Humanity impelleth us to do great things, and exciteth us always to desire that which is most perfect." Even with regard to the study of the heavens, Comte held, with Thomas à Kempis, that it was vain if it neglected the needs of man himself, though his view of needs was practical rather than Christian.

The whole intention of the admonitions in the four books of the *Imitation* is not to assist social evolution, but to prepare the reader for everlasting life through spiritual grace. Though labour is to be undertaken for the public good, the aim is eternal bliss for the performer of it, and all knowledge of this world, or human association with creatures in it, is contemptible and vain. "Far more noble is that learning which comes from above, from the divine outpouring," says Thomas à Kempis, "than that which is painfully acquired by the wit of man." Complete withdrawal from the world, and disbelief that there is any good in it, or any hope that man can make it anything else but a place of sin and suffering, are taught as the only means of approaching divine grace. The same ascetic attitude is expressed in an inscription on one side of the archway of the mosque of Fatehpur Sikri, near Agra, in the words : "The world is a bridge, pass over it, but build no house upon it. The world endureth but an hour, spend it in devotion."

According to this doctrine, life is merely a preparation for death. The reasons for living a saintly life are not to enable people to make this world a better place, but to avoid punishment, or secure reward, in the world to come. "Truly", says one of the admonitions, "it is misery to live upon the earth. The more spiritual a man desireth to be, the more bitter doth this present life become to him ; because he perceiveth better and seeith more the defects of human corruption" ; and in another we read : "Blessed is he that always has the hour of his death before his eyes, and daily prepareth himself to die." For such preparation a truly religious person is advised : "Never be entirely

idle ; but either be reading, or writing, or praying, or meditating, or endeavouring something for the public good ”; but, for the zealous amendment of the whole life, the example set by the monks of the cloister should be followed.

“ They rarely go abroad, they live in abstraction from the world, they have the poorest fare, they wear coarse clothing ; they labour much, they speak little, they watch long, they rise betimes, they continue long in prayers, they read frequently, and keep watch over themselves, with all discipline. Observe the Carthusians, the Cistercians, and the monks and solitaries of various orders, how do they every night rise to sing Psalms to the Lord. And therefore it would be shameful that thou shouldst be slothful about so holy a work, when so great a multitude of religious persons have already commenced their hymns of praise unto God.”

All these religious exercises had for their purpose the reminding of man that he is born in sin and by nature evil ; that the human race is ignoble, and must remain so upon the earth. The life of the soul could be ensured only through the death of human senses. The more often people confessed themselves miserable sinners, the more holiness would they acquire for the day of judgment when the end of the world would come, and “ infernal fire ” with “ burning pitch and stinking brimstone ” would torment those who had not prayed devoutly or continually expressed contrition for being born at all. An omniscient and omnipotent Being had created the world and man, who had early fallen from grace and was destined to eternal torment unless he believed in the vicarious sacrifice of a Redeemer. All human wisdom and knowledge were of no avail, and salvation could be secured only by accepting this revelation of God’s purpose in Christ’s death as well as His life.

These crude and cruel conceptions of religion are still held by large Christian communities ; and are believed to be justified by literal interpretations of biblical texts. Insistence upon the acceptance of such doctrines, even though they are expressed in the articles of belief and the creeds, is,

however, not now regarded as essential for admission into the Church of England; and it is permitted to attach symbolic or metaphorical meanings to words used by Christ, St. Paul and other Apostles, and the expositions of early Christian Fathers. The tendency among enlightened leaders of the Church of England is to ask for nothing more than belief in a Supreme Being who created the universe, established laws which rule it, and watches the evolution of man upon the earth. These, however, are advanced views, and most professing Christians condemn them as almost blasphemous. The vast majority of worshippers in Christian communities cannot think that heaven and hell as places have passed away; that the doctrine of corruption of the whole of the human race by the disobedience of Adam and Eve, as related in the Book of Genesis, has been abandoned as based upon a primitive legend; and with it has gone the dogma of atonement, upon the nature and meaning of which there have been many doctrinal differences, and the association of the idea with the Virgin Birth, and the Resurrection. Devout inquiry into these formularies of religious faith has shown that they had their origin in legends and folk-lore, and that insistence upon submission to them as a condition of admission to Christian fellowship is a legacy of medieval bigotry.

It is now acknowledged by leaders in the Church of England that the historical evidence for the doctrine of the Virgin Birth is extremely weak and untrustworthy. St. Matthew and St. Luke are the only apostles who mention it in their gospels; and in several of the other books of the New Testament it is clearly implied that Christ was born by normal generation. The stories associated with the Nativity in the two gospels mentioned belong to the realms of poetry or legendary lore rather than to history; and it is impossible even to reconcile the accounts given by St. Matthew and St. Luke. The earlier works of the New Testament, and some of St. Paul's Epistles, are not only silent about the Virgin Birth, but also actually refer to Christ as if he were born in the natural human way; implying, therefore, that He was man. In St. Paul's own words (I Timothy ii. 5):

“For there is one God, and one mediator between God and men, the man Christ Jesus.”

The silence of Mary, the mother of Jesus, upon the question is very significant; and equally important is the fact that Joseph is often referred to as the father of Jesus, especially by St. Mark. This evangelist points out that the four brothers and the sisters were not impressed at first by Christ's mission and believed him to be mad. It is not recorded that Mary ever reassured them upon these and certain other relevant points. Except, therefore, the stories of the two Evangelists, Matthew and Luke, as to the supernatural birth of Jesus, there is nothing in the synoptic Gospels to suggest that he was other than human.

Much has been made of the prophecy of Isaiah, expressed in the familiar words, “Behold, a virgin shall conceive, and bear a son, and shall call his name Immanuel.” The word “almah” in the original text means, however, “young woman” and is so rendered in Jewish translations of the verse into English. St. Jerome, who completed the translation of the Old Testament in A.D. 385, was aware of this, yet he used the word “virgin”; and St. Matthew made the same error when he said “a virgin shall be with child”.

St. Jerome exercised great influence upon the women of his time, and he exalted the state of virginity to heights previously undreamt of; hence the doctrine of the Virgin Birth spread rapidly and became firmly established in Christian belief. Most modern churchmen now, however, are disposed to follow the Bishop of Birmingham when he says that he does not consider the Virgin Birth essential to the doctrine of the Incarnation, which simply teaches that God revealed Himself in human form in Jesus of Nazareth. The Christian Church never actually said that Jesus was God; and, as evidence that He was not so thought, many passages in the gospels of St. Mark and St. Luke bear witness. The true view is that the divine life was lived under human conditions by Jesus, and human perfection is manifested supremely by it.

The doctrine of the Immaculate Conception, though not the same as that of the Virgin Birth, is closely related to it.

It was promulgated by Pope Pius IX as a dogma *de fide* in 1854, and states that Mary, in the first instant of her conception, by a special grace and privilege of Almighty God, in view of the merits of Jesus Christ, was unsullied by original sin. It is difficult to understand why, if Mary herself, though born of natural generation, could be preserved from the stain of original sin, Christ himself should not also have been born naturally and preserved similarly from the taint of original sin. Whatever view is taken, the dogma of the Immaculate Conception renders the doctrine of the Virgin Birth unnecessary.

What the Incarnation of Christ actually signifies, or what are the relationships between Father, Son and Holy Ghost, were bitterly discussed in the early days of the Christian Church; and since then, scores of theologians and philosophers have endeavoured to reveal the mystery. In the fourth century of our era there was much controversy among leaders of the Church concerning the natures of God and Christ. The learned presbyter Arius taught that God was one and eternal, and that Christ was derived and created by Him, and therefore not eternal. At a general council assembled at Nicaea in A.D. 325, it was decided that the Son was "of the same substance" as the Father; and Arius was excommunicated for promulgating a doctrine which would make Christ a kind of "demi-god", and not, in the orthodox sense, "perfect god". The opposing school of theologians regarded this view as polytheistic and a reversion to paganism, in which the worship of Christ would be idolatry.<sup>1</sup>

Athanasius, who is often described as the "Father of Orthodoxy", was the most zealous opponent of Arianism, and it was he who established the belief embodied in the Creeds, that Christ was an eternal Son as divine as the Father, and therefore equally to be worshipped. Later, his

<sup>1</sup> Two books by Mr. F. W. Westaway can be specially commended to general readers on account of their clearness and numerous references to authoritative works on subjects dealt with in this chapter. They are: *Science and Theology* (1920), and *Obsessions and Convictions of the Human Mind* (1938); both published by Messrs. Blackie & Son, Ltd., London.

assertive theology made the Holy Ghost also truly and fully divine, like the Father and the Son.

Even if the Incarnation is understood to signify that in Christ only was the divine spirit supremely manifested, it does not follow that belief in either the Virgin Birth, or the Immaculate Conception of the Virgin Mary, is necessary for its acceptance: both are only dogmatic expedients to absolve divinities from the taint of original sin assumed to be involved in human procreation. A much nobler idea is that the spirit of love in a divine sense pervades the universe and is revealed by the response of humanity—Christian or pagan—to it. It is possible to believe that, in Christ, “The Word became flesh and dwelt among us” without bringing in the legend that He “was incarnate by the Holy Ghost of the Virgin Mary”, or believing that Incarnation was limited to Him alone. The best sense in which to interpret the phrase “God is Love” is to think of Love as a universal influence for good, and represented by the highest attributes of human life. A philosophical conception may thus be combined with a theological belief.

This is the view which some leading modern churchmen take of the Christian doctrine of the Incarnation; and it is expressed in *Scientific Theory and Religion* by the Bishop of Birmingham in the following words:

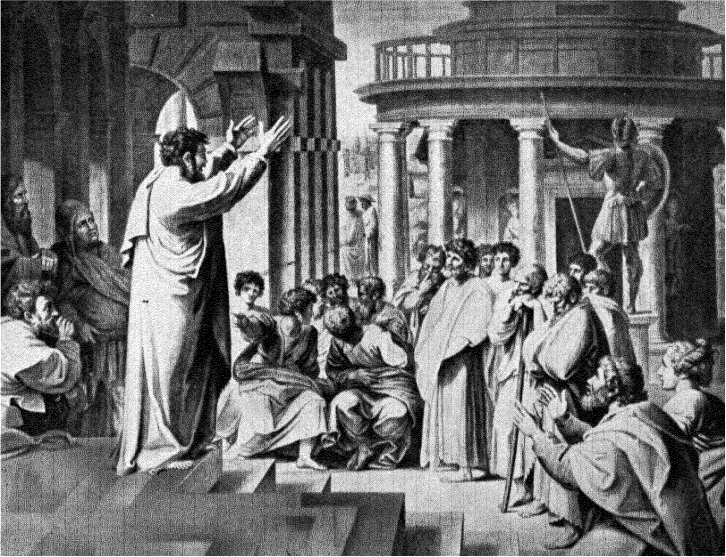
“With Rashdall I postulate that there is a certain community of nature between God and man, that all human minds are reproductions ‘in limited modes’ of the Divine Mind, that in all true human thinking there is a reproduction of the Divine thought; and, above all, that in the highest ideals which the human conscience recognises there is a revelation of the ideal eternally present in the Divine Mind.”

It would appear from this interpretation that incarnation means much the same as inspiration when applied to moral or religious teaching, and that both are of the nature of responses to an influence permanently pervading the universe. It is just as reasonable to assume the existence of this medium, whether it is called God or given any other name, as it is to believe that space is filled with a subtle elastic fluid

called "luminiferous ether", which brings to us light and other radiations from the stars. Nothing is known of the nature of this ether, which is really only the name of a hypothetical medium mentally created to account for certain physical effects. To philosophic theologians, moral and other high human values are perceptions which can similarly be accounted for by assuming the existence of an immanent medium which conveys vibrations to the spirit of man instead of to his senses. All spiritual light may thus be said to come from the "Father of Light", and all noble inspiration, whether in Buddha, Confucius, Christ, Muhammad, Milton, or any other guide to godliness, to be derived from the same source.

In Buddhistic philosophy this condition of complete absorption into the universal spirit is attained by teachers who have vowed to suppress their animal nature, in which all evil is held to have its origin. In the fourteenth century Tsong-kha-pa, a religious reformer, introduced a modified form of Buddhism into Tibet, and out of this came the conception of the Dalai Lama as the incarnation of the holy apostle of Buddha, who was the ancestor of the Tibetans.

According to Lamaistic belief, when a Dalai Lama dies, his spirit or soul may be reincarnated in the body of his successor, born at the moment of his death, or may wander about until it finds a perfect place for its human habitation. The Magi, or wise men from the east, who brought offerings to the infant Christ at the Nativity, were represented in Buddhism by the search party which, in 1939, found the new Dalai Lama in a child some five years of age, born in Amdo Ari, near Kumbum in Siling. A rainbow is said to have appeared at the time of his birth; and also that the search party was led to the house by a vision. These signs, and his recognition of the holy members of the search party, were reverently regarded as marking him out as the fourteenth incarnation of the Dalai Lama, and he was installed with elaborate ceremonies in the cathedral at Lhasa in October 1939. Whatever view may be held as to the religious beliefs and



*Rischgitz*

St. Paul preaching at Athens. From a cartoon by Raphael



Reverse side of an imperial coin of the time of Hadrian, 117-138 A.D., showing the columns of the temple of Diana (Artemis) of the Ephesians, with the image of the goddess in the centre



magical practices of the Lamaistic monks of Tibet, their doctrine of Apostolic succession through the reincarnation of a divine spirit is just as reasonable—perhaps more so—as the view that all Christian bishops on their appointment are in possession of special divine grace.

As with the doctrines of the Virgin Birth and the Immaculate Conception, another alleged supernatural intervention in the normal course of human existence is represented by the belief in the resurrection of the body of Christ. A similar belief existed in ancient Egypt, where Osiris, who was regarded as being of divine origin, was killed and mutilated by the powers of evil and rose again to become king of the underworld and judge of the dead.

Direct historical evidence of the resurrection of Christ in the flesh can scarcely be regarded as convincing ; and is altogether insufficient from the point of view of natural science. Belief in it can be secured only through faith in dogmatic teaching which declines to be submitted to cross-examination. The accounts given by the writers of the Gospels are so divergent that they cannot be reconciled reasonably. No one actually saw the Resurrection, though it is stated that many witnessed the appearances afterwards. St. Luke places these appearances of Christ round about Jerusalem, whereas other writers refer almost entirely to Galilean appearances. All that is certain is that, after Christ's death, something happened to restore the confidence of the broken and dispirited band that fled at the time of the betrayal and trial. Apparent defeat and failure were turned to victory ; and it is in this light that the records of the Evangelists must be read, with the hope—and it may be nothing but a hope—that in the end good will prevail over evil, though the process may be slow and painful.

With such an interpretation, the Resurrection becomes a symbol, and belief in it as an eternal truth in the manner commonly accepted may be no longer demanded as a test of orthodoxy. Even if there had been a physical resurrection of Christ's body, the relation between such a miracle and the death of human beings is not clear ; because, if it is assumed that He was God, the conditions and circum-

stances were entirely different from those which are the lot of mortal men.

Apart from the question of the actual resurrection of Christ's body, it is difficult to understand how this could be a proof of immortality of human existence. The Apostle Paul was, however, in no doubt as to the meaning of the resurrection of the physical as well as the spiritual body ; and at every burial service of the Christian Church we are reminded of his words : " Now is Christ risen from the dead, and become the first-fruits of them that slept. For since by man came death, by man came also the resurrection of the dead. For as in Adam all die, even so in Christ shall all be made alive."

It is possible to attach a spiritual meaning to much of St. Paul's teaching concerning Christ's death and message, but in his Epistle to the Corinthians, from which the above words are taken, he clearly states : " In a moment, in the twinkling of an eye, at the last trump : for the trumpet shall sound, and the dead shall be raised incorruptible, and we shall be changed. For this corruptible must put on incorruption, and this mortal must put on immortality." St. Paul knew nothing, however, about the nature of organic life, or of the actual difference between living and dead things. He thought, with others of his time, that before a seed could germinate, or be quickened, it had to be devoid of life, and therefore, with mistaken arrogance, he said, in reply to his own question, " How are the dead raised up? and with what body do they come? " " Thou fool, that which thou sowest is not quickened, except it die." To anyone who knows anything about the changes which actually occur when a seed germinates, the reasoning based upon the assertion of " sown in corruption " and " raised in incorruption " is both specious and irritating. Even if the analogy were sound, it would afford no proof of the immortality of human beings.

In recent years it has become increasingly evident that this and other traditional beliefs cannot have a place in progressive thought apart from scientific knowledge and historical evidence. The Report of the Archbishops' Commission on *Doctrine in the Church of England*, published in 1938,

after fifteen years of deliberation, represents an attempt to bring conflicting schools of thought concerning certain Christian doctrines, which have been the subject of much controversy within the Church of England itself, into friendly relationships. Though the report cannot be regarded as adequate from the point of view either of science or philosophy, it includes pronouncements for which the authors would, at earlier periods of the earth's history, have been burned at the stake, and is a landmark in the history of Christian doctrine.

Among the matters upon which considered judgments are expressed is the inerrancy or infallibility of the text of Holy Scripture, which it is stated, in view of increased knowledge, can no longer be maintained. It is acknowledged that Creation may be regarded as a continuous process, instead of a universe summoned into existence at a particular epoch. As to evil spirits, these can be understood symbolically, and Christ himself, even when he spoke of Satan, is represented as sharing the current belief of his time as to the existence of devils. With regard to miracles as divine action contrary to normal natural laws or order, members of the Commission believe it to be "more congruous with the wisdom and majesty of God that He should never vary the regularities of Nature". The Virgin Birth, and the Resurrection in its physical features, as well as the Ascension into Heaven, may, therefore, be interpreted symbolically.

Faith in the Virgin Birth and the resurrection of the physical body of Christ is thus no longer regarded by high authorities in the Church of England as essential in articles of belief; and the primitive conceptions of heaven and hell now survive only in evangelical teaching, which appeals to emotion rather than intelligence. The Church of England is itself divided upon the question whether a priest is justified in saying the historical clauses of the creeds when his interpretation of them is entirely contrary to the meaning which they were originally intended to convey. Clergymen who publicly deny clauses which the vows they have taken are intended to uphold are not denounced as heretics and deprived of their offices, as they would once have been, and

are permitted to have their own judgments upon these matters.

The attitude of the Church towards these beliefs is much the same as that of the Holy Office towards Galileo and his teaching of the Copernican theory of the solar system. If Galileo had been content to defend the theory as a hypothesis he would have been left alone. He was condemned by the Inquisition because, after receiving a prohibition from holding, teaching or defending the Copernican doctrine, he published a work in which he exposed the accepted views of the Church as to the position of the earth in the centre of the universe and immovable, and said that the sun was the centre and the earth moved around it. The charges against Galileo were of having believed and held :

“The proposition that the sun is the centre of the world and does not move from place to place is absurd and false philosophically and formally heretical, because it is expressly contrary to Holy Scripture.”

“The proposition that the earth is not the centre of the world and immovable, but that it moves, and also with a diurnal motion, is equally absurd and false philosophically and theologically considered, at least erroneous in faith.”<sup>1</sup>

Such doctrines were regarded as being to the grave prejudice of Catholic truth, and for declaring and defending them Galileo was condemned to the formal prison of the Holy Office and enjoined for three years to repeat once a week the seven penitential psalms.

There are many Christians who to-day would expel from their communion teachers who deny the truth of the Virgin Birth, the Resurrection, and similar dogmatic articles of belief. It was not considered expedient to shake the authority of the Holy Scriptures by officially accepting the Copernican theory, though it was established by Galileo's observations ; and to-day, in spite of the existence of a large body of enlightened opinion against the traditional interpretation

<sup>1</sup>The story of Galileo and his conflict with the Church is admirably told in *Galileo and the Freedom of Thought*, by F. Sherwood Taylor. (London : Watts & Co., 1938.)

of historical clauses in the creeds, the Church in general insists on faith in them being preserved. Obsolete dogmas have to be maintained and the truth suppressed, because it is believed that people are not ready to receive the new knowledge!

Responsible leaders in the Church of England to-day represent a new and enlightened attitude towards the so-called "heresies" of scientific thinkers, which convulsed English society in the nineteenth century from the days of Dean Buckland down to the pitched battles which took place on the scientific positions of Charles Darwin, T. H. Huxley, John Tyndall and their successors. It is not strange that most church-goers, and all who have been brought up to accept traditional interpretations of Christian teachers, regard the Report of the Archbishops' Commission on Doctrine with dismay as a capitulation to the forces of modernism and scientific materialism. Such people derive their religious convictions from faith in what they are told has been taught for centuries and accepted as divine revelation; no new knowledge or rational interpretations can ever appeal to their consciousness. Christians of this type are more likely to condemn the members of the Commission as infidels than to accept the report with the reverence due to leaders of the Church. The question has, indeed, already been raised by strict upholders of orthodoxy whether the Church of England should include clergymen who adopt these modern views, or accept only those who can conscientiously subscribe to articles of faith, or repeat creeds, the meanings of which, in the minds of most of their flock, are those attached to traditional Christian doctrine.

If the creeds have to be confessed in the sense in which they were originally formulated by decrees of ecclesiastical councils, it would seem difficult to excuse mental reservations which in earlier times would be condemned as heretical. To get over this difficulty, a distinction is made between public and private teaching; and by this principle a clergyman is free as a writer and student to express his own convictions, but in his official capacity must conform to the confession of the Church.

There is really no finality in a Christian creed. The creeds of the early Christian Church were formulated in terms of the philosophy of the times, and they should not be used to polarize thought or suppress new conceptions. History shows that religious beliefs, like other component elements in human society, are products of a specific tradition and culture, and in the course of time they undergo a process of development, or evolution in the popular sense of the term.

The prominence given to the Virgin Mary in the Roman Church illustrates this evolutionary principle. It represents the cult of the mother-goddess in Mediterranean belief, fostered and reinforced by folk-memory ; and hence the Reformation may, in part, be regarded as a revolt from an alien, southern form of ritual, by peoples of Northern Europe, to whom the belief in a god of battles was more congenial. One of the effects of this diversion of emphasis in cult is to be seen in the predominating influence of the Old Testament in the life of the peoples of England and Scotland in the seventeenth century. This influence continued to be marked until it was superseded by the humanitarian ideals and missionary spirit of the New Testament, with the aid of philosophic doctrine, in the late eighteenth and the nineteenth centuries.

The attitude, then, of the members of the Commission on matters of disputed doctrine must be construed as more than one of toleration only. It implies recognition of the fact that, just as in scientific investigations, hypothesis—for example, as to the nature of the universe, or as to the antiquity and descent of man—is subject to modification in the light of increased knowledge, so in matters of theological doctrine, orthodoxy is not static, but must vary in connotation with increase of understanding and a clearer view of the cosmic process. Further, that such understanding may bring about change in forms of belief, without affecting faith in the central doctrine of Christianity. The findings of the Commission would have been impossible a hundred years ago.

It may seem that to hold such a view of the relation of

the evolution of theological dogma to the development of scientific thought is to make the validity of religious belief dependent upon the finite intelligence of man and to be incompatible with the tenets of a religion which takes its stand upon divine revelation. Yet it is possible to regard both the growth of scientific knowledge and the development of dogma, each in its own respective field, as two sides, two aspects of the same process—the search for truth, in which the Divine Purpose is revealed gradually to man *pari passu* with the preparation of his heart and intellect to receive it with understanding.

## *Chapter Nineteen*

### THE BIBLE AND STORIES OF CREATION AND THE FLOOD

Many attempts used to be made to find naturalistic or rationalistic explanations of the miraculous element in biblical records, and to show that the Mosaic order of creation corresponds with that derived from modern scientific knowledge. To make the idea of evolution acceptable to the orthodox mind, it used to be pointed out that the order in which the flora and fauna are said by the Mosaic account to have appeared upon the earth is, in general, that which the principle of evolution requires and the evidence of geology supports.

Few people in these days would wish to advocate the literal accuracy in the text of the Bible upon such evidence. The writings which were collected from the literature of their time and used to form the Bible are now studied as matters of history, and not as divinely inspired records in the sense formerly understood. The books of the Old Testament were originally written in Hebrew, and the earliest existing dated Hebrew manuscript goes back only to about the tenth century A.D. The history of these books is now known, and the authority of the chief scribes to record it accurately and with reverence is unquestioned.

According to Jewish teaching, the Word of God as revealed to Israel was first engraved upon an altar by Joshua, who, upon the death of Moses, became the leader of the people. About the second century B.C. Aramaic had displaced Hebrew as the spoken language of the Jews, and a century or so later this language, which was then current in

a large part of Western Asia, was used for translation of the sacred text known as Targums.

In the third century B.C. the books of the law were translated into Greek by a group of learned Jews in Alexandria, and these were followed later by translations of books of the prophets and the sacred writings of the Psalms, Proverbs, Job and other books. This Septuagint, or "Version of the Seventy", was looked upon as the work of inspired men, and was generally accepted by the early Christians. It differs, however, in several respects from translations direct from the Hebrew. The Hebrew text of the Old Testament now adopted by the Jews for translations is what is known as the Masoretic text, which, though it may date back to the second century of our era, is separated by many centuries from the original words of Old Testament writers. This is the text used for the translation into English of "The Holy Scriptures" by a distinguished board of editors representative of Jewish learning among English-speaking Jews, and designed to combine with the spirit of Jewish tradition the results of biblical scholarship—ancient, medieval and modern.<sup>1</sup>

The Talmud, the sacred book and commentary of the Jews, exists in two versions drawn up in different schools of Rabbis of Palestine and Babylon. It represents an authoritative collection of records of what had been handed down by written and oral tradition, and interpretations of their meaning. It may be described as an encyclopaedia of Jewish law and ritual, together with much other learning and teaching. The work was of gradual growth, and its present form, which is accepted by most Jews for legal and religious guidance, dates from the sixth century. The Masoretic text of the Holy Scriptures was formed by learned Jews at Tiberias in that century from the Palestinian version of the Talmud.

The three oldest manuscripts of the Bible in existence date from the fourth and fifth centuries A.D., and are named respectively the Vatican Manuscript, the Sinaitic Manuscript and the Alexandrian Manuscript. The first is in the

<sup>1</sup> *The Holy Scriptures according to the Masoretic Text. A New Translation.* (Philadelphia : The Jewish Publication Society of America, 1937.)

Vatican Library in Rome ; the second was formerly in the Greek Church at St. Petersburg (Leningrad), but it and the Alexandrian Manuscript are now in the British Museum. They were not available when the Authorized Version of the Bible was prepared in 1611, but were used for the Revised Version. In the Old Testament, however, there are few important differences in the two versions.

From this short outline of the history of the sacred books collected in the Old Testament it will be evident that the original words of the authors have been differently interpreted at various stages in the life of the Jewish people, and that there are no substantial grounds for belief in their infallibility. The Jewish philosopher Philo, who was a contemporary of Christ, claimed a divine origin for the Mosaic scriptures and taught that all they record is true and all truth is contained in them. This view is still maintained by many people who do not realize the historical difficulties in harmonizing writings extending over more than a thousand years, or refuse to believe in the existence of other literature of the same or earlier periods.

Archaeological research has shown that the accounts of the creation of the earth and man, the Deluge, and other events of Bible history recorded in early chapters of the Book of Genesis, were not divinely revealed to the Hebrews alone but were derived from legends which were part of the religious beliefs of other peoples long before the earliest settlement of the Hebrews in Palestine about 2000 B.C. Both the Creation and the Flood can be traced back to the Sumerians, a non-Semitic people who occupied a part of Mesopotamia more than two thousand years earlier than the Hebrews and possessed a distinct language and script.

The legends are recorded in various forms on baked-clay tablets of Assyria and Babylonia, and are essentially the same as described in Genesis. Such baked-clay records in the British Museum are inscribed with Babylonian accounts of the Creation, the Deluge, and other early events of Bible history related in the Book of Genesis. One of these tablets "describes the time when the heavens were not, when there were no plants, and before the gods had come

into being, and when the water-deep was the source and origin of all things".<sup>1</sup> Others deal with the formation of the earth and the firmament above it; the creation of the stars; the establishment of the year, which was divided into twelve months, the moon being appointed "to determine the days"; the filling of the earth with beasts and cattle of the field and with creeping things by the god Marduk (Merodach of the Bible); and the creation of man, to whom the god says:

"Thy heart shall be pure before thy God, for that is what is due to Him. Thou shalt pray, and shalt make supplication, and bow low to the earth early in the morning. The fear of God begetteth mercy, offerings prolong life, and prayer is the propitiation of sin. Speak no evil against thy friend and neighbour. When thou hast made a vow, withhold not that which thou hast vowed."

These and other records represent primitive beliefs and worship common to groups of people in a particular region at certain stages of civilization, and have no special claim to divine revelation. The Hebrews did not originate these traditions, but shared them with neighbouring peoples and recorded them in the Old Testament, giving them at the same time a nobler religious significance.

The Babylonian legend of the Creation is divided into seven sections, or tablets, each containing, on an average, one hundred and forty lines intended to describe the events of one "day" of Creation. The British Museum possesses in its collections almost a complete set of these "Seven Tablets of Creation" discovered among the ruins of the palace and library of Ashurbanipal, who reigned in Nineveh in the seventh century B.C. These represent the oldest known copies of the legends, but the original form of the Babylonian and Assyrian story of Creation goes back long before that time, so that the Semitic Babylonians were only the borrowers and not the inventors of this remarkable tradition.

When traditions are handed down orally or in script, they

<sup>1</sup> *A Guide to the Babylonian and Assyrian Antiquities.* (British Museum.)

acquire from the narrators a certain amount of new or modified embroidery, according to the spirit in which they are related. While, therefore, the accounts of the Creation given in the Book of Genesis resemble those recorded in the seven Assyrian tablets, they differ in several details, particularly in their spiritual nature. It cannot be doubted that the Jews derived large portions of their religious literature from their kinsmen the Babylonians, and that the seven days of Creation were imagined long before the time of Abraham, but they gave a more exalted meaning to beliefs which had persisted in Mesopotamia for thousands of years. The version of the Creation inscribed upon the Seven Tablets is much later than that upon which the accounts in Genesis were based, though the two accounts may be traced to a common source. Reasons are given in the British Museum brochure on the Assyrian baked-clay records from Nineveh for believing that the legend as related in the Seven Tablets is the work of an editor who added the legend of the Creation to the legend of the Dragon, which had nothing to do with it. Referring to the relation between the stories in Genesis and inscribed upon the tablets, the brochure says :

“ The fundamental conceptions of the Babylonian and Hebrew accounts are essentially different. In the former the earliest beings that existed were foul demons and devils, and the God of Creation only appears at a later period, but in the latter the conception of God is that of a Being Who existed in and from the beginning, Almighty and Alone, and the devils of chaos and evil are His servants. In the Hebrew conception man first lived in a Paradise from which he was expelled ; the Babylonians believed that man was at his creation destined for ‘ the service of the gods ’, and that his condition was most miserable. The references to the Babylonian myth found in the other books of the Bible show only that when the book of Job and certain of the prophetic books were being written, the Babylonian story was known to the Jews.” <sup>1</sup>

<sup>1</sup> *The Babylonian Legends of the Creation and the Fight between Bel and the Dragon as told by Assyrian tablets from Nineveh.* (British Museum, 1931.)

Like the story of the Creation, that of the Flood or Deluge is recorded in cuneiform inscriptions on baked-clay tablets discovered in the wonderful library preserved and expanded by King Ashurbanipal at Nineveh. It was known to the Babylonians as early as 2000 B.C., and represented a great inundation in Lower Babylonia, possibly caused by a rain-flood or a tidal-wave. The story is told in the eleventh of the series of twelve tablets recording the adventures of the mythical hero, Gilgamesh, who set out to learn the secret of immortality from his ancestor Uta-napishtim, whose abode was revealed to him by a dream from the Moon-God. It seems to have been introduced into the Epic of Gilgamesh to make up the twelve tablets written in the time of Ashurbanipal, and did not form part of the original epic.

According to the legend, Gilgamesh was so moved by the death of his bosom friend and companion that he set out to discover the secret of immortality from Uta-napishtim. He crossed the "waters of death" and found his ancestor, who seems to have told him that death was inevitable, for "as long as houses are built, and as long as brethren quarrel, and as long as there is hatred in the land, and as long as the waters of the river run into the sea, so long will death come to every man."

Uta-napishtim related how immortality had been conferred upon him by the god Bel, because he was the only one of the race of mankind who heeded the warning of one of the gods that a deluge would descend upon the earth, and built a ship or ark to save him and his wife and his family and his beasts of the field from destruction. Torrents of rain fell for six days and six nights and all living things were destroyed, except those in the ark, which rested upon the top of a high mountain.

"When the seventh day came the cyclone ceased, the storm and battle which had fought like an army. The sea became quiet, the grievous wind went down, the cyclone ceased. I looked on the day and voices were stilled. And all mankind were turned into mud. The land had been laid flat like a terrace."

Continuing his narrative to Gilgamesh, Uta-napishtim said :

“ When the seventh day had come  
 I brought out a dove and let her go free.  
 The dove flew away and [then] came back ;  
 Because she had no place to alight on she came back.  
 I brought out a swallow and let her go free.  
 The swallow flew away and [then] came back ;  
 Because she had no place to alight on she came back.  
 I brought out a raven and let her go free.  
 The raven flew away, she saw the sinking waters.  
 She ate, she waded (?), she rose (?), she came not back.” <sup>1</sup>

Uta-napishtim was afterwards granted immortality by the gods because he and his family had escaped the doom which had utterly destroyed the race of mankind.

This epic of Gilgamesh, involving the Babylonian story of the Deluge, dates back to about 3000 B.C., and originated with the Sumerians. The legends of the Creation and the Deluge recorded in the Book of Genesis belong to the same remote period. There are, indeed in Genesis two stories of the Creation and the Flood, though they are separate in the former record and interwoven in the latter, but both of them are of Babylonian origin. The Hebrews were not settled in Palestine until about 2000 B.C., which is the date usually assigned to Abraham, who is regarded as the progenitor of the Jewish race. They were thus in contact with a civilization which existed long before the traditions and history recorded in the Old Testament were brought together.

The view that a Supreme Being revealed to His “ chosen people ” alone such stories as those of the Creation and the Deluge, and that these myths and legends were divinely inspired in the Bible, has long been abandoned by all whose minds are free to accept the testimony of historic evidence. Any discussion of the Mosaic record of the creation of the earth or of man as the specially inspired “ Word of God ” is futile in the light of the knowledge that the events des-

<sup>1</sup> *The Babylonian Story of the Deluge and the Epic of Gilgamesh.* (British Museum, 1919.) Also, *A Guide to the Babylonian and Assyrian Antiquities.* (British Museum, 1922.)

cribed in Genesis were certainly derived from primitive myths and legends of much earlier dates than any which can be claimed for the earliest books of the Old Testament. If the stories are to be believed as divinely inspired, in the sense in which they are popularly taught, then it was not to the Hebrews that God first revealed this knowledge, but to the Sumerians, who lived in Babylonia long before them and to whose traditions they afterwards gave a new and higher spiritual significance.

Archaeological research in recent years within the boundaries of Palestine, and in relation to neighbouring peoples and empires, has thrown much new light upon the biblical historical narrative, as well as in tradition, in culture and in belief. It has revealed the historical and cultural environment of the Hebrews when they invaded Canaan in the thirteenth century B.C., and how the scriptural records fit into it. They were influenced by the ancient civilizations of other peoples which surrounded them, and their records take a natural place in a historical setting.

While, however, the results of archaeological excavations confirm the historical accuracy of the biblical narrative, it gives no support to the view that this record has the special quality of divine revelation any more than the histories of other ancient races. Such legends and beliefs as those of the Creation, the Deluge, and others recorded in the Old Testament, were absorbed by the Hebrews from the peoples with whom they became associated, and were woven into their own history and doctrine. The Hebrews gave a new spiritual meaning to these beliefs; and if civilization is regarded as a gradual growth of higher ideals, it may justly be claimed that their contribution to this type of development was greater than that of any other ancient peoples. Their religious spirit has influenced human thought and conduct for more than three thousand years, whatever views may be held as to its origin or its purpose in the evolution of man.

## Chapter Twenty

### MONOTHEISM AND THE FALL OF MAN

Sir E. A. Wallis Budge held that monotheism was the basis of the theology and religion of ancient Egypt, and that it persisted throughout its historic periods with a tendency ever increasingly assertive. In his view the essential belief was that God was one, self-existent, immortal, invisible, eternal, omniscient, almighty and inscrutable ; the creator of the heavens, the earth, and of all things visible and invisible. In the beginning this protogod evolved himself by uttering his own name ; whilst from the void the world sprang into existence, after the type which was pre-existent in the divine mind. Following this creative act was the production of the germ from which emerged the embodiment of the power of God, the holy Ra, whose attributes were afterwards annexed by Osiris, who for ages was the ensample and comfort of aspirants to immortality.

Osiris was regarded as a divine being, who was killed and mutilated by the powers of evil, and who rose again to become king of the underworld and judge of the dead. He represented the idea of one who, though a god, had been a man who had suffered and died, and was, therefore, in full sympathy with human beings in their own time of trial and death. As his flesh had not seen corruption, so was he the cause of mortals being born again, and the righteous who followed his example might, with the help of gods, secure a resurrection to everlasting life, and dwell with him in his kingdom.<sup>1</sup>

<sup>1</sup> See a detailed description in *Nature*, of March 8, 1900 (Vol. 61, p. 437) of Sir E. A. Wallis Budge's *Egyptian Ideas of the Future Life. Egyptian Magic.* 2 vols., 1900. (London : Kegan Paul, Trench, Treubner & Co., Ltd., 1899.)

What is usually regarded as the first truly monotheistic religion recorded in history, and certainly the one which the whole community was expected to adopt, was that of the Egyptian king Amenhotep IV, otherwise known as Ikhnaton or Akhnaten, who succeeded his father, Amenhotep III, in 1375 B.C. and reigned for seventeen years. His new religion, which was far more exalted in conception and character than the official and popular religion of Egypt, survived him only until 1358 B.C., when it was swept away by Tutankhamen, and the priests of Amon-Ra regained their power.

It has often been suggested that Jewish monotheism had its origin in this remarkable period of Egyptian history; and Professor Sigmund Freud traced the associations of the two religions in detail in his last work, *Moses and Monotheism*. He adduced evidence to show that, in the confusion and internecine troubles which followed the death of Ikhnaton, Moses—a powerful Egyptian, a prince, priest or possibly even a governor, and a follower of the Aton religion—took advantage of his power and position to put himself at the head of a band of immigrant people and to lead them out of Egypt into the land of Palestine, which, as is known from the Tell el-Amarna letters, was already being attacked by the Aramaean desert tribes, among them the Habiru, or Hebrews.

The characteristics of the Aton worship were its monotheism and its intolerance, the former foreign to antiquity, both before that time and long after. It was also universal, at any rate so far as the world was then under the rule of the Egyptian monarch, who since the days of Thothmes III had been a world power owing to Egyptian conquests in Nubia and in Western Asia—Palestine and Syria—and to alliances. The conception of a universal god was based on, or suggested by, the extended power of the sovereign. The Aton worship also developed and stressed the ethical aspects. Maat, the goddess of truth, order and justice—Ikhnaton describes himself as “living in Maat”—was the daughter of the Sun.

The idea of a universal god was a development of the teaching of the priests of the Sun of the temple at On

(Heliopolis), rivals of the priests of Amon-Ra at Thebes. It is possible that its development may have been influenced by belief introduced from Syria by the princesses, who had married into the Egyptian royal line, or their attendants. It is even possible that Ikhnaton's queen, Nefertiti, was a Syrian princess. "Aton" is compared with the Syrian name "Adonai", Adonis. To the idea of the universality of the god, Ikhnaton added the idea of exclusiveness. "Oh Thou, only God! There is no other God than Thou", he said; and everywhere under his orders the temples of other gods were closed and their worship condemned. All representations of the god were forbidden, except the Disc of the Sun, which, with its rays, was a symbol of the divine being, but was not worshipped as a material object. All magic, sorcery and the use of amulets were excluded. Further, there is complete silence about the life after death and the worship of Osiris, the most prominent characteristic of the popular Egyptian religion.

Although, as Professor Freud realized, enough is not known of the Aton religion to institute a detailed comparison with the religion of the Jews, because the latter is known only in its final form, after much revision and alteration in later ages, yet there is a certain amount of material available from which resemblances may be seen between the Aton worship and the belief, which, it is inferred, was introduced among the Jews at this early period. There is, as already mentioned, the resemblance to the name Adonai, which appears in the Jewish confession of faith. The Jewish religion again is even more uncompromising than the Aton worship in forbidding all representations of the Deity, and it relinquishes all worship of the sun. Although the life after death is not irreconcilable with monotheism, it does not appear in early Jewish beliefs. This may have been due to the necessity felt for fighting the Egyptian popular faith, which laid stress on the life after death in the Osiris religion.

The strongest argument, however, which Professor Freud found in favour of an Egyptian origin for Jewish religion, is the practice of circumcision. This was in early times a distinctively Egyptian practice, and it was a practice of which

they were proud, as are all circumcized peoples. It is therefore suggested that Moses, ambitious to found a new empire, thereby gave his followers the insignia of a chosen people, a "New" Egyptian people as good as the old, and marked them off from all "foreigners".

It is agreed among modern historians that the tribes who became the Children of Israel, in the course of their journey from Egypt to Palestine, acquired a new religion. This event took place not at the foot of Sinai, but in the oasis of Meribat Qades (Meribah Kadesh of the Book of Numbers), lying south of Palestine between the east of the Sinaitic Peninsula and the western end of Arabia. The new religion was the worship of the god Jahveh, a volcano god, a blood-thirsty demon, who walks by night and shuns the light of day. The Moses who is the mediator between this god and the people differs in character from the Moses of the flight from Egypt; and Professor Freud concluded that he was son-in-law of the Midianite priest Jethro, and that two entirely different individuals are involved in the story. The difficulty which arises from this conclusion was met by Professor Freud by reference to a discovery, made by E. Sellin in 1922, that the Book of Hosea contains a record of a tradition of the violent end of Moses in a rebellion of his followers. Further references to the tradition have been found in the prophets, and it is thought to be the basis of the hope of the return of a Messiah.

It is now generally agreed that, of the tribes who entered Palestine, only a part had sojourned in Egypt. On their way they had amalgamated with other tribes. This union expresses itself in the adoption of the religion of the volcano god, Jahveh. Evidence of this fusion is afforded by the subsequent division between the kingdom of the north, the kingdom of Israel, representing the older dwellers in Palestine and the desert tribes, and the kingdom of Judah, the more advanced people culturally, of whom a part, at least, was descended from those who had come from Egypt, and among whom the Levites were the descendants of the entourage of Moses. The adoption of the religion of Jahveh must have taken place at probably not more than sixty years after the

death of Moses, that is, some time between 1358 B.C. and 1230 B.C., the date of an inscription of Menephtah, preserved in the Egyptian Museum at Cairo, which extols the victory over "Isiraal", and is the only Egyptian record of the Israelites.

Professor Freud held that what happened at Qades was a compromise, in which certain concessions were made to the followers of Moses. Of these the most important was the imposition of circumcision on all the tribes, an agreement which set them apart and confirmed the conception that they were a chosen people. A further concession was a tabu on the name of the god Jahveh (not completely observed, as in personal names compounded with this element) and the substitution of the name *Adonai*, or rather as it appears in the narrative, *Elohim*. The older tradition preserves the name Jahveh, that is, the source known as J, which was written about the tenth or ninth century B.C. A later writer who recorded Hebrew traditions used the word *Elohim* to signify God, and this source of biblical history is referred to as E. While Professor Freud admitted that *Elohim* and *Adonai* are not identical, he maintained that the difference in nomenclature indicates two different gods.

As a result of the compromise it was necessary to exalt Jahveh and divert some traditions. The Children of Israel are brought out of Egypt under the aegis of Jahveh, further emphasis is laid on the grandeur of the volcano god, as, for example, in the episodes of the pillar of fire, and so on. Events are brought more closely together and the interval between the death of Moses and the compromise are denied; while the wrong done to the memory of Moses is to some extent repaired by identifying him with the priest of Jahveh and transferring him to Sinai. The covenant of the circumcision, in order to mark it off from the Egyptian rite, is transferred back to the patriarch Abraham.

It has long been recognized that the biblical record, coming from three sources, J, E and JE, in which a prophet of Judah combined the two narratives in the eighth century B.C., enshrines two traditions and the records of two strains of religious belief. Jahveh is the tradition of a fire god, while

the Elohim tradition, which belongs to the northern kingdom, as Robertson Smith pointed out long ago, is a religion of the primitive Semitic peoples who worshipped the gods of the high places, gods in stones, and whose practices suggest phallic belief. It was, in fact, an animistic form of belief, emerging in the Baalim into something of a more definite personal character, not yet very clearly defined.

For a period of some eight hundred years after the compromise, the monotheistic religion introduced by Moses disappears. It is overlaid by the ritual ceremonial of the priests, which is closely related to the magic which the monotheistic religion abjured. Jahveh was originally a purely local god, narrow-minded and tribal, and as this belief did not deny deity to other gods, it is scarcely to be regarded as monotheistic. But behind the Jahvistic religion, with its sacrifices and ceremonial, there was a tradition of the more spiritual religion, which Moses had conferred on the people of the Exodus ; and in a period of eight hundred years this tradition completely transformed the Jahvistic religion. It is this tradition which the prophets express when they proclaim that God does not demand sacrifice and ceremonial, but a life of truth and justice. This spiritual monotheistic tradition became the permanent content of the Jewish relation.

The delayed effect of the idea of the *only God*, and the ethical demands in the name of God, were explained by Professor Freud by reference first to time required for the intellectual work of the ego to overcome objections that are invested with strong feeling, and secondly, regarding religion as a neurosis, the delay in the reappearance of the monotheistic idea is likened to the period of latency which follows a morbid derangement of ideas. It is regarded as an instance of a special mental condition, and may be explained on psychological lines. The memory of the fate of the leader was "repressed", but survived in the knowledge enshrined in tradition, which contradicted the official account. The tradition, as time went on, became stronger instead of weaker, in part because it belonged to the "Golden Age" from which the materials of epic narrative are drawn, but

still more because of conditions, of which an analogy is to be found in mental derangement originating from a morbid condition in childhood, creating impressions of a sexual and aggressive nature and against injuries to the self.

The sequence which the psychoanalyst finds in the individual—early morbid, defence, latency, outbreak of the neurosis, partial return of the repressed material—is also said to occur in the history of the human species and the consequences are the phenomena of religion. Thus in the account of the human horde and the crime of slaying the parent or the head of the horde, religion, in the form of totemism, the totemic feast and the transformation of the totem animals into anthropomorphic gods, followed by the foundation of the social order to avoid further conflict between brothers who have slain the father, are a consequence of the original morbid condition of the children in their relations within the horde to their father, which finally resulted in his deposition and death.

Professor Freud maintained, without fully adopting the theories of mass-psychology, that there is an inheritance of this repressed memory in peoples—a view which few biologists would accept. According to this the rites and doctrines of religion are first, a fixation on the old family history and survivals, and secondly, reproductions of the past, and return to it (sometimes re-enactment of it), long after it has been forgotten. This latter element in particular, especially the period of latency, has not been understood ; but these forgotten facts return with great force. The monotheistic idea, after a long period of latency, took strong hold of the Jewish people, and impressed them as being their most precious possession, while confirming them in the idea that they were the chosen people, whose God was the one and only universal God. The disdain of magic gave them a greater idea of spiritual values, while with the recurrence of the belief in monotheism which they had received from Moses, there came also a sense of guilt in the memory of the slaughter of their leader, which recurred with the greater force in that it reproduced the slaughter of the first parent of the horde.

Paul seized on this sense of guilt and correctly tracing it to its primeval source, original sin, made it a crime against God that could be expiated only by death. This crime of the murder of the original Father had been expiated by the sacrifice of the Son. Expiation could be welcomed as salvation because a Son of God had taken on the sins of the world. Hereby, however, the father-religion of Moses became a son-religion—Christianity. Paul, by developing the Jewish monotheistic religion further, became its destroyer. He gave up the idea of a chosen people and made his religion universal, and he abandoned circumcision. With the extension of the Christian religion to a large number of peoples imperfectly christianized, his religion took over a large number of symbolic rites, the mother-goddess, mysticism and magical ceremonial, and it ceased to be truly monotheistic. The gods of Amon had won the final victory over the worship of Aton.

On the other hand, the Jews, weighed down by the sense of guilt, and lacking the doctrine of expiation, have regarded their trials and afflictions as God's punishment for their shortcomings and imperfections in carrying out His Will. In consequence they have endeavoured to find favour in His sight by further efforts to develop the spiritual side of their beliefs.

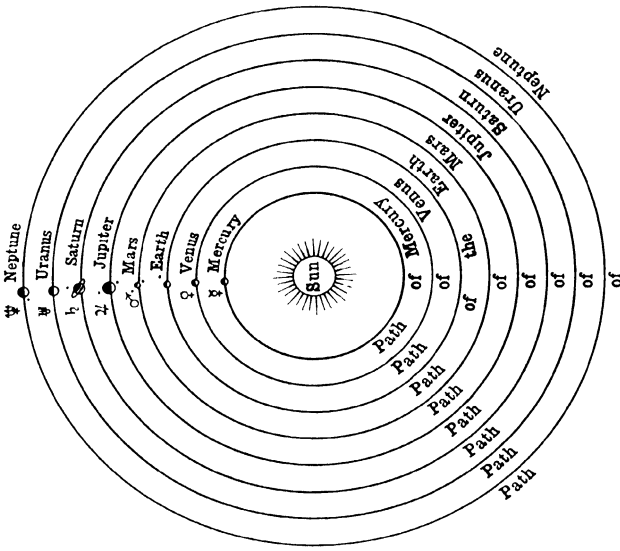
The two main points in Professor Freud's thesis are the Egyptian origin of Moses as an explanation of the derivation of Jewish monotheism from the Egyptian Aton worship and the dual character of early Jewish belief, and secondly, the revival of this hypothetical early form of monotheistic belief after eight hundred years of oblivion as a consequence of a morbid heredity. In the more spacious days of early comparative studies of religion, monotheism, the Jewish contribution to the development of religion, was accounted for by the facile theory of a transfer to the religious sphere of a despotism on the lines of the great eastern monarchies of the Middle East. This involves a very late date for the introduction of monotheism, unless it is admitted that the earlier contacts with Egypt of the Eighteenth and Nineteenth Dynasties were sufficiently impressive to bring

it about ; and if a late date is accepted, this involves a very drastic working over of the biblical text from the point of view of revision, more drastic than it is already admitted that the working over must have been.

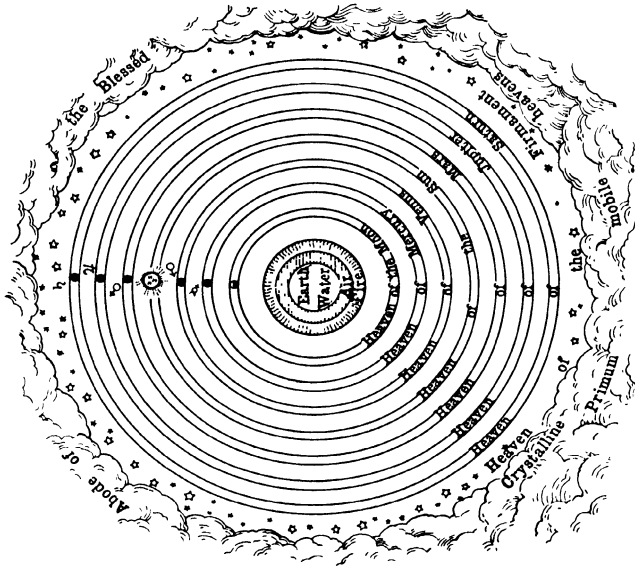
At the same time, it must be said again that the latent memory which Professor Freud postulated seems more than biological theory would admit. He recognized this difficulty, but got over it by denying or doubting the impossibility of such an inheritance, and cited in support the familiarity of children with symbolism in language, which is almost instinctive, and he thinks must be due to inheritance. Most biologists, however, would say that this is purely environmental, and would find it difficult to accept as evidence the transfer from individual psychopathology to peoples and the human species. However this may be, it is difficult to account for the origin of the monotheism of the Jews except through the Aton worship and Egypt, unless it is assumed to represent a reaction against polytheism, as was the case with Muhammadanism.

The transmission of a group-sense of guilt is a psychological aspect of the sense of evil. Recognition of evil as well as good is an essential part of life in any form, whether evil is something which is harmful to natural needs of a material kind or some thought or action opposed to what is conceived to be good for the individual or the community. From a philosophic point of view, moral evil is inevitable if there is to be the possibility of moral perfection ; so that in moral or ethical evolution evil must exist as well as good. If we had not the freedom to do right or wrong, we should not be human but machines.

The problem of sin and evil and the penalty of suffering, inflicted alike upon the righteous and the unrighteous, were discussed by Job and his friends—Eliphaz, Bildad and Zophar—in the colloquies related in the Book of Job, which was probably written towards the end of the fifth century B.C. There is a possible reference to the fall of man in the verse (xxxi. 33), “If I covered my transgressions as Adam, by hiding mine iniquity in my bosom.” After Cyrus the Great, the founder of the Persian empire, had in 538 B.C. permitted



Order of the planets in relation to the Sun, as represented in the Copernican system. The diagram does not represent the actual distances of the planets, or the shapes of their orbits



Ptolemy's astronomical system, with the celestial spheres in the order followed by Dante and Milton



the Jews who had been transported to Babylon by Nebuchadrezzar, to return to Palestine, they became convinced that sin was universal and deeply rooted in human nature. Their contacts with the cults of evil spirits in Babylonia, and the creed of the conflict of good and evil in Persian belief, may have been causes of their pessimism. They searched their records for an explanation of this idea, and at first found it in the legend of the intercourse of angels with women, recorded in Genesis (vi. 1-5). The Titans resulting from this unnatural union filled the earth with violence, so the Creator first of all limited the number of their years to one hundred and twenty as a means of eliminating them. The verses recording these events are :

“ That the sons of God saw the daughters of men that they were fair ; and they took them wives of all which they chose.

And the Lord said, My Spirit shall not always strive with man, for that he also is flesh : yet his days shall be an hundred and twenty years.”

Later, however, the Lord decided to destroy the race by the Flood. This view of the origin of evil prevailed for some time in the Jewish Church, but the Rabbis afterwards interpreted other verses as meaning that the evil side of man's nature was due directly to God. The verses are :

“ And God saw that the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually ” (vi. 5).

After Noah had offered a sacrifice upon coming out of the ark, it is written :

“ And the Lord smelled a sweet savour ; and the Lord said in his heart, I will not again curse the ground any more for man's sake ; for the imagination of man's heart is evil from his youth ; neither will I again smite any more every thing living, as I have done ” (viii. 21).

A little before the Christian era these two views were prevalent—the story of the giants and the more refined doctrine of the “ evil imagination ”. The difficulty of explaining evil after the Flood, when all the wicked giants were destroyed, forced the view of the fall of man on the attention

of many, as recorded in the story of the forbidden fruit in the third chapter of Genesis. Christ does not appear to have taught the Fall doctrine, nevertheless it rapidly gained credence in the early Church and was used by St. Paul in connection with Christ's vicarious death. The explanation of this anomaly is possibly to be found in the fact that the ministry of Christ was centred largely in Galilee, a very backward province, which had suffered severely from the ravages of numerous wars and where many of the people were highly neurotic : hence the number " possessed with devils ". In this province, the refined Rabbi teaching, that God had implanted the evil imagination in man, a view still held by the Jewish Church, would not appeal so strongly as the Garden of Eden story. St. Paul, who exercised so far-reaching an influence upon the early Church, though brought up a Pharisee, and so conversant with the rabbinical story of the evil imagination, yet may have been almost deferential to the disciples who had talked to Christ. For this reason he probably took over from them the Fall story, though Christ had not said much about it, even if there is no mention of His condemnation of the story. The story has thus become incorporated in Christian theology, with the result that considerable confusion has ensued.<sup>1</sup>

It should be pointed out that none of these stories preceded the problem of sin and evil. Psychologically we may say that man had the sense of sin, and these stories were able, temporarily at least, to explain it. Anthropology knows nothing about the " Fall " ; primitive people do not conceive of evil in its ethical sense, either as a value or negation of value. Rather they regard it in a quasi-physical manner as something exhaling from imaginary persons and things.

If modernists accept the evidence that man has evolved from simian ancestors, many of whose traits we still retain, they may find an anthropological explanation in it of what is conceived as sin. Civilization and progress have not eliminated the brutal elements from us, and we are becom-

<sup>1</sup> For a modern and authoritative survey of this subject, see Dr. N. P. Williams's Bampton Lectures on *The Ideas of the Fall and of Original Sin*. (London : Longmans, Green & Co., 1927).

ing painfully aware of the fact that a high condition of civilization may exist side by side with utterly brutal qualities. This knowledge is producing a spirit of pessimism to-day, such as existed after the return of the exiles from Babylon, when the problems of life weighed heavily on Hebrew thinkers. That man is fallen in the sense of failure of his moral qualities to keep pace with his mental development and with his scientific attainments may be accepted as true. Everyone is called upon to struggle upwards towards higher ideals and goals, but each one also experiences, in a sense, the Fall, not once or twice, but often in life's journey. Whether any good is done by repeating the old Fall story as if it were historical is, to say the least, very doubtful. Nevertheless it embodies certain fundamental truths, such as the dangers of allurements by what seems attractive, the awakening of conscience, the pangs of remorse, and so on. As such experiences are not to be despised, the story has undoubtedly a significance for all of us, whether regarded as a parable or an intrinsic principle of human life.

## *Chapter Twenty-one*

### THE EASTERN WORLD AND THE CHRISTIAN ERA

As a general observation on the period between the centuries on either side of the birth of Christ, with special reference to the East, it would appear to have been a time of very great emotional and intellectual ferment, in which there was displayed a general and widespread interest in religious and philosophic speculation. For example, the activity of Hellenistic philosophy, the neo-Platonic philosophers and the Alexandrine schools (all these, however, rather earlier), the development in the doctrine of the Stoics, especially in regard to the doctrine of the brotherhood of man, which proved of such assistance in spreading the doctrines of Christianity, and undoubtedly affected the character of Christian ethics, Mithraism, which reached Western Asia about the same time as the rise of Christianity, the search of the Jews for a Messiah, the spread of the worship of Isis and other mystic cults to the Roman world, where they attain great popularity, and so forth. It is to be noted that further east, in these centuries B.C., there was considerable activity in Persia, in India, where Buddhism was at the height of its power in its native country, while in China the rise of the Han dynasty from the third century B.C. onward was bringing about an intellectual, moral and political regeneration.

As regards the Nearer East it is possible that this intellectual ferment may have been a repercussion, in part from further east, especially in the spread of Persian ideas relating to powers of good and evil, but in part also due to the rising power and expansion of the Roman empire, beginning with

the victory of the Romans in the second Punic war, just before the beginning of the second century B.C. (205 B.C., Battle of Zama), the fall of Carthage (146 B.C.), and the capture of Athens by Mummius in the middle of that century (149 B.C.). The rivalry of Pompey and Caesar, and later of Anthony and Octavian (Augustus), both fought out in the eastern arena, intensified the feeling of unrest and the desire for something stable, if unattainable in the material world at least in the world of the spirit. In any event, in the first century A.D. it was a matter of confident belief in the East that the end of the world was at hand. This belief was especially strongly held in the Jewish community.

### MITHRAISM

The religion of Mithra, widely spread throughout the Roman empire in the early centuries of the Christian era, is generally, but probably erroneously, held to have been a rival of Christianity, which came near to swamping the latter. It is probable that this view attaches too great a significance to the large numbers of the relics of the cult which have survived. The geographical distribution of these remains suggests that the spread of the cult among the general population was not extensive. With the exception of Dacia, evidence of the cult in the Roman empire is mainly confined to the frontiers and trading centres.

The view that Mithraism was almost exclusively a cult of soldiers, traders, and slaves may therefore be correct. The exceptional position of Dacia in this respect is known to be due to the fact that after the capture of that province it was peopled with colonists from the East. The army and the trading and slave population of the empire at this time were also drawn largely from the East. Although the Mithraic cult was introduced to Rome by the Sicilian pirates captured by Pompey in the first century B.C., it was slow in making headway, until it received encouragement from the emperors as a religion of the legionaries, on account of the support it gave to the divine right of kings. When once it had taken a hold, however, its spread was rapid, favoured,

as also was the spread of Christianity, by the unity and uniformity of administration of the empire.

Mithra, or Mithras, first appears as one of the old Iranian deities or spiritual beings in the Avesta, that is, dating from a period prior to the parting from the Arya tribes who invaded India. He appears again, fighting on the side of Ahura-Mazda, as a power of light, and in the references to Zoroastrianism in Hellenistic literature. It would thus appear that the cult spread with the conquests of the Persians, one branch reaching the Euphrates, another settling in Cilicia. Apparently, however, the cult did not reach Western Asia until about the beginning of the Christian era. By this time it had become associated with the Sun, and had taken on something of the character of a mystery cult, such as was familiar to the Hellenistic world, of which evidence also appears in Christianity; for example, in the common ceremonial meal—the Last Supper.

As already mentioned, the cult came to Rome from Cilicia in the first century B.C. By the time of Augustus it had made little headway, but its influence grew as Rome's contact with Asia increased. The army, apart from its eastern contacts, favoured the cult, more especially the emperor and what may be called the Higher Command, by whom it was regarded as a bond of loyalty, because of its support of the divine right of kings. This was a survival from the Persian belief that a legitimate sovereign ruled by the grace of Ormazd, who bestowed upon him, as a mark of his favour, a celestial aureole of fire, like the halo of the Christian saint. A development of this belief was that this aureole was given by the Sun. Mithra was then identified with Sol Invictus, and thus became the giver of authority and victory to the imperial house.

The downfall of Mithraism began about A.D. 275, when the province of Dacia was lost and, also, Christianity became aggressive in its attitude. It continued to be the cult of the army with the emperor's favour until the conversion of Constantine to Christianity. For a brief period there was a revival under Julian the Apostate, but it died finally with the victory of Theodosius in A.D. 594, surviving only in

isolated districts of the empire, such as certain parts of the Alps.

The Mithra legend has been lost, and such account as can be given of it is a reconstruction and interpretation from the material remains. These consist of sculptures—of which some of the best known come from the north of England, along the Roman Wall and at York, where the legionaries were quartered—chapels, underground grottoes, and caves, and imitations of caves. Some of the grottoes would hold from fifty to a hundred worshippers. It was thus a secret or mystery cult, to which women were not admitted.

The typical Mithraic relief is of Mithra, as a young man wearing a pointed cap, slaughtering a bull, while a scorpion seizes on the genitals of the bull. Numerous other figures are shown, such as the dog, the sun-god, the raven, a fig tree, a lion, torch-bearers and so forth.

From the various elements in the sculptures, the outline of the story is reconstructed thus. Mithra was born of a rock. Certain shepherds who witness the event approach and worship, offering gifts. Chilled by the winds, Mithra clothes himself with fig leaves, and then makes friends with the Sun. He captures the sacred bull of Ormazd, and at the orders of the Sun, but with reluctance, sacrifices it. From the blood of the dying animal sprang the life of the earth, wherefor Mithra is henceforth regarded as the creator of life. (The scorpion attacking the genitals of the bull, expresses the attempt of the power of evil to frustrate his work of creation.) When Ahriman, the power of evil, sent a drought, Mithra ended it by firing an arrow against a rock and thus drawing water from it. Then Ahriman sent a deluge, from which one man only escaped in a boat. Afterwards came the end of the world by fire, when only the creatures of Ormazd, the power of good, escaped. Finally, Mithra, his work finished, banquets with the Sun and is taken by him in his chariot to the immortals.

The resemblances in this legend, such as it is, to incidents in both the Old and the New Testament will be obvious, and need no emphasis. That there has been direct borrowing is a possible, but not a necessary, explanation of the

similarity. It is more probable that on both sides there has been a gathering up of a number of folk and cult tales, current among the peoples of Western Asia, which have been incorporated on the one side in the sacred literature, and on the other represented as incidents of the life of the god in Mithraic cult art. Further resemblances may be noted in such particulars as have been preserved of the ritual and organization of the cult. Here, it should be noted, there appears also an element from the mystery cults of the Greek and Roman world, some of which also appear in the Christian record.

It is stated that there were seven stages of initiation in the Mithraic cult. One part of the ceremonial, to which advanced initiates were admitted, was a sacred communion of bread and water, or possibly of wine. This sacred communion obviously is to be compared with the Eucharist. Both, no doubt, bear some relation to the common meals of the mystic associations and the sodalitia or societies of various kinds and for various purposes of the Greeks and Romans. At the same time, and especially in view of their mystic association, it is not unwarrantable to regard them as a survival of the sacrificial meals of earlier and more primitive forms of worship.

It is said by Tertullian, who was born at Carthage about A.D. 150, and was one of the greatest ancient writers on the Christian Church, that, like the Christian religion, the Mithraic cult had among its members bodies of celibates, "*virgines et continentes*", though the former is scarcely consistent with the statement that women were not admitted to the cult. Possibly they were associated with it, without actually taking any active part. The members of the community formed a corporation, much as did the Christians, which was supported by voluntary contributions.

The tenets of the cult promised immortality in union with a god; but a high moral standard, with an observance of the ritual, was demanded. The member of the Mithraic community regarded himself as a soldier fighting with Mithra on the side of good against evil. Those who so conducted themselves were rewarded by gaining the original

beatitude of the soul. This is essentially an Eastern ideal, which also appeared in the Greek world later ; and it may be compared with the Indian pantheistic conceptions.

The relations between Christianity and Mithraism were anything but cordial, and scarcely such as to encourage borrowing. In fact, the close resemblances between the two cults caused intense hostility. The principal points at which the two cults came into contact were in Rome itself, in Africa and in the Rhône valley—which was a very early and much frequented trade route.

The resemblances to which students of Mithraism have directed attention include among a number of others, and in addition to those already mentioned, the fraternal spirit and the humble origin ; the use of bell and candle, holy water and communion, the santification of Sunday (each day in the week was connected with a planet) ; the special character of December 25 ; the insistence on moral conduct, abstinence and self-control ; Heaven and Hell ; the atoning sacrifice ; the warfare of good and evil ; the immortality of the soul ; the last judgment and the resurrection. As also mentioned, some of these elements seem to be derived on both sides (Mithraism and Christianity) from the mystery cults, while others appear in Manichaeism.

When the incorporation of pagan elements in early Christianity or Roman (Catholic) creed and ritual is remembered, it may be asked why Christianity made no attempt to subsume the Mithraic cult, when there were so many close resemblances between the two. Or did Christianity really borrow from the Mithraic cult?

A consideration of the “ machinery ” by which pagan elements were incorporated in Christian practice and ritual indicates that the first alternative was impossible and the second improbable. It was not the Church organization which incorporated these pagan elements, but the converted pagans themselves. They modified Christianity to suit their traditional practices and rituals. The conversions, of which we hear so much in the early spread of Christianity, were no more than formal. The chief of a tribe might undergo a change of heart after argument with the

missioner ; but when he was converted, with him were baptized his whole people or tribe. For example, in the seventh century Paulinus is said to have baptized ten thousand Northumbrians in one day. There can thus have been little opportunity for the individual to attain conviction. When later it came to the practice of the Christian religion, these tribesmen continued to hold much the same beliefs as before, and practised at least the more cherished elements in their own ritual, with the result that sooner or later many of them were permitted, and some, such as the cult of the mother-goddess, adopted as the official practice of the whole church. Hence the intolerance of the north for the Mariolatry of the Mediterranean.

Mithraism was a kind of secret fellowship and therefore indifferent rather than intolerant to other organizations. It was based upon the worship of one god—a solar deity—instead of many, and in that sense was distinguished from the polytheism of the times.

The qualities and activities attributed to God in the religions that are living and have lived were traced historically and compared by Dr. L. R. Farnell in the Gifford Lectures delivered by him in 1924-1925.<sup>1</sup> Dr. Farnell limited his survey to beliefs actually held at various epochs rather than to philosophic thought about them ; so that his work is in the main a survey of the aspects in which men have conceived their deities. Belief in a personal God is the essence of most active religions, because His highest attributes are Wisdom and Love, and these cannot be worshipped in abstract philosophic conceptions of a universal " Absolute ". A personal God is not, however, equivalent to pure monotheism, which, Dr. Farnell held, is represented only unmixed and alive in Judaism and Islamism. Referring to Christianity, he said, " the current popular religion of Europe should be rather described as a high spiritual polytheism tempered and restrained by the Athanasian creed ", while the cult of the Virgin and the saints is a reminder that " Mediterranean polytheism was never permanently over-

<sup>1</sup> *The Attributes of God*. By Lewis Richard Farnell. (London : Oxford University Press, 1925.)

thrown, and that many of its fibres survive in the soul of our orthodox Christianity ”.

It is not surprising that the record of early Christianity in the Gospels includes references to customs and practices which, though not recognized as pagan, were survivals in Jewish society of pagan origin. The disciples and early Christians, belonging to the lower strata of society and being of artisan or peasant origin, probably, as this class always does, had retained popular elements of belief and custom, which had disappeared, or were despised among the educated, and thus do not appear in secular literature. The Last Supper, for example, it is generally admitted, while adopted from the practice of associations and societies, some of them religious in character, among Greeks and Romans, was nevertheless a survival of a communion or sacrificial feast, as is evident from the doctrine, and resulting controversy, of “ My Flesh ” and “ My Blood ”, and transubstantiation.

The Crucifixion itself coincided in time with the spring festival of paganism and with the Passover, which itself in some obscure manner was associated with a sacrifice of the first-born. The clamour of the Jews for a victim suggests a survival of a spring sacrificial observance with a human victim, which the evidence collected by Frazer in *The Golden Bough* shows was or had been general in pagan Western Asia. The tongues of fire which descended with the gift of tongues on the apostles at the feast of Pentecost bears a distinct suggestion of sun worship, especially when it is remembered that the halo bestowed on the legitimate monarch by the Sun in Persian belief was adopted as a mark of the saint in Christian art.

Much that is incorporated in the narrative directly concerning Christ suggests that he has been invested with the attributes of the wonder worker or shaman. This is not only in the matter of the miracles. Thus, for example, the sojourn in the wilderness for forty days corresponds to the preparation in isolation for a period, which is the initial stage in the making of a shaman all the world over, the temptation being analogous to the spiritual experience

which some of them claim. Mortification of the flesh is a common practice in the East, going back in all probability to a very remote period. Again, the story of the child Christ instructing the doctors in the temple is characteristic in the legends of most great religious teachers of the East, and may be compared with some of the stories of the child Buddha in the *Jataka*, which is a Buddhist collection of traditional and other tales. All the holy men of the East are said to work miracles of one kind or another. The remarkable feats which have been attributed by travellers to the Tibetan lamas, or the performances of Indian fakirs and even conjurers, are said to be due to the possession of supernatural powers, but the only sense in which they are miraculous is in their unusual character or ingenuity.

## *Chapter Twenty-two*

### CHRISTIANITY OR CHRISTIANITIES?

**T**he orthodox view of the history of the Christian religion is, broadly speaking, that of a continuous development from the teaching of Christ down to the present day, in which it is admitted there have been certain crises. Among these are the separation of East and West, which was a doctrinal and also a political separation of Byzantium from Rome ; the Reformation, which some would go so far as to maintain was not doctrinal but a rejection of the supremacy of the Pope ; and in the English Church the secession of Non-conformists, who, nevertheless, in the main still regard the English Church as Protestant, while the Church itself clings to the title Catholic. On this view, Christianity is one in belief throughout, and the differences which have arisen have been on subsidiary questions of doctrine, or on points of church government. The exception is the Unitarian view, which, strictly speaking, would exclude its followers from the category of Christians.

There is, however, another point of view. The Roman Church, more especially in its missionary activities, has always shown respect for the beliefs of pagans, and is ready to adopt heathen ceremonial, processions, festivals and the like when these do not conflict with Christian practice and when doctrine, if at all obtrusive, can be adapted to Christian belief. This is an inheritance from the early days of the Christian Church. It was an express instruction, for example, in the letter of Gregory the Great to Mellitus, the first Bishop of London, that the missionaries to Britain should show themselves considerate to pagan belief and worship, so far as was possible.

As a result of this latitudinarian attitude, it is possible to maintain that, within a century or two of the Crucifixion, Christianity had lost its original character and had ceased to be Christian. Particularly after Constantine, in the third century, Christianity had become a number of different religions of local origin, although in course of time these have come to be adopted as part of the general ritual and belief of the Church. Thus, for example, the Eremites—the devotees who betook themselves to the desert and there practised austerities of various kinds and degrees of discomfort in their mortification of the flesh—were not following a ritual which belonged to Christianity, notwithstanding Christ's sojourn in the wilderness, but were adopting the practice of the fakir, even as these act to the present day.

Similarly, the cult of the saints is a survival of the polytheism of paganism. This is an especially interesting instance, because in the cult of the local saint (or local cult of a saint) we have a survival which goes behind the polytheism of Greece and Rome. These systems were amalgams of belief in which local deities had been taken up into the official pantheon, just as happens in Hinduism to-day with jungle gods. Such local cults, for example, were the worship of the goddesses Aphrodite, Artemis and Pallas Athene—the goddess of Athens, and even Zeus himself—the sky god—was in places a local deity, for example, at Dodona, in Epirus.

Most interesting of all, however, is the cult of the Virgin Mary, which did not begin until the fourth century A.D. There can be little doubt that here we have a survival of the cult of the mother-goddess, which was the most deeply rooted and the most ancient of all the cults of the Mediterranean peoples and of the cities and peoples of Western Asia extending from Asia Minor to Egypt. The hold of this cult on the Mediterranean peoples was and still is so strong that it can only be concluded that, after conversion to Christianity, the bulk of the population, more especially the less educated (as always happens) reverted to their old cult, which was then transferred to Christianity without substantial change.

The conclusion would seem to be that Christianity soon

ceased to be the religion taught by Christ and his disciples, and became a number of local religions more or less according with previous local pagan beliefs. While some of these, such as the cult of saints and Mariolatry, have been adopted officially by the Church, others were regarded as heretical and adopted either not at all or by part of the Church only. Such, for example, was the fate of Arianism, which made Christ a demi-god, and Pelagianism, which denied the doctrine of original sin acquired through Adam's fall, and placed the choice between good and evil upon individual consciousness from birth to death. As Pelagius was a British theologian it is not surprising that the British Church was notorious for its addiction to Pelagianism. The Armenian Church is still regarded as heretical by the Church of Rome and the Greek Orthodox Church. To adapt the term of the archaeologist, these cults and heresies are "developed" or "evolved" Christianity. The Orthodox Church, divided up into Russian, Greek and Slav, is another example of local development.

This view that the religion of Christianity as practised by Roman Catholic and the Orthodox Churches as a congeries of local rituals and beliefs, manifestations of different cultural traditions—it is tempting to qualify them as racial distinctions—gains considerably in significance if applied to the later cultural history of Europe. When the peoples of Northern Europe, the followers of Odin or Wotan, especially in Scandinavia, were converted to Christianity, although the sacred groves were cut down, yet on the whole much respect was paid to their beliefs, and there is no doubt that in Northern Europe much of paganism survived for a very long time; for example, Yule became Christmas.

This religion was essentially virile. The gods were gods of battle; and it is interesting to remember that until recently, more especially in England and Scotland, it was the Old Testament with its theology of Jehovah—the God of Battles—rather than the New Testament, which most influenced the life and thought of the people. With this in mind, it is possible to regard the Reformation as a breaking away of a people addicted to the virile deity of the north from the

Mariolatry of a Mediterranean form of belief. Also, in the Episcopal Church, the aversion of the Nonconformist from all ritualistic practice may be regarded as a revolt from the last vestige of the pageantry more appropriately belonging to a form of religion native to Southern Europe.

Nor does the distinction stop there. For while all forms of religion, that is, official religion, in Northern Europe, with the exception of Russia and the Russian Lapps, are Protestant, none is alike in conception of the Deity in doctrine or in ritual. There is a French, German, Scandinavian Protestantism, and so forth. The extreme form is Genevan Calvinism. These distinctions are unquestionably matters of traditional culture, and here again it is tempting to consider them as matters of racial mentality, if it were not now difficult to define what is meant by racial without falling out with biological views of race. It is, however, unquestionable that certain of the religious persecutions, such as those of the Hussites of Bohemia and the Albigenses of the south of France, had racial feeling behind them, though ostensibly carried out on religious grounds.

It is interesting to note that distinctions were to be seen in the Roman Church, although it claimed to be Catholic. The Inquisition, which was instituted as a court of inquiry into heresy, was a very different institution according to the country in which it sat ; and, if the persecution of witches be excepted, there was no country in which it took such strong hold, nor in which its inquiries were prosecuted with greater zeal, than in Spain, where the decisions of the court were notorious for their severity.

Even with English Christianity there are cleavages between Church of England and Nonconformist, and cleavages among Nonconformists themselves, which follow national distinctions, for example, Scotland and Wales, while in England itself the distribution of Nonconformity seems to coincide broadly with certain racial distributions. The Nazi doctrine of a German God would thus seem to have, historically, something to be said in its support.

If this view be tenable, and there is not one, but many, Christianities, each a development of the original doctrine,

modified in accordance with environment and local cultural tradition, is it any longer desirable or even possible to speak of a Christian Church? To this the reply must be that just as there is a recognizable physical type, notwithstanding racial differences, which is predominantly found in Europe, and a European civilization which has certain common elements, notwithstanding national and local differences, so it is in religious belief. But though Christians differ in their conception of the Deity according to their habitat, training and culture, and exhibit widely diverse modes of approach in their ritual and habit of worship, yet as a whole they have a common ethic, a common outlook, and a common point of view from which to approach the problems of life and death.

This should make it possible for members of the various sects to sink their differences in order to co-operate in those enterprises and aims which the difficulties and dislocations now arising in the working of modern civilization impose upon men of good will. If those who hold the more extremely divergent positions in Christian belief should find it possible to co-operate in the advancement of mankind and the promotion of the aims of civilization in the higher sense, there is no reason why this will to work with others of different views should be confined to members of the Christian faith and should not be extended to those of faiths other than the Christian whose ethic is equally devoted to the service of mankind.

Various attempts have been made, at one time or another, by the Church of England to co-operate with other Christian Churches on the ground that doctrinal differences are not too wide to prevent some measure of joint action, but except for occasional interchanges, the attempts have failed. With Rome, obviously, tradition and the questions of supreme authority and the validity of Anglican Orders are difficulties which, apparently, are insuperable. In any movements intended to bring Christian believers together, it must be remembered that the different churches, doctrines and organizations of Christendom, or even Protestantism, do express a real difference in outlook on and understanding of

theological concepts, whether this is to be regarded as a national, racial or cultural difference. The problem to be solved is whether this difference of racial or cultural outlook is so fundamental that the difference in doctrinal concept precludes co-operation on an ethical basis.

The problem of co-operation becomes infinitely more complex when we have to consider not merely the different points of view of the various Christian Churches, but have to take into account the different outlook and the various cultural backgrounds of the peoples of the other great systems of religious belief of the world.

The world-wide protests aroused by the Nazi attitude to religion and the treatment meted out by it to individuals on the ground of religious conviction are, however, hopeful signs of a movement towards unity on fundamentals. The essence of all great religious systems is belief in the attainment of high ideals by devotion of service to them. Different individuals and communities require different doctrines and rituals to bind them together in worship of any kind, but all such formularies are only ancillary aids to a universal faith in the possibility of ascending towards the highest good by human endeavour. It is on this principle that all great religions should be able to unite with the common purpose of promoting whatever may be called divine in the nature of man.

## *Chapter Twenty-three*

### ORIGINS OF EUROPEAN CIVILIZATION

The “ evolution ” of European civilization may be considered as a series of epochs in which is manifested the play of centripetal and centrifugal forces, making for the integration and disintegration of social unities, and operative in ever increasingly extended fields of human associations—“ from tribe to empire ”. The integrating force by the expansion of the sphere in which individuals co-operate for the attainment of common ends makes for the ultimate recognition of the common purpose of mankind as a whole. This force became united in the great kingdoms and empires of the early eastern peoples of different racial and cultural origin and tradition, but who, nevertheless, came to regard themselves as more or less akin, or at least united. On the other hand, the disintegrating force makes for exaggerated nationalism and separatism, such as existed in the Greek city-states.

In the same way it may be shown that, in the sphere of religious thought, the common political bond, and the conception of the divine character of the ruler, give rise to a form of religious belief in which a beneficent deity reveals his purpose to his people in the working of the universe, and that as such, he ultimately becomes the supreme and sole divine ruler.

It is interesting to trace how, among the many facets in the development of the complex modern civilization of the West, the influence of the two sets of forces, the centripetal and the centrifugal, makes itself manifest, now one, now the other force gaining the upper hand. Transcending social

organization and the political sphere—the more immediate fields of their activity—they pass over into the domain of intellect and emotion, transforming modes of thought as well as ritual and religion. Nowhere can this be discerned more readily than in the two great cradles of civilization, the Nile River valley and the river-system of Euphrates and Tigris. Here geographical environment and economic necessity were integrating factors, which imposed a certain form on social development. This endured under their influence, virtually unchanged, notwithstanding racial and dynastic vicissitudes, for a longer period than any form of organized government in any other phase of the world's history, or in any other region of its surface, except perhaps in China, where analogous influences were in play.

In the Nile valley the vital requirement of a conservative use of the annual overflow of river waters as a condition of continued existence not only demanded in the long run the extension of the Egyptian *imperium* from the Delta to the Sudan, but it also called into being and gave stability to an elaborate State organization of administration and control. The dependence of Egyptian civilization on the Nile, with all that that implied, evoked a sense of social solidarity, in which the king, as the source from which emanated order, was *ipso facto* the source of fertility and prosperity, both in the material sense and ritually as the embodiment of the deity.

It is not without significance that Egyptian culture, which, not unnaturally, from the conditions of life in the Nile valley, excelled in the development of mechanical science, surpassed all other early civilizations in the magnitude and massive character of its monuments. It was the attitude of the people to their ruler as absolute in temporal power and as an embodiment of divinity—call that attitude religion, loyalty, servility, as you will—which by the provision of vast multitudes of State-employed labour made possible the erection of these mighty monuments and at the same time afforded opportunity for the development of the mechanical science by which they were erected. This technical skill, however, had grown in the first instance out

of the necessity for a corporate solution of the problems involved in the utilization of the Nile flood.

There is a further significance to be discerned in the relation of king, State and people in Egyptian culture. Although Egyptian religion included many primitive and barbarous elements, which were not sloughed off entirely for ages, it included also tendencies not far removed from something approaching monotheism—tendencies which, in fact, did develop into overt monotheism under Ikhnaton. In the hierarchy of the gods the local deities of the territorial divisions which had been welded into the Egyptian kingdom do indeed remain ; but they recede into the background and assume positions of inferior importance and authority. In the worship of Ra, the sun-god, of whom the king was the embodiment, and in the cult of Isis and Osiris, we get what is perhaps the earliest conception of a deity, who is not so much a spirit from whom harm may befall unless propitiated—the mark of the primitive in religion—as a being who is a beneficent source of prosperity and fertility when an appropriate ritual is duly observed.

The character and functions of the kingship in Egypt as an earthly manifestation of divinity were such as to foster this conception, if they did not actually give rise to it. At the same time it must be remembered that both this conception and that of a single Supreme Power developed in the religious thought of Ikhnaton may not have been uninfluenced by ideas coming from further east. The worship of Isis and Osiris is, it is believed, native to Syria. It bears traces of a relationship to the mother-goddess cult of the Mediterranean, and still more nearly to that of the mother-son cult of Western Asia ; while the concept of a divine and all-powerful overlord finds its closest mundane analogy in what we know, though from slightly later times, of the reverence paid to the monarchs, the great kings of the Asiatic dynasties.

Of the debt of modern civilization to Western Asia it is not possible to dwell here at any length. The subject is too vast and in part too well known : but of Mesopotamia something must be said, more especially as the recent work

of the archaeologists in that region and interpretation of the records in cuneiform on clay tablets found there and in Asia Minor (Hittite and Syria) are constantly adding to our knowledge of the importance of the great river-system of the Euphrates and the Tigris in the development of cultural factors, which have persisted in one form or another down to the present day. For it was in Mesopotamia that there first developed a great commercial civilization, based on exchange of the products of vast flocks and herds, which, as the accounts and correspondence preserved in these clay tablets bear witness, was elaborately organized internally, and reached out to Egypt, India, the highlands of Asia Minor and the Caucasus, and to the Mediterranean, where in the need for tin it may have extended so far afield as Spain.

This great system not only demanded an ordered society and geographically a territory reasonably safe for transport, but it also required and evolved a code of laws and a system of morality such as would ensure fair dealing as between man and man, and at the same time justify the commercial credits made necessary by the distances and time consumed in the exchange of commodities. For all this concrete evidence exists in the records of the tablets ; but apart from these the wealth in the Royal Tombs of Ur of the fourth millennium B.C., discovered by Sir Leonard Woolley, are evidence of an advanced and highly organized society. In the middle of the third millennium B.C. Sargon of Akkad not only claims to have extended his rule to "the Upper Sea", possibly the Mediterranean, but by the provision of roads throughout his realm to have afforded safe and rapid transit for his subjects ; while under the supremacy of Babylon at the close of that millennium (about 2200 B.C.) Hammurabi promulgated the great code of laws to which Hebrew legislation of the Old Testament was afterwards deeply indebted.

It is, however, in the realm of the intellect and the development of religious thought that the debt of both the ancient and the modern world to Mesopotamia transcends calculation. It may be that to Mesopotamian conceptions

were added later contributions from India and the Ganges valley, as well as earlier tribute through the valley of the Indus. From the Mesopotamian system of magic and the necessity of watching times and seasons in the interests of the pastoral industry developed the science of astronomy, as well as the art of astrology ; while from this same body of magic and divination there came, as there also arose from a like source in Egypt, not only a knowledge of anatomy, physiology and pathology, but also the first steps in medicine and the art of healing.

In the realm of religion the peoples of Mesopotamia and the Iranian plateau, with thought and emotions directed along certain lines by environment, culture and social organization, evolved a system of religious belief, in which the central idea, as shown in their legends of Creation and the Flood, influenced by their belief in the ever-present malevolence of demons, was that the universe was the scene of an eternal conflict between the principles of good and evil. This concept was inherited by Zoroastrianism, whence it reached us through Gnostics and Manichaeans. In addition it also passes into the doctrines of the modern world on one hand through the philosophy and science of the Greeks, where it appears in the idea of the principle or principles immanent in the appearance of things and the doctrine of *ὕλη* or "matter", and on the other hand through Jewish belief, as, for example, in the story of the Garden of Eden and the Fall. The story was in part an inheritance from the tribal traditions of Abraham, but more especially a result of the religious and intellectual contacts of the Jews during their captivity in Babylon. Thence it was handed on with the Bible as part of the inheritance of Christianity.

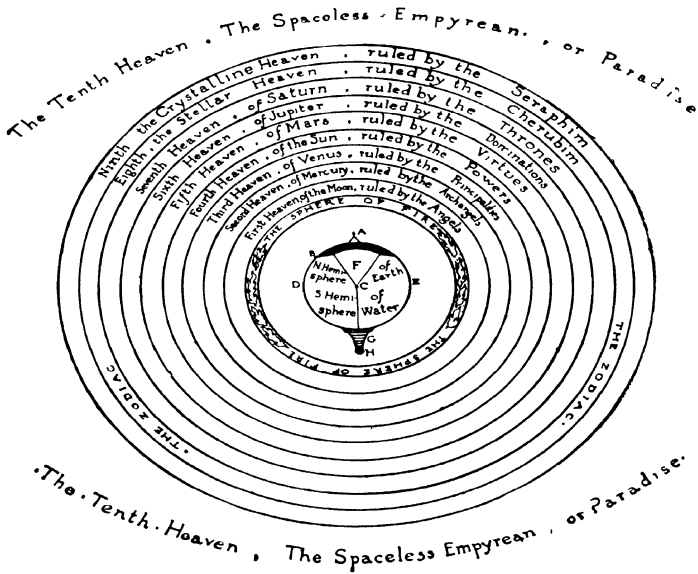
Herodotus, in the opening page of his great history of the ancient world, dramatizes the story he is about to relate by viewing its events as stages in a titanic struggle between East and West. That struggle endures from the Trojan War to the defeat and withdrawal of the East, as personified in Xerxes and the forces of the Persian empire, after the battles of Salamis and Plataea in 480-479 B.C.

For us who have the advantage over Herodotus of a

panorama of subsequent history extending over a period of more than two thousand years, the triumph of Greece was not the final victory. Other great racial movements from the East had still to come ; and to those who surmise that world dominance may yet pass to the yellow races, the matter still hangs in the balance. The Turk clings to Istanbul ; and the wave of western advance in Asia, which slowly followed on the retreat of the hordes of Genghis Khan and Tamerlane, may recede once more in face of renewed Mongolian conquest.

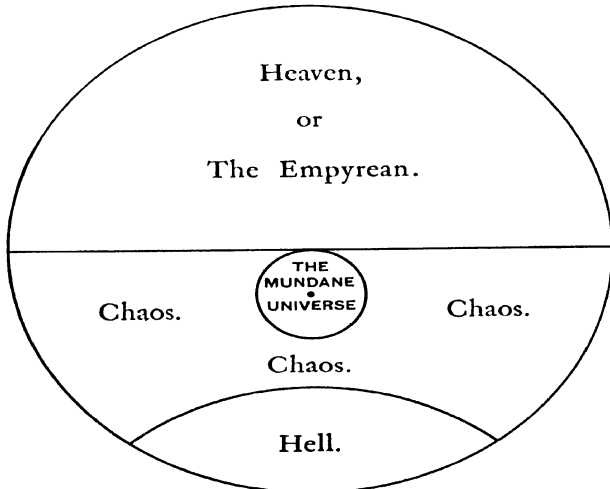
To others, the rise and fall of empires recorded by Herodotus may present themselves in a different light. In recent years a clearer and more extended view of the early movements and antagonisms of nations and peoples has been revealed by the spade of the archaeologist and the interpretation of archaeological discovery by the prehistorian. In the new orientation they appear as initial phases in a struggle between centripetal and centrifugal forces in the " evolution " of human society. In the growth of society from tribe to empire we see the process of integration of ever larger and more highly organized social units, and in their fall the breaking down of that process when integration presses beyond the point at which, at that stage in the development of man's social consciousness, its survival value is adequate to counterbalance the strain of the sacrifice of individuality necessary for its maintenance. Empires such as those established by Alexander, Julius Caesar, Napoleon, although undoubtedly the outcome of personal qualities and abilities, were yet each the creation of a great leader who was the man of his moment. These conquests were possible, only because their leaders had behind them the force of a people ripe to expand—to become a larger and more highly organized society, or, in other words, to advance a stage further in the process of social evolution.

Hence the permanence and not the vast extent of these conquests must be the measure of their success. Empires based on conquest through the medium of outstanding force of personality, such as those of Alexander or Napoleon, have commonly crumbled with the death or the decay of the



From E. G. Gardner's "Dante" (Dent, 1900)

The Universe as represented in Dante's *Divine Comedy*.  
 A, Jerusalem; B, Italy; C, centre of Earth; D, Spain; E, the Ganges; F, Hell; G, Purgatory; H, Eden



The Universe as represented in Milton's *Paradise Lost*



powers of their founders. Ambition has embraced more than the motive power behind it could sustain. The centrifugal force has prevailed—not, however, to restore the *status quo*. Alexander's generals and their descendants long held the disjected members of his empire; France still remembers her imperial aims under the first Napoleon; and it was the countercheck to that emperor's ambitions that made the German empire a possibility. Always, if only by the mere force of opposition, some advance has been made.

If fate decreed happier fortune over a substantial period for the conquests of Julius Caesar, it was because they rested on a surer foundation in the people's will. They were a part in the organic growth of the Roman empire as a scheme of defence for the heart and brain of the organism—the mother-city of Rome. That empire endured beyond the lifetime of its founders because the assimilative genius of the Roman people, and most of all the organizing ability of Augustus and his immediate successors, were able to absorb conquered peoples and territories as veritable scions grafted on a mighty stock, so that St. Paul, holding himself a Hebrew of the Hebrews, could at the same time proclaim with pride *Civis Romanus sum*. For the time being the Roman empire had solved the problem of the nice adjustment of the forces of attraction and repulsion in an equilibrium.

European civilization is rooted in the East. When European culture as considered by the archaeologist emerges from pre- into protohistoric times—say at the beginning of the first millennium B.C.—the European peoples are broadly speaking at the tribal stage of social development. Tribal migrations at the beginning of the Iron Age had swept away, or were in process of absorbing, such advances as had been made in Bronze Age culture. Troy had fallen. The great empire of Knossos and its kingly heirs of Mycenae and Tiryns had vanished, leaving little trace behind. How far Knossos contributed to European civilization, beyond traces in material culture, it is impossible to say; but it is legitimate to assume that its contribution was little or nothing, so completely was all memory of this great civilization obliterated by the invaders from the north. Nothing but a vague

tradition remained, until the discoveries of the latter half of the nineteenth century of the Christian era.

In a tribal society, even though that society may be an aggregation of lesser units, the fundamental conception of social organization is separatist. Each group regards itself as sharply marked off from all others. In such a society the ideas or conceptions which are here regarded as characteristic of modern civilization could not arise, and for their origins we must look outside Europe to the East. Even the great Celtic empire, which in the views of certain archaeologists dominated Western and Central Europe, and even invaded the East, in the centuries immediately preceding the Christian era, was, it is admitted, an area of cultural uniformity held by a number of peoples of common tongue. Possibly it was largely of common racial character, but it was not a political entity in the sense in which that term applies to the great kingdoms and empires of the East, or capable of producing that unity in thought and concept for which we seek. The ideas here regarded as inherent in modern civilization, which it is suggested originated in the social and religious conceptions of the great empire of the ancient East, may thus be stated as follows :

First, the integration in a single political unit under a common social organization of groups of peoples, originally discrete in race, culture and religious traditions, who were brought under a single rule by conquest or other method of absorption, but were welded together for common well-being (not always, be it noted, of their own will), and came to regard themselves as all more or less akin and united as members of a single community or nation. It was in this manner that the separate territorial groups—afterwards nomes—of Egypt were united in the joint kingdoms of North and South, or the city-states of Sumeria came ultimately to be united under Sargon of Akkad, or Mesopotamia as a whole was dominated in turn by Babylonia and Assyria. This is the centripetal force, the concept of a unity with common purpose and common interests, of which in Europe analogies are to be seen in the Roman empire, the religious and intellectual dominance of the early Roman Church up

to the Reformation, the Holy Roman Empire, the frustrated aim of Napoleon and the idea underlying the League of Nations.

Secondly, the idea that, from the analogy of the ritually divine character and purpose of the kingship as assuring the prosperity and well-being of his subjects, even so a like beneficent being or beings, power or principle are behind the multifarious appearances and activities of the universe, by which the nature of this being or beings is revealed and unfolded to the understanding of man. Except in the heretical doctrine of Ikhnaton, this conception never quite attained to monotheism, but it did with the Persians lead to dualism, the principles of good and evil—Ormazd and Ahriman—and as such passed over to the Greeks. Here, then, it would seem, is the germ of the conception of the regulation of the universe as a revelation of the Divine purpose ; but it was only among the Jews that polytheism, the Baals and Gods of the High Places, were rationalized into the doctrine of the one and only true God. For another doctrine—the brotherhood of man—which may be regarded as characteristic of modern civilization, it is necessary to look to the contribution of Christianity and the influence thereupon of the philosophic conceptions of Stoic teaching.

European history is a struggle between East and West, the results of tribal migrations from Asia into Europe and their resurgence, when the extreme west is reached. This movement began so far back as late Palaeolithic times possibly, certainly in Neolithic. The migratory struggle in Europe reached its peak of highest intensity in the early centuries of the Christian era ; but it is still going on.

Combined with the struggle of West against East is the attempt to integrate the whole or part of Europe. This is only one phase of a movement towards integration which goes back to the earliest stages of man's social history, as has been shown in dealing with Egypt and Mesopotamia. Napoleon and the League of Nations are examples on a grand scale ; but in greater or less degree this movement runs throughout European history ; for example, the various Protestant Leagues, the Roman empire and the Roman

Church. Most of these movements have been based on force, but the Pan-Germanic, Pan-Teutonic, Pan-Slavic and Pan-Turanian movements are examples in which race has been urged as the basis of union. This also was the sentimental side of the British empire.

As against these movements towards integration, there have been the centrifugal forces, mostly nationalist. The Greek city-states have been taken as examples of the centrifugal sentiment. The centrifugal force in the British empire was responsible for the passing of the Statute of Westminster, which brought the empire to an end, and gave rise to the looser organization of the British Commonwealth of Nations. The importance of this conception of centripetal and centrifugal forces at work in the development of civilization is that it represents an effort towards the recognition of a universal brotherhood of man growing out of a normal development in the evolution of social organization and its frustration.

In religion the spirit of freedom of thought, which in science had urged men to examine facts as a basis for the exercise of reason, led to an increasing reliance on the text of the Bible without the intervention of authority and gave rise to Puritanism, which abrogated, or professed to abrogate, all formulas and ritual. Methodism in the middle of the eighteenth century was an attempt to rejuvenate ideas derivative from the Reformation, but which had lost their vitality in the Churches, though they were inherent in the minds of the populace. It may be noted as a repercussion of the Reformation that the revocation of the Edict of Nantes, towards the close of the seventeenth century, like the expulsion of the Jews from Germany and Italy of the present day, drove some of the best intellectual material out of France.

By the close of the seventeenth century or thereabout, the impulse of the Renaissance towards original inquiry appears largely to have exhausted itself. The trend of thought was to reason upon the material that had been acquired, rather than amass fresh stores of fact. Hence the importance of thinkers like Voltaire and Rousseau, who bring a freshness

of idea to bear upon the knowledge of their day. At the same time there is a certain priggishness and self-satisfaction in the thought of the eighteenth century. It was, however, intellectually an epoch of great importance, as it formulated general ideas in philosophy and social science, which were to be of the greatest moment. When with the rise of industrialism at the close of the century and its great expansion in the nineteenth century, social and political problems were forced on the attention of governments, and their solution was perforce attempted along lines in consonance with the principles of the French Revolution, or rather in accordance with the development of general ideas, to which the Revolution was a premature attempt to give them practical effect.

From one point of view it may be said that everything in the development of modern civilization goes back to the freedom from authority and the liberty to examine facts for oneself which is the essence of scientific advancement. In Christian Europe this dates from the Reformation. Conversely, when once men began to examine evidence in a spirit of scientific inquiry, the claims of the ecclesiastical organization and the claim to be the sole interpreter of the facts of observation was bound to give way. Historically, this has worked out in virtually what is a struggle between the contrasting temperaments of Northern and Southern Europe.

#### INFLUENCE OF RACIAL MIGRATIONS

That the present is rooted in the past is a saying so trite that the essential truth it embodies is frequently overlooked in the consideration of everyday affairs. It is, however, vital to an understanding of western civilization of to-day, and more particularly of the currents and cross-currents which disturb the even flow of progress in European cultural development in the twentieth century. For they are in essence conflicts and antagonisms between peoples, which can be traced back to the very dawn of history, and even earlier to prehistoric times.

Without entering into a detailed examination of European racial and cultural origins, it may be recalled that at the close of the Palaeolithic period or Old Stone Age, Europe was inhabited by a predominantly long-headed population. It is immaterial whether this type of man—Cro-Magnon Man—was a product of a local evolution in Western Europe, or was of Asiatic origin, as many would think, though the latter is a view to which Sir Arthur Keith's recent interpretation of the evidence from Palestine as pointing to an evolving European type would appear to lend support.

Be this as it may, it is at least established with fair certainty that one of the cultures of the Upper Palaeolithic, the Solutrian, had reached the west from the east, while at the close of the Old Stone Age a broad-headed type appeared sporadically among the long-headed forms of modern man as a forerunner of the Alpine, which from Neolithic times onward down to to-day is the dominant type of Central Europe, and has been associated from the earliest times with the great central mountain chain which traverses the Eur-Asiatic continent from the Atlantic to China. It was possibly an early wave of migration of this broad-headed race that brought with it from Asia the first elements of modern civilization, domesticated animals and plants—the beginnings of agriculture.

These early movements of races and cultures were not confined to the broad-headed peoples alone. When once the long-headed, short, dark type had established itself along the southern line which runs through the Mediterranean and extends along the southern lands of Asia to India, it spread westwards along the Atlantic littoral to Spain, France and Britain. In the central continental area, the long-headed, fair, tall type, which we now identify with the Nordic, originating somewhere on the vast plain which extends from Southern Russia to the Iranian plateau and the Pamirs, radiating outward, impinged first on the Alpine broad-heads and then ultimately reached the Mediterranean, becoming a dominating social caste in India, Persia, in Asia Minor among Hittites and Mitannians, and in Greece and the other lands of Southern Europe, and, pos-

sibly, the western parts of North Africa. It also radiated out to north and west, both in its more or less pure form, and after admixture with other racial elements, to Scandinavia, Northern France and Britain. It was as a result of these racial movements and contacts that a distribution of racial types was established, which justifies the broad generalized classification of the peoples of Europe as Nordics, Alpines and Mediterraneans, distributed respectively in north, centre and south, which holds good on very general lines, provided the free admixture of racial types, which has been taking place now for some thousands of years, is not ignored.

While identification of the Aryan-speaking peoples with the Nordics is scientifically untenable, it is true that Aryan-speaking peoples, probably diverse in racial character, but speaking related languages and carrying a culture with common elements, that of nomad pastoralists, permeated the Eur-Asiatic continent, and imposed their language on the peoples with whom they came into contact, and with whom they formed a racial amalgam in India, Iran, Mesopotamia, Asia Minor, and throughout Europe. This movement must have begun so far back as probably the middle of the third millennium B.C. It would appear to have been most intense in the middle of the second millennium, when the main body of the Arya reached India, and at about the same time or soon after it must have reached the Mediterranean.

Outside the Mediterranean area, European civilization as such, in the light of present knowledge, may be said to have begun in the Bronze Age, though archaeological research in the Neolithic period is gradually piecing together evidence in Northern and Western Europe, forming patterns of culture which may well be something more general than local developments of a generalized type of Stone Age civilization. Whether that is to be the course of future discovery or not, for the present purpose it may be taken as adequate that by the Late Bronze Age and Early Iron Age the Aryan-speaking peoples had established their hold over the greater part of Europe, in the west, in Spain, France and Britain,

encountering and subduing for the most part the wave of peoples of the Megalithic and Early Bronze cultures, who had advanced to the north-west along the Atlantic littoral, or had reached it more directly from Central Europe.

In the great movement westward along the central European tract the dominant factor which first may be regarded as of general significance to Europe as a whole, is the establishment in the Iron Age of the so-called Celtic empire. This was probably not an empire in the ordinary sense of a single political organization under a central government, but a loosely related group of peoples which ultimately extended all across the central European tract from Ireland to Asia Minor. It was held together by the bonds of common culture, common language, and perhaps to some extent of common racial character, though this is by no means certain. By some it is regarded as covering the Iron Age in Central Europe, by other authorities as co-existent with the La Tène culture of the Later Iron Age, that is, from about 500 B.C. In so far as it was an empire, it was broken up by the expansion of Rome. Its highest peak of cultural development is represented in the arts of the Celtic peoples of Britain and Ireland, and in the latter it has an Indian summer in the intricate decorative motives of the Late Celtic in the second half of the first millennium of the Christian era.

## *Chapter Twenty-four*

### ETHICAL STANDARDS AND VALUES

If the biological principles of variation of character, struggle for existence, and survival of the fittest are applied to social evolution, then, at any stage of civilization, good conduct is that which conforms to what is conceived to be high social ideals and evil is that which is in conflict with them. There are, however, no absolute ethical standards. Good acts are distinguished by their adjustment to the social order, and bad by their failure to do so. Good conduct falls within the order : bad conduct fails to adjust itself and is condemned. Conduct is determined by character, and character in man implies action guided by a will conscious of moral or ethical standards. It may thus be distinguished from the instinctive or unconscious impulse which, in other creatures, represents reaction to a stimulus.

In the course of his biological evolution, man has become possessed of an erect posture, the power of visual convergence, and the co-ordination of the sense of hearing with the muscles of articulation, by which his range of speech has been greatly extended. By the use of these characteristics he has been able to emancipate himself from the limitation imposed upon him by Nature and to create a world of his own. He has thus superimposed an artificial life upon his natural life, and introduced a process of cultural evolution which is independent of natural conditions, except in so far as they may be used for his own ends. Like other creatures he inherits certain instincts, but every human being has to acquire knowledge and wisdom for himself. By the exercise of their instincts, such social insects as bees and ants carry on their marvellous communal work from one generation

to another, but always in the same natural way, and only where natural conditions are favourable for their existence. Each new generation of insects can only survive if it is born under these conditions ; and the children of men are no better provided for in their infancy. In civilized communities they come into being in circumstances which are purely artificial, while their inherited instincts are purely natural.

The biological characters of civilized man are the same as they were six thousand years ago, in spite of all individual and social attainments. Each generation starts with the same natural instincts, yet each has to learn afresh to adapt itself to an unnatural environment, and to acquire a new consciousness of what is good or evil. The social and cultural conditions change in space and time, but human nature remains in most respects unaltered, except perhaps in the capacity to learn and the means of passing on wisdom and knowledge to succeeding generations. The only sense in which we can truly say that we stand on the shoulders of our ancestors is that we can see more of their achievements and are provided with more powerful weapons to subdue Nature, both materially and spiritually.

Fifty years ago Professor Samuel Alexander traced the development of moral ideas, and showed how the process resembled that by which new biological species were produced through variations which struggle with one another, and with the parent species for survival.<sup>1</sup> The growth of a new ideal was considered as analogous to the formation of a new species in organic evolution. The social ideal is the type form of a species of which the various ideals, as they exist in the minds of good men, are the different individuals. In Professor Alexander's words : " All good men, so far as good, represents ideals which the individual members of one variety represented by the good ideal : their varying degrees of perfection correspond to more or less strong, or swift, or big members of the animal species. All bad men, so far as bad, act upon ideals which form other varieties. There is

<sup>1</sup> *Moral Order and Progress : An Analysis of Ethical Conditions.* (London : Trubner, 1889.)

the variety of thieves, of murderers and the like. The distinction of good and bad corresponds to the domination of one variety, that of the good, which has come to prevail according to the process described in virtue of its being in social equilibrium."

An analysis of ethical conditions from this point of view shows that (1) the social ideal varies ; (2) there is a struggle between the varieties ; (3) the prevalence of good, and successively better, ideals, constitutes moral progress. These conclusions hold good whether ideals are considered as abstract conceptions or as consequences of the interaction of moral and immoral human beings in a social environment consciously created by them.

In what is conceived to be the highest type of civilization to-day, certain ethical and humane sentiments, such as those of justice and mercy, and sympathy with the weak and suffering, are possessed and practised by a greater number of the community than ever before. Ancient Greece and Rome represented periods of great intellectual splendour, but, until the time of the Stoics, the sense of justice and humanity did not extend beyond a fellow-citizen. In the rude struggles of the two thousand years terminating in the sixteenth century, little was done to create or foster altruistic attributes of human nature. Yet during the ages when might was right, when violence, cruelty and rapine held sway over Europe, the true, the humane and the just steadily increased and the standards of conduct towards others became ethically higher, until now no people or nation which reverts to such methods can claim to be in the van of modern civilization.

In biological fields the structures or characteristics which survive from rudimentary stages to higher types in the course of progressive development are those best adapted to the particular conditions in which they exist. The principle of the survival of the fittest is, therefore, nothing more than a statement that living things require certain conditions for their existence, and if these are not provided or found by moving into them, then the forms of life requiring them gradually fade out of the natural picture.

How new structures arrive in organic life is, however, much more difficult to determine than why such structures or tendencies survive. A similar difficulty arises with regard to the origin of the altruistic or ethical sentiments which are attributes of the noblest types of human life. They may be considered as qualities which have always been part of human nature, or as characteristics which came into being at a particular stage of human history. Whatever their origin, the type of man which possesses them has survived the cruel days of the past, even though most of the representatives of it were for centuries isolated in religious houses or were destroyed in war.

It is difficult, therefore, to account for the existence of this type now by principles of natural selection, as those who possessed it were deprived of the advantage of transmitting their characteristics to posterity by their celibacy or death. The ethical teaching of this type has, however, influenced communities as a whole, whether those of Buddha, Confucius or of Christ. In China, belief in the inherent goodness of human nature established rules of conduct which placed the fighting instincts of man in the lowest position, and benevolence, learning and righteousness among the highest. Christian teaching, as represented by the Sermon on the Mount, and the life of the founder, six hundred years after Confucius, reached, in several respects, a higher standard, but, unlike Confucian ethics, it became a militant religion. The Church of Christ still gives its blessing to weapons and forces designed for ordeals of war, even though each of the Christian nations involved in the conflict invokes the support of the same God for the conquest of its enemies.

It is much better that this should be so than for man's unbridled ferocity to be deprived of any spiritual influence ; and even though such an association may be regretted, it cannot be condemned. However high the ethical principles of a nation to-day, they are not sufficient to save it from destruction by nations which do not conform to them and believe only in the gospel of right of might. The remarkable thing is that the spirit of Christ's teaching should

have endured for so many centuries, and be possessed by so many millions of peaceable people, when prevailing circumstances have so often tended to its extermination. This ethical spirit seems to be inherent in the human race, and when favourable conditions exist its development is promoted. Expressed in another way, as religious belief always involves rules of conduct, it is an important factor in the history of societies and civilizations. Mr. Benjamin Kidd, in a volume on *Social Evolution*, published in 1894, made this idea the basis of an original theory of social progress. He traced the evolution of society and of modern civilizations, not through the growth of intellect or of science, but in the continuous action of religious beliefs ; and though he overstated the case, his theme created much interest at the time.

Sociology as defined by Comte, who first introduced the word, is the study of the nature and laws of the development of human society. It is the science of social evolution, and is concerned with all the influences which have affected the course of civilization and the progress of the human race. Such progress is largely determined by intellectual expansion and the significance attached to moral and ethical values.

Appreciation of values of goodness, mercy, beauty, truth and other qualities of external ideas or things depends upon the human mind just as much as the recognition of sound and colour. These emotional reactions are the result of consciousness, and do not exist apart from it, unless Mind, like the Deity, is regarded as something apart from matter. Much metaphysical legerdemain has been exercised upon the nature of consciousness and its relation to physical changes in the human body. The brain and the central nervous system are regarded by physiologists and psychologists as the organs of consciousness ; but it cannot yet be said to be fully understood how a material change in particular cells of the body can cause a mental process. On the other hand, there is no evidence that mind or consciousness can of itself put in motion any particle of matter. In philosophic fields the realist accepts the real existence of

matter and examines things as they are, whereas the idealist holds that all objects of external perception consist of ideas, or are imaginative.

Comte formulated a religion of humanity as a part of his positive philosophy and based it upon the methods and principles of the Catholic Church applied to new social conditions. Man himself was to take the place of mediaeval conceptions of God, and the worship of him was to be organized in churches and cultivated by rites comparable to those appertaining to Catholic doctrine. Comte arrived at the generalization that there were three states of knowledge—the primitive theological state, involving supernatural government of human affairs ; the transient metaphysical state, in which the world is ruled by external but abstract forces ; and the final positive state, in which laws discovered by methods of scientific inquiry supersede causes independent of things themselves. Upon these principles he founded his philosophic system of the origin and progress of civilization, the grounds of morality, the best form of government and a religion of humanity in place of revealed religion.

Essentially, this positive philosophy is a method of deducing laws from observed facts and does not differ, therefore, from that followed by all natural philosophers of modern times. What Comte did was to extend this principle of critical inquiry, used so successfully in the fields of natural science, to the science of society and the apotheosis of man. His religion was to be an organized movement with congregations, priests and a ritual in which what is noblest in humanity was to be exalted, and human sympathetic instincts were to be fostered by service. A few Churches of Humanity, in which ethical and religious idealism of a lofty type is taught, still exist, but the worship of humanity in an abstract sense can never appeal as a religion to more than an intellectual few. To Comte, humanity is the "mighty Being whose life endures through all time, and who is formed of the dead far more than of the living" ; and positive philosophy is the history of its development and adoration of its achievements. Just as a human being is made up of countless cells of different structures and functions, so

humanity, in the abstract sense, is a complex of the actions and influence of the peoples of all times, and the history of religion is conceived as the history of human development. When this is conceded, said Comte, "Our thoughts will be devoted to the knowledge of Humanity, our affections to her love, our actions to her service."

In Comte's social and religious doctrines man is separated from the rest of the universe, and his only relationship to it is measured by laws discovered by him and used to satisfy his needs. "The universe", in his philosophy, "is to be studied not for its own sake, but for the sake of man or rather of Humanity." The limitations thus imposed upon scientific work and thought having no obvious practical value, or for which no moral or social applications could be expected, are completely opposed to the scientific spirit and destructive of much that is best in intellectual expression. When science becomes purely a utilitarian study, it loses its soul; yet in his new religion this was one article of Comte's creed. He agreed that the sun and moon, and possibly the chief planets, might be studied because their movements could be used in the service of man; but as sidereal astronomy in general had no practical value, its study was condemned as trivial and unnecessary. By making such a distinction between ascertained results and projective thought, Comte depreciated the very studies through which both philosophy and science have reached their most impressive intellectual achievements.

When Comte said that the heavens declare the glory, not of God, but of Kepler and Newton, he implied that all that was worth knowing in them was what was comprehended by the mind of man. This was a pragmatic limitation of Bishop Berkeley's principle of idealism—that nothing exists apart from mind. But though we can only know of things through our senses, it is possible to conceive of a mind outside ourselves which could be conscious of objects and phenomena independently of human existence. Many philosophers, from Plato onwards, have discussed relationships between the world of ideas based upon human experience and those of a universal mind; and the difference has

been amusingly expressed in two well-known "Limericks", which may be rendered thus :

" There was a young man who said, ' God  
Must think it exceedingly odd,  
That the sycamore tree,  
Just ceases to be,  
When there's no one about in the quad.' "

The answer is :

" Young man, your astonishment's odd.  
I am always about in the quad ;  
And that's why the tree,  
Still continues to be,  
As observed by yours faithfully, God."

## *Chapter Twenty-five*

### BIOLOGICAL AND CULTURAL ASPECTS OF WAR

It would be idle to deny that war has played a part—and an important part—in the development of the races and peoples of the world's history. Migrations of warrior hordes, wars of aggression, and armed resistance to attack from outside, have all served to knit assemblages of individuals, often varying widely in character and origin, or minor groups, such as families and tribes, in bonds of closest union by arousing that consciousness of a common destiny which lies at the root of all patriotism. Those peoples who, in response to their needs for expansion or in defence of their own frontiers, have not been prepared with efficiency to appeal to the arbitrament of arms, have run the risk of extinction, and usually have suffered that fate. Yet to regard war as the sole, or even the chief instrument and mechanism of survival in the struggle for existence between organized groups—horde, tribe, people, or nation—is to take a restricted and superficial view of the story of mankind.

Such a view ignores the power behind the appeal to arms, when once the crude stage of physical struggle for bare existence is passed, of those driving forces which hold men to their purpose more firmly than does the discipline of war. The Crusades and the holy wars of Islam were each inspired by an ideal transcending every loyalty and stronger than any other incentive to action of their time; but the discipline of incessant warfare was not in itself enough to give permanence to the Latin Kingdom of Jerusalem. It fell before the Saracens and left no heirs, when that faith in the ideal upon which it had been founded no longer gave it strength

to resist all comers. It is perhaps even more significant that the world-wide conquest of Alexander the Great not only failed to survive as an imperial unity, but also left no mark in strong racial or national sentiment behind it, even among the Macedonians. The legacy of the kingdoms founded by Alexander's generals, as, for example, in Egypt and in Gandhara on the north-west frontier of India and in what is now Afghanistan, whence the art of Buddhist India and Central Asia drew its inspiration, was an enduring influence which was neither racial nor national, but lay in the tradition of Greek culture.

In these instances war failed to provide the motive force of group survival ; yet an analysis of the forces which are to be seen actually at work in promoting survival in societies of varying types in both past and present reveals it as a significant element. Examining the evidence as an anthropologist, Sir Arthur Keith maintains that it is war that has implemented the struggle for existence, has moulded groups of men into peoples and nations capable of preserving and asserting their individuality as against other groups, and in this resistance to outside pressure has transformed, and is still transforming, heterogeneous elements within the group in a progression towards racial uniformity.

On this view, war is assigned the functions of a " pruning hook ", which lops off the inefficient in conflict, whether physically or mentally unfit, but also, like the operation of pruning, it improves habit and strengthens growth ; through the exercise of its activities and of certain virtues essential for its prosecution, it enhances the qualities and aptitudes, which favour the chances of survival through its agency. Further, as the upward trend of human society would seem to have been a process of continuous aggregation, in which there has been a progressive increase in the size and complexity of the social unit, within which individuals recognize their common membership and co-operate toward the common end of well-being within the group, warfare, in an appropriate environment, must have been an important factor in the formation of such aggregations. The gods fought on the side of the big battalions ; and other things

being equal, the larger the unit, the greater the chances of survival.

Against the view that war is an instrument of progressive development, it may be argued that, so far from tending to the survival of the fittest it may lead to the destruction of those intellectually and physically most fitted to survive and advance the interests of the race, while favouring the survival of those too mean-spirited or weak to face danger. Survival of the fittest means, however, no more than "the survival of those fittest to survive"; that is, the merest fact of survival, at its highest no more than complete adaptation to environment without any ethical implication whatsoever, although such a meaning is popularly attached to the term.

From this it arises further that natural selection, like all natural forces, is impersonal and holds no brief for the individual as such. As a natural force it works for the survival of the group, irrespective of the individuals who compose it, though in the long run it tends to raise the level in the individual in the direction which makes for survival. Yet, it must be remembered, the qualities of physique and character which make for survival may not be such as will meet with approval in face of a moral or intellectual judgment on any standard but that which is applied within the group. The aim of the anthropologist is to look upon such matters from a purely objective point of view, and solely in relation to their survival value within a given society. The philosopher endeavours to view them *sub specie aeternitatis*, and in relation to what is conceived to be the goal of man's development.

On the whole, it may be said that among primitive food-gathering and hunting peoples, and among primitive agriculturists, war and the warlike spirit play a very small part in fostering the solidarity of the group. Even among head-hunting peoples it is the magical effect which follows on the possession of an enemy head, rather than the actual taking and the operations necessitated thereby, which emphasizes common interests. Also, among the other primitive peoples, these food-gatherers, hunters and simple agriculturists, the feeling of solidarity, of a common interest and common

destiny, depend not upon resistance to outside physical force so much as on the spiritual element, which underlies the co-operation between individuals and family groups.

This unity arises from the common desire to secure and promote an adequate abundance of the food supply, and joint participation in the ritual and religious ceremonial by which it is believed that this end is to be attained. These activities are believed to be, and are in fact of greater moment for this purpose, than the practical operations in food-gathering, fishing, the chase, or agriculture, by which the product, as they believe it, of the ritual observed in common, is garnered.

The general trend of the inference to be drawn from a study of backward peoples is that at a truly primitive stage they are not specially warlike. Even at a more advanced stage in the promotion of the feeling of solidarity, which enables a community to hold its own against outside forces, and promotes survival, it is not so much war that is the active agency, as a common cultural tradition, a routine or ritual of behaviour, and more especially co-operation and participation in a common economic, social and religious bond, which begets and fosters a common underlying habit of mind.

Although primitive man may not be warlike, and war may enter very little into the economy of his existence, he nevertheless has earned a reputation for ferocity. Having no natural means of defence comparable to the claws and teeth of the great carnivores or the enormous strength of the larger anthropoids, he has to depend for his protection upon artificial aids. Hence he fears and resents the approach of strangers ; and this has given him his reputation for ferocity. It is the root of the difficulties which have been encountered by explorers among isolated peoples and administrators among, for example, the wild tribes of New Guinea. He will also, naturally, protect by force the source of his food supply, as well as the members of his family.

It might, of course, be argued that the mere fact of his primitiveness, at this late stage in the world's history, supports the argument for the value of aggression and the

aggressive spirit in the struggle for existence and the promotion of advance in cultural development ; but the view here taken is that this is not the fact. Such a view gives only a very partial account of what has really taken place in the development of peoples and their culture. The failure of primitive peoples to advance has been due rather to the fact that they have attained a certain equilibrium in adaptation to the sum total of the conditions of their environment, and unless, or until, this is disturbed their society remains static. It will be found that this applies more particularly among food-gatherers, hunters and simple agriculturists.

If, however, this equilibrium is disturbed by shortage of food-plants and game, either due to change in climatic conditions, whether temporary or permanent, reducing the quantity of food-plants and changing the distribution of insects and animals, or by what amounts to the same thing, an increase in numbers which is sufficiently large to cause a shortage, then one of two things may happen. On one hand, the group may resort to magic, either sacrificing victims to the spirits which are believed to control plants and animals and their fertility, or seeking to increase the spiritual power and efficiency of the group by capturing magical powers from members of other groups, as, for example, by taking heads, cannibalism and the like practices. In either event, these remedies lead to reprisals and war.

On the other hand, the alternative is migration. Agricultural peoples, however, and other primitive groups, do not readily migrate, at any rate for any considerable distance. This is rather a course to which pastoralists, nomadic or semi-nomadic groups, will resort. Pastoralists, though normally of a simple culture, which makes few demands on their abilities to exploit the resources of their environment, are nevertheless constrained by the needs of their flocks and herds, to pay exceptional heed to even slight changes in climatic and other environmental conditions, and must practice a corresponding readiness to move literally to pastures new. Such movement, especially when it impinges upon agriculturists, as it did in early prehistoric times in

Eur-Asia, when the nomadic peoples of the steppes invaded the agricultural peoples of the black lands in east Central Europe, is bound to lead to conflict, and usually has resulted in the nomadic peoples conquering the agriculturists. They have then settled among them as overlords, often as a military caste, thus giving rise to the class divisions which were a conspicuous feature of the European societies of yesterday and still in some degree of to-day.

The influence of these migrations as a fundamental factor in the history of a great part of Asia and modern Europe is well known. Migratory movements in the central steppe lands of the Eur-Asiatic continent began possibly so early as the middle of the third millennium B.C., but certainly they were well on their way early in the second millennium, when they began to impinge on the great valley civilizations, Indus, Nile and Euphrates-Tigris, and the peoples of the fertile agricultural lands.

The result is to be seen in the Aryan predominance in India, which seems to have eliminated all trace of the great attainments of the Indus valley civilization, discovered only a few years ago. These peoples also became ascendant in Iran, gave rise to the Kassite empire in Mesopotamia, laid the foundation of the power of the Hittite empire through the domination of a ruling caste, and established the kingdom of Mitanni, closely related apparently, at least in religious beliefs, to the Arya of India. As the Hyksos, or "shepherd kings", it would seem likely these movements penetrated Southern Palestine and reached Egypt, which they held for five hundred years, while as the Aryan-speaking peoples, they spread over Europe in successive waves of Celt, Teuton, Slav, of which offshoots, as Achaeans and Dorians—two groups of the ancient Greek peoples—invaded the Balkans and destroyed the civilizations of Crete and the Aegean. Of these waves several reached Britain and Ireland, the shores of the Atlantic in France and Spain, and even penetrated to North Africa. It was this movement of migratory peoples which eventually caused the break-up of the Roman empire.

Although the historians of Europe refer to the period of

migrations in the early centuries of the Christian era as if they ceased with, at latest, the backwash of the Vikings over Europe and the Norman Conquest of England towards the close of the first millennium A.D., as a matter of fact these movements of peoples are the dominant element in the history of the Old World from the earlier half of the second millennium B.C. down to to-day. Successive waves of people sweep across the central plain of Europe and are engaged in a never-ending conflict, military, political and economic, of which the Great War of 1914-1918 and the recent happenings in Central and Eastern Europe, which forced another conflict upon the world, are the latest phase.

These events represent a continuation of the effort of the German people to push back the Slavs, who were overwhelming them socially and economically in Eastern Germany, which embroiled Germany with Russia in 1914. From the point of view of cultural history, the Soviet-German pact of 1939 can have no permanent significance. It is an unnatural alliance without ancestry and can have no heirs. In the west the conflict with France goes back to the days before Charlemagne, when the Frankish tribes, having reached the limits of expansion towards the west, desired to return across the Rhine, and were opposed by the Teutonic peoples who had pressed on behind them. Out of this struggle arose Charlemagne's empire, and the story of the conflict for its mastery is the history of Central Europe down to the reintegration of the German people, which Frederick the Great failed to effect, but was brought about, at least in federal form, by Bismarck and the Prussians in the wars of 1866 and 1870.

Without going into detail, even a partial list of the great historic events which have arisen from the migratory movements is impressive. To them can be traced the beginnings of the Russian empire, the foundation of the kingdom of Hungary, which became a bulwark against the Turk, the origins of the troubled history of the Balkans, the Great Tartar invasions which penetrated to the Baltic, the settlement of the Turk in Europe in the fifteenth century when Constantinople became the capital of the Ottoman

dominion; with its effect on the spread of learning over Europe, the foundation of the great Moghul empire in India—a great stimulus to art and learning—and the rise of the Manchu dynasty in China.

This brief and very imperfect recapitulation of some of the great movements and conflicts of peoples in Old World history is not so entirely irrelevant to the question under consideration as it may seem at first sight. It is from this material if anywhere that support might be found for the argument that war is the formative influence in the development of peoples—the “ pruning-hook ” which both lops off and fosters development. Yet this must be largely a matter of interpretation. In origin, if we go back to first causes, these great movements of peoples were not in their first beginnings aggressive in form or intention. They were not an outcome of a warlike spirit. They were not undertaken merely from a desire to acquire territory and the overlordship of other peoples, though a possible exception must be made in the instance of the Tartar invasions, while in the spread of Islam we have what largely, in the beginning at least, was a species of missionary enterprise.

As a whole, however, the migrations of the early pastoral peoples were out of economic necessity—the necessity of securing the means of continued existence. Environmental influence and cultural history alike had trained these peoples to endure hardship and had imbued them with a certain recklessness of temperament, very different from that of the agricultural and sedentary peoples with whom they came into contact, and upon whose lands they were constrained to settle to make provision for their herds. By their hardier constitution and their more robust mentality they defeated or dominated the sedentary peasant. These qualities lay at the root of their efficiency in war, but they were not produced by it. Their military success was a consequence of their group solidarity; that solidarity was not a product of war and military discipline, although discipline may have enhanced it. It was a cultural heritage.

When once conquest had been effected, conquerors and conquered settled in a symbiosis in which each contributed



*BRITISH MUSEUM*

Portion of a tablet inscribed in Assyrian with a text of the First Tablet of the series describing the creation of the world



*British Museum*

Story of the Deluge inscribed on a tablet from the Royal Library at Nineveh of Ashurbanipal, King of Assyria



to the development of the arts of peace. Provided a certain standard of military efficiency was maintained to ward off outside attack, it was these arts of peace, and not war, by which were produced the tribal or national character, habit and culture through which history comes to recognize their unitary existence. A striking example, which would seem to support this, is afforded by the great cultural unity, the so-called Celtic empire, though it had no political unity, which dominated the cultural history of Europe from one end to the other throughout the greater part of the Iron Age. The Celtic-speaking peoples, it is true, were great fighters ; but their dominant position was not so much due to their military efficiency or to their position as overlords, as to their achievement in the arts, in literature and the formulation of a philosophy and religion—in short, theirs was a cultural achievement of which war may have ensured the conditions, but was in no sense the cause.

In the same way in modern Germany, if we can only regard present-day happenings as something which in their true perspective is a passing phase, the real German peoples emerge not as the regimented group hammered into shape by a military discipline and preparedness for war, of which the view is now presented to the outside world, but as the product of a culture and a traditional civilization more truly characteristic of their qualities, a civilization of which the survival value lies in its contribution to philosophy, to the arts and to science. This is the Germany which will survive to stand at the bar of judgment to answer for its contribution to the advancement of mankind.

When we turn to the evidence of antiquity there is a danger, for many reasons, that excessive stress may be laid on the influence of war in determining the development of peoples. Dynastic rulers in the records of their achievement, and historians in the past alike, have been prone to concentrate upon and give exaggerated importance to wars and territorial conquest. Social changes and cultural growth which may be of far greater moment for the life of the people as a whole may pass without notice or be treated as matters of secondary interest. When our knowledge of the

past is drawn from archaeological evidence, inference is based upon the interpretation of material objects found in certain conditions, in Egypt and the early East, supplemented by contemporary inscriptions and documents, of which the meaning is not always understood with certainty. Attention is more readily directed to major and catastrophic happenings, such as a sudden, complete, and it may be violent change in cultural sequence, pointing to the intrusion of a new people, possibly an invasion, or the evidence of a conflagration and destruction, marking enemy conquest. With the increased intensive study of the character of cultural development as a whole, rather than the attempt to trace the course of dynastic succession, which has marked archaeological research in prehistoric reconstruction in recent years, wars and dynastic changes, without losing their significance, have tended to fall into a truer perspective.

It is especially important to bear this in mind when we attempt to trace the course of development of civilization in the Euphrates-Tigris valley. There, if anywhere, a constant succession of cultural changes, movements of peoples, racial incursions, wars and conquests, might seem to justify the view that war is a major element in fostering the development of a people, welding them into unity, and endowing them with the qualities which lift them to the front rank in cultural advance.

While it is not possible, or necessary, here to trace the history of the development in the Mesopotamian, or rather Middle Eastern, region in detail, certain salient features must be indicated. Recent archaeological research has shown—and is still occupied in filling in the details—that in early prehistoric times a great cultural continuum, as it might be termed, extended from northern India to the Mediterranean littoral, with at times affiliations extending even further west. How far back this civilization may be carried it is impossible yet to say, but some archaeologists would refer it to the fifth millennium B.C. If, however, the beginnings of predynastic culture in Sumeria be taken so low as 3600 B.C., by the close of the predynastic period, at say 2800 B.C., at least three or four major cultural waves can be discerned,

some or all of which may represent the intrusion of ethnic elements.

The early dynastic period of Sumerian history is the story of a constant succession of wars between the cities in which now one, now another, Ur, Lagash, Erech, and so forth, attain supremacy by force of arms. Then come the great conquests of Eannatum and later of Sargon of Akkad, in which these rulers, each after securing the supremacy of his own city in the lower valley, conquered the whole Euphrates-Tigris region and extended his rule as far as the "Upper Sea", usually understood to be the Mediterranean, while Sargon is credited with having even reached Cyprus. Then comes the supremacy of the Third Dynasty of Ur, of which we have learned the glories and power from the excavations carried out on this site by Sir Leonard Woolley, followed by the incursion of the people, who by some have been identified as Amorites, who raised Babylon to the height of its power and among whose rulers the name of Hammurabi stands out as the great law-giver of all time.

The power of Babylon fell before the invasion of the Kassites, a migratory people, possibly of Iran, and it may be affinities of the Arya, who even at this time were making a sporadic appearance in India. After an empire lasting perhaps three hundred years the Kassites give way to the Assyrian empire, which endured until the rise of the neo-Babylonian empire, and finally both Babylonia and Assyria succumbed to the advance of the Persians towards the west in a wave of conquest, which was stemmed at last by the Greeks in 480-479 B.C.

Here then, again, is a remarkable panorama of racial and dynastic succession which would seem to justify the argument that war is a "pruning-hook" by which selection functions in the survival of peoples and cultures. These peoples and dynasties rise to supremacy by military achievement, and their fall, when it came, was before the arms of superior force. When, however, we look a little more closely into the facts and endeavour to assess the achievement of these peoples in the advancement of civilization, it is possible to regard and to judge their value in the progress of mankind by something more than their success or failure

as militant organizations. While it is true that the Sumerians were engaged in a constant succession of struggles among themselves for supremacy, their cultural achievement—a cultural achievement which has had a profound effect on the world's history—was neither the outcome of military prowess nor the result of qualities which were fostered by exercise in arms.

The essential feature of the Sumerian civic organization was its religious character. The city was the property of the god, and its ruler was the representative on earth of that god. As a symbol of complete conquest and humiliation, the conqueror of a city carried off the images of its god and placed them in the temple of his own city. It is unnecessary to enter into detail as to the consequences of this religious character of the entire civic organization, but its most important effect was that the ownership of all lands, flocks, herds and crops centred in the temple, and this led eventually to the development of a most efficient commercial system, with an elaborate financial and accounting administration. The temple became not only the administrative as well as the religious centre of the city, but it was also the educational centre—the development of writing made this of importance—as well as the banking and commercial centre.

Both religion and commerce played their part in the development of the arts: the inscribed seal which grew out of the necessity for legal and commercial documents to be authenticated had a most important effect on the development of art, while the necessity for a dignified and fitting home for the god led to advance in style in building worthy of the name of architecture, to which the use of mud brick could have contributed in no other way. But all this great cultural development was in no way such as could have grown up in a military society, nor was it such as would have been fostered by the warlike spirit, although it must be admitted that a certain military skill and adaptation were necessary for its protection and to ensure the conditions in which it might develop; that is, a certain stability to be secured by the preservation of peace.

The Sumerian civilization extended its influence far and wide ; but it was by peaceful penetration and not by force of arms. Even Sargon, the great conqueror, boasts not only of his military conquests, but also of the fact that he extended roads and posts all over his great empire, while even so early as 2500 B.C. the ramifications of Sumerian commerce extended so far as the cities of the plateau of Asia Minor, where colonies of Sumerian traders and merchants were established. As is well known, the influence of Sumerian civilization extended to the borders of Northern India, and may have reached China ; it affected the civilization of Asia Minor, and Syria, and extended even to Central Europe in the Bronze Age.

The influence of Sumerian civilization is, however, evident far beyond the bounds of its contemporary world. It did not cease with the political submergence of its authors. Throughout all the succession of peoples and conquests referred to, Sumerian civilization endured. Though it suffered certain changes, in all essentials it remained the basis of the civilization of the later Assyrians and Babylonians. To it must be added the famous legal code of Hammurabi, which gave to the civilization of Mesopotamia its most enduring and striking characteristic—a great legal system and organization. It must be remembered, however, that the Code of Hammurabi was by no means entirely novel and original, for it, like any enduring code of law, gathered up much from existing custom and practice, and the Sumerian people and Sumerian custom and tradition may claim the honour of, at least, joint authorship of the Hammurabi code.

It may seem that the warlike society of the Assyrian empire affords an example of at least one people in which the military tradition was the dominant element in their social economy. This view, however, must be qualified when we remember the careful way in which the Assyrians preserved the Sumerian record and their achievement in literature, science and art. Their conquests in war warrant the attribution to them of military skill, but their achievement in the other departments of culture would deny to

war the credit of the sole influence in moulding Assyrian civilization.

Egypt, Mesopotamia's great partner in the development of early civilization, owed little to war. It must be admitted the early kingdom of Egypt arose out of the conquests of Menes, which united the kingdoms of North and South, while the great period of Egypt, the New Empire, under the Eighteenth and Nineteenth Dynasties, was a period of conquest in Asia, and conflict and alliance with the great Asiatic empires. Yet, notwithstanding these facts, and with the exception of these two periods, not only was Egypt not warlike, but its greatness and its cultural achievement, as well as the splendour of its monarchs and their courts, was not an outcome of military discipline. The Egyptians, even in their periods of great conquest, were never a military people, but they possessed powers of organization and administrative genius, by which the utmost return was obtained from the fertile Nile valley and its profits drawn into the coffers of the king. The triumphs of Egyptian culture are the victories of organized peace, and not of war. The wars of the Eighteenth and Nineteenth Dynasties between 1580 and 1200 B.C. to a great extent were reactions to attack, but apart from this period, there are few people in the world's history whose solidarity has been so little affected by such reactions; in other words, to whom the "pruning-hook" of war has been less applied.

The great civilization of Crete apparently owed nothing to war. Throughout its history, covering a period of well over a thousand years, at its greatest peak of development, it would appear to have been free from attack, and to have been of all the peoples of antiquity the least addicted to the practice of war. What was the source of its great power and wealth it is difficult to say. Both its political and commercial affiliations were evidently far flung; but they certainly were not due to war, so far as the evidence goes to show.

What may have been the cause of the fall of the Cretan civilization is obscure. On the mainland, the related Hellenic civilization fell before the invasion of the Achaeans

and Dorians—the Aryan-speaking peoples, who were the basis of the subsequent Hellenic peoples. They were warlike, but so far from being the founders of a civilization, as German writers now maintain, they were, like the Arya in India, its destroyers. However, as they were absorbed in the population of Greece, from the amalgam arose what we term Greek civilization. Its development came not from these warlike peoples, but from the Ionic peoples and the colonies of Asia Minor which had come under the influence of the civilization of Asia, and, as they themselves held, of Egypt. From the Ionic peoples arose Athens, the cultural leader of Greece from the sixth century onward.

The cultural achievement of Greece centres in Athens—and Athens was the least militant of all the Greek states. The great states in a military sense—Thebes, Boeotia, and above all Sparta—contributed little, if anything, to what we mean by Greek civilization. Although it is true that the great period of Athenian efflorescence followed on after the Persian War in the age of Pericles, it was due, like the greatness of Byzantium, to the advantage which its geographical position gave it in a period of expansion, commercial and colonial. This affected the whole Greek world, and Athens took advantage of it during a temporary hegemony of a body of allies, giving her command of the seas—an example of commercial astuteness, still characteristic of the Greek temperament, rather than an outcome of military ardour.

It may seem paradoxical to regard a great empire like that of the Romans, which was held by a system of military frontiers, as the outcome of anything but a militant spirit in the people by whom it was organized. Yet it is to be remembered that not only was the legacy of Rome to posterity a great legal system and body of law, but also that the Roman empire neither grew out of a desire for, nor aimed to stand on, military conquest. If the history of the expansion of Rome be followed up step by step, it will be seen that each territorial acquisition, generally speaking, was made not in the mere desire to acquire more territory, but to consolidate and ensure peaceful possession of that which was already held.

Like the British empire, the Roman empire came into existence almost without the notice of the people who held it, taking in first Italy, then Spain, Africa, crossing the Alps into Gaul, Germany and Britain, turning east to Greece, Pannonia and Dacia, and so forth. All this was with the object of ensuring the *Pax Romana* up to the frontiers. At the same time, though all these outlying territories were held by countless legionaries, the desire of Rome was not to hold these subject peoples by force of arms, but by the bonds of peace—by making them citizens of the empire of various grades, and to secure their peaceful acceptance of Roman law and organization. Remembering the Punic Wars, and the struggle with Carthage for empire, it must be left to individual judgment to decide whether the Romans were the more affected by the warfare in which they became engaged or by the ideal which they professed, when they carried their arms to the ends of the then known earth.

Coming to more modern times, certain crucial phases may be recognized in the history of Europe : they are, the migration period of the first millennium A.D. ; the period of the formation of modern peoples and nations ; the Reformation ; and the period of the discovery of America. Almost everything of importance in modern history can be traced back to one or more of these. As to the results of migration, it should be emphasized once more that the invading peoples were absorbed into the population they conquered, and usually this took place in a process which is not welding by war. This period joins up with that of the Reformation, because modern nations were formed very largely in a struggle with the Papacy, which was in part a dynastic struggle, in which the " False Decretals "—a forged collection of decisions in canon law—were used by Pope Nicholas in the ninth century to free the civil fiefs held by the bishops in France and elsewhere from the control of the reigning monarch ; and in part was a struggle between the culture of Northern Europe as against that of the south, represented by the Papacy.

It is usual to refer to Christianity as if it were one religion. It is not, but it is a congeries of different religions, each with

its local complexion, English, German, French, Scandinavian. In all forms of Christianity, but especially in the Christianity of the Mediterranean, and particularly in the cult of the Madonna, a great deal of paganism may still be recognized. However this may be, the formation of modern peoples was a cultural revolt against the Church and the influence of the Mediterranean, which was fostered by the dynastic powers for their own ends in their struggle to subdue their feudal nobles to subservience to the crown.

The conflict with Mediterranean culture in Northern Europe was won largely through the discovery of America. This changed the whole orientation of the development of European culture, and transferred the point of balance from the Mediterranean to the Atlantic coast. It confirmed the independence of Northern and Western Europe from the dominance of a southern civilization. France did not win national unity until the Revolution, although it had attained an appearance of unity under Louis XIV. Really, however, the wars of Louis XIV crippled the country instead of making the nation, and broke up its semblance of unity attained under Henry IV and Louis XIII. Uniformity was secured finally only by the popular rising against the nobles, and ended in their extinction.

In the recent struggle in Spain we have the latest phase in a conflict, which has been going on for centuries, to make a nation out of Spain. From the time of the first united attempt to drive out the Moors, dynastic power in Spain has been trying to unify Basques, Catalans and the rest of the Spanish people, but without success. Even those wars to free the country from the invader failed to make a people. The marriage of Ferdinand and Isabella united Aragon and Castile and gave the centre political predominance, while the discovery of America and the division of the newly discovered world in east and west by papal arbitration, as between Spain and Portugal, gave to the Spanish throne the power and resources enabling them to hold the reins of government in Madrid for nearly three centuries. But all the wars in which Spain engaged never made her a united people, and the troubled history of the nineteenth century

with its Carlist outbreaks and of the recent struggle between Republicans and Nationalists is the outcome of this failure. It was not the military spirit that was lacking, but the common culture.

As to Germany, the first German empire founded by Charlemagne, when he was crowned at Aachen in 801, lasted for a thousand years, but all the wars which swept over Central Europe in that period never made a united people of the members of the empire. They always retained the tribal differences which they had inherited from their first settlements. Nor in the second Reich was any greater unity attained, notwithstanding the victories of 1866 and 1870 and Bismarck's statesmanship and the Prussianizing of the emperors. In the Great War of 1914-1918, although the Germans all fought for their fatherland, they nevertheless were Prussians, Bavarians, Saxons and the rest. It remains to be seen whether Adolf Hitler has been and will be more successful in producing a united people, or what has never yet existed, a German race.

After all, we know our own people best, and it would be a rash statement to say that the English people or the British empire have been produced by war. The solidarity of the English people is due largely to its favoured position as an island off the north-west coast of the continent of Europe. Owing to the fact that our early Norman kings were more interested for the time being in their possessions in France and their quarrels with their French overlord—the King of France—the towns and trade guilds of England were able in return for supplies to win enormous concessions from the royal prerogative. The result was that in liberty of spirit England always has been some hundreds of years in advance of the continental peoples. Before the line of the Plantagenets came to an end, the English people had won concessions which the continental peoples did not attain until the French Revolution, and some indeed not until the middle of the nineteenth century. The English people emerge as a national unit out of the welter of Celt, Saxon, Norman and others in English history in the fourteenth century, say under Edward III.

Chaucer may be regarded as the last Frenchman in England or the first Englishman : but he is certainly one or the other. Not until the reign of Henry VII and the close of the War of the Roses did the English assume their full individuality. But this was not the result of any war, even though the country had just passed through the Hundred Years' War under Edward III and Henry V, and notwithstanding the victory of Agincourt, which is usually regarded as peculiarly an *English* victory. These wars did little or nothing to form the English character. They were dynastic wars, in which the king and nobles were interested and not the people as such.

Combined with the Black Death these wars began the emancipation of the English peasantry, while the Wars of the Roses completed what the Hundred Years' War had begun and wiped out the Norman nobility, making way for a new nobility founded on wealth and commerce, which was the backbone of the Tudor administration. The English nation which had thus emerged was a by-product and not a product of these wars. But how great the solidarity of the English people had become was shown by the defeat of the Armada, when the English Catholics, who were being urged, and might have been expected, to adhere to a higher loyalty, fought on the side of what they now felt to be their own country, and not merely the place in which they happened to live, while members of another community.

It was at this same time that the foundations of the British colonial empire were laid in Virginia—the first permanent English settlement in North America—while in the raids of Drake and other seamen on the Spanish main the spirit was that of adventure and exploration, and the aptness for dominion of the sea which Englishmen then showed was not essentially warlike. The motive was economic, with a religious tinge ; and the enterprise a business adventure, as Queen Elizabeth showed in her anxiety to participate in sharing the profits.

From the evidence of history it would be difficult to show that the British empire has in fact been an outcome of war, although it is one of the greatest of the social aggregations

which has yet been formed in the world's history. Canada and India, with other accessions, came to Britain, it is true, as a result of participation in the Seven Years' War of 1753-1760, while the Cape of Good Hope became British in the wars with France at the beginning of the nineteenth century, but the reluctance with which they were accepted and held, so far as the government and the people were concerned, provides little support for the argument that they are in any way a result of warlike enthusiasm, or a manifestation of solidarity fostered by war. There was little national enthusiasm for the South African war at the beginning of this century ; and the formation, in 1910, of the Union of South Africa as an independent government in the Commonwealth, represented the attitude of the British people towards it. Other members of the Commonwealth, such as Australia, became attached to the British crown as the result of exploration and not through war.

While, therefore, it must be acknowledged that in the past war has played a part in the formation of certain peoples, it represents only one phase in the development of civilization and is a part of a larger whole. Civilization, it is true, develops through individual peoples, as historically speaking, mankind has been organized on that basis, but we, as heirs of the ages, to use a trite but expressive phrase in this connection, are not interested in the survival of these peoples, except in so far as they have contributed to the general advancement of mankind. It is here maintained that the contribution to advancement by these peoples has not been through their warlike qualities, but by other thoughts and actions. The trend of cultural achievement in the advancement of mankind has been to operate through larger and larger unities—tribe, people, nation, confederacy, eliminating war and the struggle for existence as a physical fact and relying more and more on the struggle for existence as between ideas. In other words, in our modern civilization, ideally speaking, it is no longer the force of arms which binds these unities together, for example the British Commonwealth of Nations, but the strength of an ideal or a principle.

At present the idea of democracy is struggling against that of autocracy or totalitarianism. Unfortunately, totalitarianism is wedded to the reactionary idea of nationality, which checks the advance towards the larger unities in which mankind will be united and in which war will be eliminated. In so far as the idea of war as a "pruning-hook" lends support to national theory, it is reactionary and irrelevant to the true ideal of human progress. It is wrong, because it ignores or misinterprets certain very essential facts, of which the chief is that beyond a certain phase the struggle for existence ceases to be a physical struggle and becomes a conflict of ideas; that is, survival is cultural. By this comes about the growth of civilization. In this growth war is a catastrophe, comparable to a great earthquake or other convulsion of Nature but only incidental to the development which is continually going on in all forms of life.

Even if it be conceded that use of the fighting instinct of man has promoted the strength of his body and disciplined his mind, or that it encourages supreme self-sacrifice in support of high ideals, the destruction of life in anger must degrade rather than promote whatever is divine in human nature. The spiritual evolution of man, as represented by all that is best in civilization throughout the ages, and as inspired by the most exalted religious and ethical teachers, has not proceeded in its upward course through war but in spite of it; and it is in the belief in its further development that hope may be found for the future.

It is now generally understood that modern warfare is an affair of nations, and not of military forces only—whether on land, sea or in the air. The direct effects of conflict of arms between nations can, therefore, no longer be confined to the combatant services. Having regard to the highly technical nature of modern warfare, with its manifold contacts with, and dependence upon, geographical and meteorological knowledge, engineering, chemistry and chemical industry, medical science, psychology, and so on, it is obvious that men of science are closely concerned in the construction of an adequate policy of national defence as well

as the formation of an adequate structure of peace. They have an important part to play, both professionally and as citizens.

The association of science with war and the prostitution of scientific effort to war purposes cannot be condemned too strongly, yet few scientific workers would wish to avoid participating in adequate and effective methods of national defence, or to fail in their service to the high humanistic ideals for which science stands. Every nation has the right to decide upon its own form of government—democratic or autocratic—just as it must be left free to follow its own religious ideals. Each country has its own standards of ethical and social values, and cannot easily recognize any other. When, however, the deliberate policy of a State is to impose its system by force upon people who wish to be free and have entirely different ideals, all believers in liberty of conscience and in the principles of natural cultural development should range themselves against such aggression. Judged by its policy and actions, the ideals of Nazi Socialism—apart altogether from the political aims—represent a reversion to degrading primitive instincts ; and if ever they should prevail, the best characteristics of modern civilization would be destroyed and human life become subject to the “ law of the jungle ”.

## *Chapter Twenty-six*

### PRIMITIVE RELIGIOUS CULTS AND THEIR DEVELOPMENT

**T**he tendency of man to make God in his own image, which appears in religious beliefs from the lowest to all but the very highest phases of their development, is at the root of the problem of anthropomorphism. According to one school of thought, all knowledge is subjective in the sense that it is derived from experience and is confined to characters and categories imposed by the constitution of human nature. On the other hand, the view is held that, while religious belief begins in an anthropomorphic phase, its development is a progression towards a non-anthropomorphic form of belief in a Divine Being, which has sloughed off the grossness and crudities of earlier creeds, and has attained to a knowledge of the divine nature as a form of real existence, known, if only in part, by an intuition and as an experience which transcends human limitations. On this view, scientific knowledge is not a mere subjective interpretation, derived from the use of the senses and intellect, of the data of experience, but an apprehension, continually growing, of an objective reality.

Between them, these two schools of thought seem to give rise to an obvious dilemma. If it be admitted that the trend of development in the conceptions of religious thought is from anthropomorphic to non-anthropomorphic under conviction of the contradictions and inconsistencies otherwise attributed to the divine nature, when anthropomorphism is carried to its logical and theological conclusion, then : either the Divine becomes the Unknowable, as man's knowledge is limited by his own nature, and agnosticism results, or, accepting the postulate of an objectivity, partially and

gradually revealed; the revelation of the Divine is such as transcends normal human limitations. On this view, the religious experience, in which such a concept is attained, is an intuition which has to be accepted as corroborative evidence of that objective reality, but can be submitted to no test other than individual personal conviction—in other words, as a dogma of theology. Hence any dogma relating to the nature of God, such as, for example, that “God is Love”, must be accepted irrespective of the course of events; for to question these as evidence, or to attribute to the Deity either failure to direct events in accordance with the divine nature, or action which is the outcome of passions, such as vengeance or anger, is to question the omnipotence and universal goodness of God, and to revert to anthropomorphism, by attempting to interpret His actions in the light of human conceptions and limitations.

Such, then, it would seem, is the position to which argument leads when the “evolutionary” view of development in religious conceptions invokes the analogy of the growth of scientific knowledge—on one hand the point of view of the agnostic faced with an Unknowable: or, on the other, the ultimate postulates of a dogmatic theology, which is not in a position to submit to the observational or experimental tests of its scientific analogue. To the resolution of the dilemma the anthropologist as such can contribute only an objective review of the facts, indicating the line of development in religious thought and conceptions, without questioning whether they point to a correspondence with an objective reality, or the reverse. His investigation will show whether the assumption of the theologian that there is an “evolution” of religious belief, which begins in anthropomorphism, is warranted by the facts: the bearing of his finding on the theological argument belongs to another plane of thought.

In the study of religions, anthropomorphism is commonly understood to mean those forms of religious belief in which the gods and divine beings are regarded as having human form. The term is, however, also applied to forms of belief which have not yet attained to this conception. In the

minds of primitive peoples and of children, all beings and things, animate and inanimate alike, are personified, and to them are attributed acts of will identical with those of man.

When once man has passed from what Dr. R. R. Marett has termed the "preanimistic" stage of belief, the stage in which man believes that everything around him, animate and inanimate, and including himself, is endowed with mysterious and dangerous powers—a phase which belongs really to the magical level of thought—he enters into the animistic stage of belief, a belief in spirits. Not only does he believe in the existence of spirits, but judging from his own experience of dreams, he comes to believe in the possibility of the existence of a spirit apart from the object in which it normally resides. Hence he attains to (1) belief in the existence of spirit after death, leading to funeral ritual, ancestor worship, and other forms of the cult of the dead ; (2) the worship of spirits as such, apart from any material manifestation ; and also to (3) the worship of the spirits which underlie the forces of Nature, whence arise cults of sun, moon and stars, fertility cults and the like, these objects and forces being personified as gods of earth, sky, sun, fertility, and so forth. Animals, also having souls, not unnaturally give rise to cults of fully-fledged gods in animal form, of which the personality is conceived in terms of the human, even though in outward aspect they may not conform to the requirements of the more restricted definition of anthropomorphism.

The earliest chronological stages in the development of primitive religious concepts are represented in the art of Palaeolithic man, as found mainly in Western Europe. In the caves of Southern France and Northern and Eastern Spain, on the walls and in the floor deposits belonging to the Upper Palaeolithic period in the later phases of the Pleistocene epoch of the Quaternary age, are found wall paintings and engravings, carvings on objects of bone and ivory, and sculptures in these materials, as well as in clay. These afford the earliest tangible evidence of the stirrings of that spirit in man's nature which was to act as his guide,

both for good and for ill, in his upward progress towards the most advanced stages of development to which civilization has as yet attained.

This must be admitted, however these manifestations of cultural development in Aurignacian and Magdalenian man are regarded. One view is that they are merely the satisfaction of an urge towards aesthetic expression. Another view is that early man, like his counterpart, the backward peoples of modern times, believed that, by the exercise of his ability to represent his desires in graphic form—in other words, to effect his purpose of controlling those forms of animal life upon which he depended for his food-supply—he was setting in motion forces more potent than his own to that end, and making of his painting and carving an act of magical invocation, or it may be even of religious observance.

Even if nothing more than a magical significance be attached to these realistic representations—cave-bear, mammoth or bull, the browsing deer and the vital energy of the galloping herd of horses, and the like—certain other examples of this artistic activity afford evidence of ideas which can be placed definitely within the category of religion, if only of a rudimentary type. Some such concept, for example, must be regarded as the explanation of the heads, inhuman in character, which crown otherwise human forms, posed in attitude of supplication. The more explicit figure of the "Sorcerer" of the cavern of Trois Frères, with its animal mask and tail, confirms the character of the more ambiguous figures, as representations of men, masked to represent animals, which may, on the analogy of the practice of modern peoples, be construed as evidence of a conception of a spirit, even, say, a Divinity, in animal form. Trois Frères is in Ariège, France, and the cavern in which the drawing of the "Sorcerer", or medicine-man, appears, contains a sort of pulpit. It was first described by Abbé Henri Breuil, the foremost living authority on the archaeology of the Old Stone Age, and Count Bégouen, in the *Comptes rendus de l'Académie des Inscriptions*, in 1920.

The cults of Palaeolithic man were, however, not confined to ceremonial concerned with spirits in animal form alone

as represented in his art. There is evidence that some form of a cult of the dead was also practised. In Neolithic times, as is well known from the evidence of human skeletal material which has been unearthed in archaeological excavation, interment was a ritual act, which by its disposition of the limbs and of the body as a whole, the provision of grave goods—food, ornaments, weapons—and even, possibly, the sacrifice of slaves, certainly practised at a slightly later date, gave expression to certain definite conceptions of the existence of a soul or spirit, which survived physical death. This spirit continued a form of existence in which, on proceeding in a direction indicated by the position of the body in the grave, that is, by its orientation to the rising or the setting sun, continued an existence, in which it needed food for sustenance, weapons for its protection, ornaments as amulets to ward off evil influences, and, if human sacrifice had accompanied interment, slaves to minister to its needs.

Certain of these conceptions would seem to have been present to the mind of Palaeolithic man, at least in the later phases of his cultural development ; for he practised interment, and the evidence of ornaments of shell, weapons and even, perhaps, of joints of meat, points to the cruder stages of the beliefs which by Neolithic times had developed into a substantive cult. Indeed, the wealth of the finds at Predmost in Moravia, exceptional though they are, points to a cult even in Palaeolithic times which surpasses all in the abundance of its observance of the ritual until we come to the type sites of the great early civilizations of Near and Middle East.

When once man had attained to the conception of a soul attached to the human body, but capable of a separate existence at least after death, which is all that the evidence justifies, advance in other directions was, if not easy, at least viable. In early man's representations of animal forms in these paintings and engravings, it may be that ideas other than magical control were present to his mind, especially where he appears to lay emphasis on numbers, as, for example, in the herd of horses. It is possible that then his desire was to ensure and aid the fertility of his prey, as it is

known that later peoples have desired to increase the fertility of the animals upon which they depended.

It may be said, therefore, that the evidence of the artistic activities of man in the Upper Palaeolithic age, and of certain practices in his disposal of the dead, justifies the inference that there was within this period a progressive development in spiritual conceptions. In this development belief in the efficacy of a magical formula of graphic representation gives rise to faith in mimetic representation—as is indicated in the masked figures and sexual images, which point to a fertility cult.

A further step is the fashioning of human female figures, possibly to be regarded as embodying divinity, on the analogy of ideas already made familiar in a primitive theory of the spirit or soul, which finds one form of expression in the cult of the dead, with its implication of mixed emotions of affection and fear, prompting man to make provision for the needs of the departed, and at the same time avert risk of the malice of their spirits.

How far such a progression may be said to come within the sphere of religion, even of a rudimentary type, must depend upon the point at which it is decided that the boundary line between magic and religion must be drawn. The question is not, perhaps, here of signal importance. The evidence is such that the distinction between spell and prayer, a crucial test, is hard to discern. Interest lies rather in the fact that we can in this material see the germs of ideas which at a more developed stage of culture have become definitely religious in character.

From preanimistic and animistic types of belief, stages of progress may be seen towards more definitely religious forms of approach to the unseen than appear in the magical spell that binds but does not supplicate. Even at the present time, there are peoples who believe that men, animals, the heavenly bodies, atmospheric phenomena, and inanimate objects are all beings of the same nature. The sun, moon and stars, sky, earth and sea, in all their phenomena and elements, as well as plants, animals and men are supposed to belong to a system of conscious and interrelated life.

From such views it is not surprising to find the conceptions of divine individuality and higher powers emerging in due course. Among the Bushmen of South Africa there is a definite act of worship in the practice of praying to the moon and other celestial bodies ; but a certain confusion and interchangeability in their ideas is still to be seen in the conceptions embodied in their mythology, in which mythical beings appear having an animal form, and at the same time personify natural forces and bodies, such as the moon and the like.

The association of totemism with the development of the idea of a personal deity is to be inferred from the character of myth on the north-west coast of America, where the totem animals, and especially the raven, appear to be taking on the character of culture-heroes. Stories of this type are very widespread in Africa, where animals, very often the mantis and the spider, shine as heroes remarkable for their success in getting the better of the other animals. The type is most familiar in the Uncle Remus stories, while other examples of the animal-hero story will be found in the folk-lore collected by the brothers Grimm. Except for outward form, the conception is entirely human, and corresponds exactly in cultural setting with that of the people among whom the tale is current.

The particular interest of this class of tale is that it is a forerunner of the culture-hero in human form proper, of whom one of the best known among primitive peoples is Maui, the culture-hero of the Polynesian peoples, Maori and other, of the Pacific. The interest of the culture-hero is that he is very often regarded as the Creator, and not only endows man with the beginnings of his culture, but also is frequently the author of his being. Maui's part in creation was to create light by cutting apart his father and mother, sky and earth, who were previously joined together, thus letting in the light on his brothers and sisters, who lay between them. The land he fished up from the bottom of the sea by a rope and hook.

In Greece, Deucalion and his wife Pyrrha recreated man after the Flood by throwing stones over their shoulders,

those thrown by Deucalion becoming men and those by Pyrrha women. Among the peoples of Africa there is a tradition of a creator-god, somewhat vaguely conceived and not infrequently associated with the sky, but here it is usual that, after having performed his function of creating the world, he remains functionless and does not enter further into the religious system, as among the Chinese, to whom the place of the sky divinity as an object of worship is taken by the ancestors. In Greece, although Deucalion was the creator of man, according to one version, the function of culture-hero was also performed by Prometheus, who fashioned man from clay and gave him fire, for which he suffered the penalty of being bound to a rock while the vulture gnawed his vitals. This story evidently belonged to a strain other than the Deucalion legend.

Another famous culture-hero is Quetzalcoatl, the culture-god of the ancient Aztecs or Nahuatl. He was the god of the air, tall in stature, with a white skin, long dark hair and long beard. He lived for a time on earth, and during his stay the earth teemed with fruit and flowers without cultivation, and a single ear of Indian corn was as much as a man could carry. He taught the Aztec the use of metals, agriculture and the arts of government. There are many examples of the view that, while animal cults and personification of natural forces as well as other influences have combined to mould the character of the culture-hero, in the main he must be regarded as a folk-memory of some half-forgotten, great, but human, benefactor of his people, in whom divinity has come to be personified as a wonder-worker and controller of magical forces, and hence a god.

While we thus see the culture-hero as having at least one strain of his ancestry in the animal cult, or legend, there are other directions in which that cult may develop. In view of the prominence of the animal myth among the Bushmen, where it is in cultural association with rock paintings and drawings of animals, for which a derivation has been suggested from prehistoric North Africa, it is of interest to note the prevalence of animal cults in Egypt, when it first emerges into the light of history. At the time of the consolidation of

the kingdom by Menes, the first king of the First Dynasty, Egypt consisted of a number of communities, or nomes, each of which appears to have had an animal form as its tutelary deity or standard. These animal forms, like the village deities in Hinduism, were subsumed into the official pantheon. As they are known to us in the representations of the Egyptian deities in art, of the animal form only the animal head remains, and the body is human. Thus we get the hawk—the symbol of royalty—the bull, the cow, the hippopotamus, the jackal, the ibis, and the like.

It has been suggested that these animals were originally the totems of the groups from which the nomes were formed, but there is little evidence to support this view. The association with matriarchy in the royal line is explicable on other grounds. The point of interest is that here we have an animal cult caught and fixed at a moment when it was about to impose full human form on the objects of its worship. The religious beliefs of Egypt were fully as composite in character as the religion of Rome. Apis the bull (or Mnevis) and Hathor the cow were also part of a fertility cult. That this fertility cult had taken the place in dynastic importance of the more primitive animal cult is indicated by the identification of the monarch with the bull in an annual festival, in which the ruler had to sacrifice the animal which he also represented.

The importance of such a cult and ceremonial to an agricultural people like the Egyptians is obvious; and this is marked further by the persistence of the elements of the cult in the official religion throughout Egyptian history, though often with much modification. One of the earliest modifying influences affecting the Horus or hawk cult was the appearance, at about the Fifth Dynasty, of the worship of the sun as the deity Ra, or Amon. Horus is then identified with the sun, the king is Ra the sun, and the son of the sun. That this was a physical fact as well as a theological dogma was part of Egyptian official belief. Hathor, the cow, also shows evidence of modification, by identification with the moon-goddess, as she also continues to be in later manifestation, when she is identified with Isis, who

also in her turn takes on Hathor's incarnation as the cow-goddess.

It is an interesting point in this connection that where, as among the peoples of Africa, the deification of natural forces such as sun and moon takes place, and supplications for rain are addressed to them, as among the Bushmen, Hottentots and Bantu of South Africa, the home of the gods, heaven so to speak, is in the sky. Among the Egyptians, to whom fertility came not from rain, which is of such signal moment in an arid country, but from the inundation of the Nile, the home of divinity and the place of the judging of the dead is underground and is reached by a subterranean river.

The sun cult remained the predominant belief in one form or another—for it was not entirely unchanged—until a late phase in Egyptian history, the king being the incarnation of Amon, Ra and Horus, the sun and hawk gods on earth, in one personality. Cleopatra as a queen appears as Isis with her son Horus, the fertility cult having resumed importance with the introduction of Isis worship from Syria. Another important influence affecting the sun cult, though only temporarily, was the disk worship introduced by Ikhnoton, in all probability, like the Isis cult, also from Asia.

Sun and moon cults were also of great importance in early Sumeria, where appears a culture-hero Marduk or Shamash as the creator, the hero who fights with the dragon and the founder of Sumerian cultural organization. From this source come a number of conceptions which have proved of signal importance in the world's history. The Sumerian city was regarded as the property of the god or goddess, as, for example, the moon, to whom the great temple of Ur was dedicated. The high priest was the representative of the god on earth, and when the priest became the king, or later the king fulfilled the function of chief priest, he was regarded as an incarnation of divinity. The harsh character of climatic conditions in the Middle East, Mesopotamia and Iran, had an evident influence on the character of their religions. In Mesopotamia, especially in the time of Assyrian domination, belief in evil spirits plays a great



The god Mithra emerging from an egg. His right hand seems to have held a sword ; and his left a torch. Signs of the zodiac are represented on the border. Fragment of a sculpture from a Mithraic cave near Housesteads, Northumberland. Preserved in the Black Gate Museum, Newcastle-upon-Tyne



Mithra killing the bull. Typical form of Mithraic sculptures. From the "Catalogue of Inscribed and Sculptured Stones of the Roman Period", belonging to the Society of Antiquaries of Newcastle-upon-Tyne



part, and even the character of individual gods—this is apparent so early as in Sumerian times—is often a curious compound of both evil and good qualities.

The contrast between good and evil in divinity is manifested also in the beliefs of Iran in the dualism characteristic in the two spirits of Good and Evil—Ormazd and Ahriman—and in the tenets of Zoroastrianism. The contrast is one between the desert and the sown. The desert as the haunt of evil spirits appears in the Bible, for example in the Temptations in the Wilderness, and in the beliefs of Islam in which the desert is one of the homes of evil djinn. It is a personification of natural conditions hostile to human life, and consequently an object of fear. This belief in the dualistic strain in spirit is responsible for the story of the angels who rebelled against God and fell, and also of the Christian concept of a personal devil. The original Mesopotamian evil spirits to which belief can be traced belong, however, to the order of horrible monsters, while for the popular idea of the Devil we must go to Greek belief, in which he appears as the Great God Pan, the god half-man and half-goat with the cloven hoof, which always betrays our Devil, whatever shape he may assume.

The form of the god Pan, and the goat-like characters of the fauns and other sylvan deities of Greece, indicate that the animal cult of the ancient world was not confined to Egypt. In ancient Rome a memory of it appears in the story of Romulus and Remus being suckled by the wolf; while in Greece it survives in the stories of the incarnation of Zeus and other gods in animal form in pursuit of amorous adventure; for example, the story of Leda (beloved in the form of a swan by Zeus), Pasiphaë, wife of Minos, King of Crete, who became enamoured of a white bull, of which the Minotaur was the offspring, and so forth.

There are other examples of personification of natural forces, and especially of the divinity of the sky as the source of rain. In Uganda, it is recorded, the people worshipped ancestral and nature spirits which were elevated into gods and goddesses. The worship of some such spiritual form, which is elevated into a divinity of the sky, appears to have

been the earliest form of belief in China of which there is evidence. The symbol for the divinity of the sky in the earliest hieroglyphs, which are now usually attributed to somewhere about the seventeenth century B.C., or it may be earlier, is something which is usually interpreted as the outline of the human form. If this be correct, China would appear, in the earliest stages of belief of which there is record, to have held the creed of a sky-god monotheism. From this, however, she fell away into a materialism and spiritism, with ancestor cults as the popular form of belief.

In Japan, on the other hand, in the culture derived from China and preceding the introduction of Buddhism, divinity was conceived in the form of a female sun-god, who was the ruler of the land. The first human ruler was the grandson of this goddess, and from him is descended the present line of emperors. Hence the divine character of the Mikado, with the consequent political difficulties which arise when it is desired to introduce reforms or changes in the domestic organization of the country.

The cult of the ancestral spirits has in all probability played a powerful part in the development of the anthropomorphic idea. It is believed by the Australian aborigines that conception which leads to birth arises from the entry of a spirit into the body of a woman without the intervention of the male. It is this idea of reincarnation which lies at the root of the ancestral cult as it is practised, for example, in Africa among the Bantu peoples, the development of the concept depending further upon the widespread cult of the dead. Further, as the place is haunted by the spirits, their abode is especially sacred, and so it gives rise to such forms of worship as the tree cults, in which, notwithstanding appearances, it is the ancestral spirit, and not the tree itself, which is the object of the cult.

Ancestor worship is, in strict fact, a matter of family observance ; but as the tribal chief is in some sort responsible for the well-being of the whole group, village, tribe, or whatever it may be, as well as for his immediate family, it is customary for his own ancestors to be made the subjects

of ritual approach also on such occasions as may affect the well-being of the whole group as, for example, when in need of rain. That an ancestor of especial importance or power might assume the character of a culture-hero, and ultimately of deity, is an obvious development. The influence of the emperors of China resided in the fact that they had access to the royal ancestors, who were looked upon as the protectors of the whole country and its people, just as the ancestors of ordinary folk looked after the needs and protected the members of their own family, when the rites of ancestor worship were duly observed. Investigations in a number of areas, and among different races, afford evidence that the first spirits to be personified and deified were those of ancestors. Memories of leaders who were greatly loved and honoured during life may easily pass into reverence and worship of their spirits.

Turning to America, the pantheon of the ancient Aztecs represents what is perhaps the most highly developed system of an anthropomorphic worship to be found on that continent, and, what is more, one that is closely, though not exclusively, connected with the development of the idea of the divinity of natural forces and the sky. The Aztec system, which was associated with some of the most atrocious practices of sacrifice that the world has ever seen, was imposed upon a much milder form of religious belief, that of the Mayas, which was largely concerned with deities associated with the practice of agriculture and of which the rites were mainly directed to secure fertility.

The derivation of the Aztec system is probably from some such source as that to which the modern cults of the Indians of the south-western states may be traced. In these cults the forces of Nature are worshipped, but significantly the various quarters of the sky play a great part. Among the Hopi of Arizona the snake dance, in which the sky divinity is evidently personified, has attracted much attention, and is now a tourist attraction ; while among the Arapaho the decorative designs with which they ornament their leather parfleches and other objects of use, as well as the geometric designs and the colours, both have significance as symbolizing

the lightning, the cardinal points, and other aspects of Nature.

Behind all this symbolism is divinity personified as imminent in these forces and elements. It was from such ideas as these that the Aztecs appear to have elaborated a system of Nature and sky deities, of which one—a goddess—was in charge of rain, another of fire, thunder, and so forth. The same personification of points of the compass in the form of deity appears to persist among the Mexican peasant population to-day, largely Indian in blood. The patron deity of the country, among the Aztecs, if we are to trust the usual interpretation of his name, was associated with the humming bird. This was Huitzilopochtli, the god of war, who was depicted as a man having the feathers of the hummingbird on his left foot, and that being the meaning of his name; while Quetzalcoatl, the culture deity and god of the corn, is “the feathered serpent”, a frequent and significant fertility symbol still in use among the Indians of the southwest.

The elaborate anthropomorphic system encountered in Central America finds its counterpart in the religious systems of the Old World, not only in ancient Egypt, but even more in the pantheons of the Aryan-speaking peoples of the dawn of history. These have had an incalculable effect on the development of civilization and the cultural character of modern Europe. These anthropomorphic cults are a formidable array—the religious system which the Arya introduced into India, which after amalgamation (not admitted by the Hindus) with previously existing cults developed into Hinduism, the religion of Iran, to which the Aryan religion was closely related, the beliefs of the kingdom of Mitanni and, in part, probably of the Hittites, the religions of ancient Greece, Rome, and of the Teutonic and Slav peoples, who overran Central Europe, and peopled Scandinavia, and of the Celtic peoples who from Central Europe came to Gaul and finally reached Great Britain and Ireland.

Ultimately, as can be seen perhaps most clearly in the deities of India, and in the thunderbolt of Zeus in

Greece, these divinities were the personification in human form of the forces of Nature, the sky, the earth, the sea, the sun, moon, fire, and so forth. Each god was departmentalized and had a special province, at least in the most highly developed form in Greece, where when they amalgamated with local cults, each took on special characteristics, as, for example, in the association of Zeus with the oracle at Dodona and of Phoebus (Apollo) at Delphi. Of the influence of these conceptions on the anthropomorphic idea the art of Greece speaks more eloquently than words. This is especially to be noted in regard to the divine in relation to the female form, for with each of the principal male deities a female consort was associated—Hera, Athena, Artemis, Aphrodite and the like—just as with Vishnu and other manifestations of deity in India.

The cult of the mother-goddess, in its various localized forms, and especially on its more tender and maternal side, which finds extreme expression in artistic representation as the many-breasted Greek goddess Artemis, had a profound effect on the development of religious thought in the Mediterranean and Near East. It was, in fact, the popular religion, and in Greece, it is permissible to suggest, the contrast of this and other fertility cults with the official pantheon of sky-gods, which had been introduced into the Mediterranean world by the invaders from the north, may have had not little influence in bringing about a play of ideas which led to the scepticism of Greek philosophy, when face to face with the official religion. This gave rise to the criticism of anthropomorphic forms of belief of Xenophanes, when he remarked that had horses, lions and other animals gods, they, too, would be such animals. The cult of the mother-goddess was no doubt largely responsible for the cult of the Madonna in the early Christian Church.

It should always be remembered that the Christian Church was in its origin an eastern institution, which grew up among pagan peoples habituated to the idea of female divinity; and the cult appears in Church doctrine at a time when the incorporation of pagan peoples in the Church body was bringing about the admission into its doctrine of tenets of

pagan origin which were averse from the strict interpretation of Christian theology. There can be little question that the cult of the Madonna was in some measure responsible for the conflict between the north and the south, of which the final effect was the Reformation. This was a cultural as much as a religious conflict, in which on one side was a long tradition reaching back to a cult of female divinity ; on the other, in the north an almost equally long tradition of the worship of a sky-god as supreme—an all-powerful divine father and ruler.

The same division of religious belief—broadly still a cultural division of north and south—although both Churches are in name Christian, persists in the refusal of Roman Catholics and Protestants each to give really serious consideration to the theology of the rival system. The differences are due largely to different reactions to religious emotions among peoples of the north and south. From the evidence to be deduced from the beliefs of primitive peoples and the historical records of early forms of religion, it appears that development is analogous to the evolution of racial strains. There are now no pure races, because in the course of human evolution there has been a constant intermingling and crossing which has made of present-day peoples a highly complex racial admixture. In the same way, in considering the development of religious cults, there does not appear to emerge any single line of development ; but there has been a constant intermingling and cultural contact, which has produced forms showing traces of the influence of now magical ideas, now spirit cults, ancestor worship and many other forms and shades of belief.

The religion of the Roman empire was a remarkable example of such a composite product. While the official religion was in the main a system of sky-gods, such as was common to all the Aryan-speaking peoples, it had been to no little extent remodelled on the lines of the Greek official pantheon. At the same time it included at one end of the scale the deification of the living emperor, and at the other primitive agricultural fertility cults retained side by side with the family and household gods, and the cult of the

hearth which belonged properly to the Aryan-speaking tribes and their primitive patriarchal system of organization. To these must be added the typically Mediterranean cult of *Bona Dea*, as well as a system of reverence for the family or group ancestors, which in certain respects resembles the ancestral cult of China. To the indigenous Roman system of religion was also added a number of exotic cults brought to Rome as a result of the conquests of eastern and other peoples, among which the cult of Isis from Egypt is the best known, and was the most popular.

## *Chapter Twenty-seven*

### EVOLUTION OF IDEAS OF GOD

**T**he more mysterious any natural object or event, the more likely it is to be held sacred and to be worshipped. In early stages of mental development, it is more reasonable to think of water, rocks, plants or animals as possessing the powers of speech and other human qualities than to give them actual personalities. To the primitive mind, a moving thing suggested the presence of a living agent. The stars and planets, sun and moon, moved because they were alive ; and hence they became objects of worship. The phenomena of inanimate Nature were interpreted as manifestations of supernatural life, and among many peoples were thought of as men and animals and other living things.

Religion did not begin with doctrine, but with the performance of certain practices or rituals, and the recognition of rules of conduct, handed down by tradition and believed to be necessary for the good of the individual and the community. It was a social custom based upon myth and legend long before any attempt was made to formulate the principles upon which common practice was based or to establish doctrines or creeds. It was not an appeal to the heart or an influence upon the senses, but an institution into which an individual was born, and was no more sacred than any other form of social organization. "Broadly speaking", said Robertson Smith, referring to the nature of the religious community and the relation of the gods to their worshippers, "religion was made up of a series of acts and observances, the correct performance of which was necessary or desirable to secure the favour of the gods or to avert their anger. . . . Religion did not exist for the saving

of souls, but for the preservation and welfare of society, and in all that was necessary to this end every man had to take his part, or break with the domestic and political community to which he belonged.”<sup>1</sup>

To the Greeks of the fifth century B.C., the prominent factor of their religion was that of service. The gods existed, and there was a close relationship between them and men, but it was one of mutual aid and confidence—each expecting service from the other. There was, at the same time, the superstition of fear, not of gods but of evil spirits. The gods themselves were endowed with kindly human qualities; for “If gods do aught that’s shameful, they are no gods”. Though the existence of such a thing as evil had to be acknowledged, the gods of this side of religion were not Olympians to be approached cheerfully with prayers and burnt sacrifices in temples and on altars, but in ceremonies of riddance and “sendings away”.

When gods are conceived to possess human shapes and attributes, they lend themselves to poetic and artistic imagery but lose the mysticism attached to earlier forms of deities. “Xenophanes, writing in the sixth century B.C.,” said Dr. Jane Ellen Harrison, “knew that God is without body, parts or passions, but he knew also that till man became wholly philosopher, his gods are doomed perennially to take and retake human shape. His thrice familiar words still bear repetition :

One God there is greatest of gods and mortals ;  
Not like to man is he in mind or body.  
All of him sees, all of him thinks and hearkens. . . .  
But mortal man made gods in his own image  
Like to himself in vesture, voice and body.  
Had they but hands, methinks, oxen and lions  
And horses would have made them gods like-fashioned,  
Horse gods for horses, oxen gods for oxen.”<sup>2</sup>

<sup>1</sup> *Lectures on the Religion of the Semites.* By W. Robertson Smith. New edition. (London : A. & C. Black, 1914.)

<sup>2</sup> *Prolegomena to the Study of Greek Religion.* By Jane Ellen Harrison. Second edition. (Cambridge : at the University Press, 1908.)

Though Christians are taught that " God is a spirit ", the majority of them are unable to think of this as an abstract influence permanently pervading the universe. When they pray to God, they conceive Him as an actual Being having direct kinship with them, and willing to adjust natural or other circumstances to their desires if He decides it is for their good. To most of such believers, God is a real personality Who created man in His own image ; and they cannot attach themselves to the idea of Divinity as a universal and infinite ocean of spirituality. Philosophers may show how man can rise above the limitations which the human mind in general puts upon the nature of God, but they can define no eternal and intelligent Being for reverence and worship such as the popular mind demands for its faith and guidance.

It is true that the crude conceptions of the Almighty represented in the art of the Middle Ages and later have been abandoned and that a much higher vision has taken their place. The teaching is now that the finest elements in human character reflect the nature of God, and that these were supremely manifested in the life of Jesus Christ. It then appears that the image of God is reflected in the noblest virtues of human life, and that this image is not real but virtual.

In traditional Christian theology, God was apart and distinct from man ; but modern theologians conceive the idea of God as an influence immanent in the universe and in man. This view renders unnecessary the doctrines of the fall of man and the Incarnation and enables principles of evolution to be applied to religious beliefs. Christ is thus regarded as representing the emergence of a type of consciousness in man in Whom divinity was consummated, and though there were no heirs of His body, His spirit has come down through the ages as an ensample of the attainment of perfect godliness. Whether the historical records of His life are complete enough, or consistent within themselves to establish this interpretation, may be left to individual judgment ; but rationalists must agree with Christians that the ideals expressed in His teaching, and for which He suffered

death, were divinely good and beautiful. It is not at all essential to accept the traditional doctrines of the fall of man and his redemption in order to absorb the same ideals and to endeavour to live up to them. The eternal spirit is the divine "logos" of the Gospel of St. John—"In the beginning was the Word, and the Word was with God, and the Word was God". This spirit becomes manifest in man when human nature responds to it; and in this sense there is no duality of God and man except in the sense of a stimulating abstract stimulus and the reaction to it. St. Paul himself expressed this modern view when he said, "For as many as are led by the Spirit of God, they are the sons of God".

When human beings construct a god or gods out of their own minds, they invest them with human or superhuman qualities. Two different ideas are involved in such mental conceptions. The first is belief in the real existence of such a divine being or beings who can understand the devotions and offerings of their worshippers. Most people do not want to inquire whether God exists, and are content to accept their own consciousness as sufficient proof of His reality. Others find in philosophic or metaphysical thought the foundations of a belief in the existence of a God to explain the nature of human experience or the meaning of the universe. Whether a God has been created from a heart-throb or from reasoning, he must be endowed with attributes which believers regard as worthy of worship or reverence. These degrees of excellence differ widely among different peoples and at different stages of intellectual development.

Apart, then, from belief in God's existence, the idea of His nature which satisfies a primitive savage or an evangelical Christian differs greatly from that of a modern churchman or a philosophic theologian. All that can be said is that God is what man thinks He is, and the more enlightened the thought, or the higher the ethical and spiritual standards of a community of believers at any epoch, the more exalted will be the human values attached to the deity or deities worshipped. As all conceptions of God must have the human mind as their transformer, whether the influence is

from within us or comes as spiritual waves from without, they must take nobler forms as man's sense of what is universally good attains to higher and higher standards. On this view, though we are still groping towards the light, we may hope to know more truly what is the nature of a Supreme Being as we ourselves create and foster divine virtues in our own nature.

This idea implies the principle, which the German philosopher Kant sought to establish, that the universe itself testifies to the existence of a moral government, or moral order, and that man's moral experience is an assurance of the existence of a Deity with moral attributes or interests. With so much evil in the world, and the absence of any ethical principles in the operations of Nature and the cruel struggles of life, it is difficult to conceive of a moral Deity indifferent to the consequences of such conditions. Many philosophers have discussed this subject and have endeavoured to explain the co-existence of good and evil in a world created and governed by a God conceived to possess moral attributes to the supreme degree of perfection, but their reasoning and their conclusions make contact only with sophisticated minds.

From the point of view of humanity itself, philosophic solutions of problems of this kind have no effective influence upon the lives of most people, who nevertheless have noble aims in their hearts and whose service promotes the advancement of mankind. The essential thing is to believe in the progressive evolution of the spirit as well as the body of man, and by personal service to assist in making a better world here, so that each generation rises higher and higher until it can reach out and touch the stars.

In numerous passages in the Old and New Testaments God is given many attributes, a few of which signify that they are beyond understanding by the human mind, but to most of which every human being may aspire. God is described in the Holy Scriptures as Eternal, Immortal, Immutable, Incomprehensible, Omnipotent, Omnipresent, Omniscient, and Unsearchable. All these attributes are philosophical conceptions and have no other meaning to life.

Many more virtues are, however, regarded as divine,

though they are possessed in greater or less degree by all human beings. These are Mercy, Goodness and Love, Knowledge and Wisdom, Faithfulness and Truth, Justice and Righteousness, Compassion, Pity and Long-suffering. It is by aspiring towards these ideals that the human race differs from other living organisms ; and every religion or system of ethics which includes them in its teaching, is promoting the ethical or spiritual evolution of mankind.

It is helpful to most people to believe in the existence of a God in whom such virtues are manifested to a supreme degree ; others may have the same high standards of human excellence before them, and live upright and god-like lives, without conforming to the doctrines or practices of any religious faith. The essential fact is that there is in human nature an urge towards moral goodness, and that the ethical standards of civilization to-day tend towards nobler and higher values. Civilized man has reached the present position through a long and painful history, and his struggles against the animal instincts which he has inherited constitute a discipline which will strengthen his desire and efforts to suppress what is ethically evil. What has been achieved in the six thousand years of civilized life may represent only the incipient stages of growth of moral or ethical consciousness towards a condition so sublime that it approaches what is conceived to be divine. Belief in the possibility of continuing this upward trend, by service to high ideals, is the basis of a religion which will make the world happier and better whatever sacerdotal forms may be used to express it. It is by such exalted endeavours that the Kingdom of Man will prove worthy to be called the Kingdom of God.

Whether the virtues expressed in human conduct represent, as the Stoics taught, a law which governs the universe, or are manifestations of a moral purpose of a Supreme Being in the evolution of mankind, does not affect the fact that the instrument through which the end is attained is man himself. In the sense of responsibility, therefore, we have within us what is needed to make our lives noble and harmonious ; and also the freedom of will to choose between

good and evil. Christianity teaches that the sources of spiritual strength are not in man himself, but in fellowship with God, whose perfect wisdom and love were revealed by Jesus Christ. This belief is helpful to many minds ; but if there has been a progressive evolution of the ethical or spiritual side of man's nature, it did not begin with the Jews or with the birth of Christ, and it has been fostered by all great religious systems and teachers. Civilization affords evidence that there is in human nature a tendency to follow high ideals, but neither science nor theology can yet pronounce a final judgment upon the source of this upward movement.

An example of the natural evolution of the idea of god is afforded by Agni, who represents in Vedic mythology a higher type of the Indian religious mind than the warrior god, Indra, or than Varuna, the god of the sky. He is referred to in the first verse of the *Rig-veda* in the words: " I laud Agni, the chosen priest, god, minister of sacrifice " ; and the process of his development was traced by Professor Max Müller from the period when he was nothing but " the mover " to his being called *deva*, which means a god. In this evolution he appears in a variety of characters as the sun, the fire on the hearth, lightning, the messenger between gods and men, and priest. Finally, divested of his material character altogether, he is raised to a sublimer level as creator, ruler and judge. Agni thus passed through many stages of growth in the minds of his worshippers until he reached a supreme position in the evolution of a natural religion. It has been suggested that such a deity can never have the exalted attributes of a god derived from supernatural revelation ; but there are many other examples of this natural development of thought.

" Trusting ", said Professor Max Müller, " in the fragments that have been preserved to us in the Veda, to the remains of the most childish as well as the most exalted thoughts, we may say that natural religion, or the natural faculties of man under the domination of the natural impressions of the world around us, can lead, nay, has led man step by step to the highest conception of deity, a con-

ception that can hardly be surpassed by any of the well-known definitions of deity which so-called supernatural religions have hitherto claimed as their exclusive property." <sup>1</sup>

What may be termed the economy of the Aryan pantheon is clearly modelled upon that of the social environment in which the belief was first elaborated among the primitive tribes from which this group of peoples was derived. The all-powerful Heavenly Father is the apotheosis of the head of the patriarchal group of nomad pastoralists, among whom his control of the circle of his dependents was unquestioned and unquestionable. It is on this view of an omnipotent god as the head and ruler of the pantheon of the Aryan-speaking peoples that the Nazi doctrine tries to justify the exclusion of the Jewish element from the Christian religion by making it the source of a monotheistic creed of an omnipotent Father. Monotheism in Christianity is unquestionably the product of Hebrew theology, although views of the sky-god may have influenced the development of Christian conceptions.

Summing up this general survey of anthropomorphic conceptions of divinities, it may be said that the evidence goes to show how from the most rudimentary stage of human emotion and speculative thought man imposed his own nature and the "forms" of his own mind on the unseen, and in the light of his understanding of his own being, evolved a doctrine of causation which he applied to the universe as he knew it. As knowledge of the character of this universe increases, the sphere in which these supernatural forces have effect is correspondingly reduced, and with it the scope of the conception of direct divine intervention on humanistic lines. At the same time, the conception of Deity is spiritualized until it becomes either an Unknowable which lies behind all things, or a rational principle immanent in all things, but to be realized only by intuition. Looking at the facts of development in religious ideas, there would seem to be an evolution of the human mind, neither

<sup>1</sup> *Physical Religion*. The Gifford Lectures delivered before the University of Glasgow in 1890. By F. Max Muller. (London: Longmans, Green & Co., 1891.)

orderly nor equal in its advance, but on the whole of an upward trend in a contest of ideas, which when the religious emotion is strongly aroused in the finer type of mind becomes stronger than the quest for food, the call of sex, and in the final resort, even than the desire for life itself.

Whatever knowledge has been obtained of the attributes of a deity or deities having superhuman powers over Nature and human affairs, is a product of the human intellect. When Christian teachers say that friendship with God is essential to knowledge of God, and that they should cultivate conduct which He would approve, they are only stating a principle which has always been fundamental in the attitude of man towards the divine. If the truest knowledge of God can be obtained only through human personality, then Christianity has no monopoly of Him and all truly religious aspirations have contributed, and are contributing, to the spiritual evolution of man.

We are, however, far from the state of the brotherhood of faiths, or world fellowship, which Sir Francis Younghusband has done so much to promote. In spite of the efforts made to unite the Christian Churches themselves into a single religious community, the various sects continue to insist upon the recognition of their own particular formularies and rituals which they regard as essential to their conceptions of God and His worship. In this attitude towards their deity, they are no better than the pagans of thousands of years ago, who limited the activities of their gods to their own cities or realms and were militant to the claims of all others. They demand belief in their God of the Universe, and no other.

In the field of religious beliefs truth is relative to the object of belief, and is still as departmental as ever it was. The principle of universality of the human spirit, which is a condition of world-wide co-operation, has not yet been accepted in religion or in other provinces of emotional manifestation. Attempts to bring sects or faiths together in one communion are rigidly opposed as representing a weakening of the religious fibre, and a lessening of the spirit of aggression, characteristic of such positive religions as

Judaism, Christianity and Muhammadanism, instead of a stage in progress towards a higher spiritual development of the human race.

Religion as a social factor, and not as an individual experience, is a sublimation of group solidarity. In a supreme self-protective effort it either proselytizes, expels, or exterminates : hence missionary effort of a noble type or the persecutions of the inquisitor and the conquistador, on the principle that he who is not for us is against us. This is at the root of the quarrel of Nazi nationalism—a quasi-religious emotion—and the Confessionals in Germany, just as it inspires the persecution of the Jews. The Old Testament expresses it repeatedly in the reliance of the Hebrews on Jehovah—the god of battles—as the exclusive protector of the Chosen People.

To some extent at the present time the particularist spirit of self-protection, with an ideal which takes the place of a god, has been diverted into the channel of nationalism. More potent, however, is the fact that an ever-increasing number, appealing to the conditions of modern civilization as a widening circle, is not content to rest in the particular, but must pass on to the universal. To such, neither restrictions of national distinction, nor differences between creeds, can weigh in the balance against the ethical principles explicit or implied in all the higher forms of religion. In this composite but practical creed, it is permissible to consider the movements towards world fellowship as representing a further and higher stage in the development of religious belief, in which the theological differences which antagonize will be forgotten in the pursuit of a common and universal ethical purpose.

## *Chapter Twenty-eight*

### FAITH AND LIBERATION OF THOUGHT

Many reasons have been put forward to account for the origin of religion, but it cannot be said that any of them have solved the problem. Ancestor worship, ghost propitiation, worship of the soul, belief in spiritual beings, reverence for tribal leaders, have all been suggested as originating causes of religious sentiment. The religion of primitive man was chiefly embodied in a system of social virtues. Men possessing these virtues to a high degree, and using them to make the tribe powerful or conditions of life more pleasant, would be esteemed as benefactors or heroes not only during life, but after death, and this veneration would develop into ancestor worship and later into soul worship.

The history of most peoples affords evidence of belief in the existence of an omniscient and omnipotent power or influence behind the universe. If religion be understood in the broadest sense as the belief in spiritual powers, it may be said that prolonged inquiry has failed to establish any clear instance of a people, however backward, who do not hold to a form of faith, which, though vague and rudimentary, can be deemed religious. It is difficult to draw a hard and fast line between magic and religion ; and, indeed, it is a question whether such a differentiation is essential from the point of view of the inquirer who is attempting to trace the development of the religious idea. For even " magic " implies some form of spiritual influence humanly directed. Belief in the efficacy of magic is as much an act of faith in a form of spiritual action as Christian belief in divine inter-

vention in human affairs ; and the essence of a religious belief is that it is an act of faith.

Faith may be defined as a belief which is not dependent upon material evidence or logical demonstration from premises ultimately based upon sensory phenomena (although such phenomena may be invoked to support faith as "proof") ; but it acquires its validity from some general scheme or theory of the nature and purpose of "being", "life", the universe, or as the philosopher would say, of "the Absolute", or to use a popular phrase, "the scheme of things". In essence it is emotional and not rational. In its contact with "facts", faith interprets them not by observation and experiment, that is, by the approach of reason and science, which demand proof in the strict logical sense, by reference to phenomena, but it evaluates them by the test of coherence with its theory of life and the universe. Such a scheme need not necessarily be consciously formulated or even realized as a whole. Probably, in the early phases of development, such realization rarely, if ever, takes place, as the minds of backward peoples work concretely and are averse from abstraction.

Whatever may be thought of evolutionary faith, evidence from comparative study shows that there is in the mentality of man a generalized urge towards a belief in spiritual values underlying the material appearances of the universe. This urge is fundamental. Various conditions, such as the influence of geographical and cultural environment, and possibly mental differences of racial strains, if there are such, have combined to produce the different types of belief and the religious systems which have been followed, or are now followed, by mankind. It is at least significant that in the so-called primitive religions of the less advanced cultures there should be such strikingly close similarities in ritual and belief as have been recorded by the anthropologist. Further, when we try to attain an objective view of the more advanced religions, it is no less striking that they fall into a more or less uniform pattern in regard to the relation of the three elements—tradition, ritual and ethics ; in other words, in the relation of belief to worship and the conduct of life. Dissen-

sion arises not so much out of the nature of tradition as when interpretation is added to it and made a test of orthodoxy.

When there is a difference in the central objects of the various cults, opportunities for dissension are multiplied and reconciliation might seem well nigh impossible. If, however, the spirit of religion is the manifestation of an elemental urge, recognition of this fundamental unity in man's emotional and spiritual nature should make possible a certain measure of co-operation on a common basis when the aim is the common good of mankind as a whole. As this religious sentiment—using the phrase in an ethical sense—exists in human nature, and is manifested in many ways, it has to be accounted for, and its evolution traced, by similar rational inquiries to those applied to other characteristics of life.

Evidence of the progressive development of forms of life in the past, and of changes still going on, is so convincing that it may almost be regarded as a law of Nature. In so far, therefore, as evolution signifies an orderly succession of organic growth, few would venture to deny the fact; but how and why such changes are brought about has not yet been established beyond discussion. Whether organic evolution has proceeded by gradual development of small variations of structure and habits, or by the sudden appearance of new forms, is a question for naturalists to decide among themselves in their search for natural causes. The court of observational science is concerned only with evidence which throws light upon such causes, without assuming the existence of supernatural design or intervention. Whether behind the natural causes producing evolution there is a transcendental principle or architect is not the concern of naturalists, but of other philosophers. Their position is that even if the facts of organic evolution cannot be explained by existing knowledge, they will be understood when more is known about natural causes and consequences without introducing a *deus ex machina* to conceal our ignorance and suppress the pursuit of objective evidence.

To the naturalist the pages of the book of life open to him are printed upon the rocks. The story goes back more

than a thousand million years, and it is in this long perspective that man has to consider his evolutionary position. In each geological period creatures have appeared which might have been represented as the highest type of creation before the emergence of man, who now regards himself as the crowning glory of evolution. The forms of life which existed at any epoch have been superseded by other forms arising out of mutations or different lines of development ; and what has been, or is, has afforded no criterion of what would follow. While not committing himself entirely to this view, Professor James Ritchie presented its implications in a brilliant address delivered as president of the Section of Zoology at the meeting of the British Association in Dundee in 1939. In the course of his address, he said :

“ Looking back over that 1,200-million-year vista of the steady climb of life upon the path of evolution, it seems presumptuous for us to suppose that man, the latest newcomer, is the last word or the final crowning glory amongst many, and that with his coming the great steps in evolution have come to an end. Looking forward to the future of life upon the earth, it seems even more presumptuous for us to suppose that for the next 1,000 million years life, so surprisingly inventive in the past, should be tied for all time to come to trifling changes like increases of brain power or better social organization for mankind.

The truth is that we, bound by the past, can imagine nothing more, but if the long vista of evolution is any clue to the future, we cannot regard mankind, the crowning glory of the present, to be more than a stage in life's progress and a milestone upon the path of evolution towards a greater future. To think otherwise is to imagine that with the coming of man, so insignificant in time, the advance and inventiveness of evolution, steadily carried on through an unimaginable vista of years in which no trace of slackening can be perceived, have all but come to an end.”

This forecast is the only one which biologists can give on the material studied by them and the evidence of extinction

or survival in stages of the evolution of life. Professor Ritchie admitted that man, in his short past, has been moving upwards towards a higher intellectual, spiritual and ethical standard, and that this movement might be expected to continue ; but what forms of life will dominate the earth before its extinction, no one can say. It is, however, in the actual existence and development of spiritual and ethical standards that man differs from other living creatures and brings a new factor into evolution. A comprehensive philosophy of life must take account of this realm of values as equally real with the realm of objective facts. Comparable with the remains of prehistoric monsters found in the rocks, and the persistence of certain species for millions of years, are some of the religious beliefs of past times, which are represented by a petrified mythology, while others have survived unaltered throughout the history of intelligent consciousness. There is hope for the future when both science and religion recognize progressive evolution in spiritual standards of value as well as in physical structure and functions. Civilization is continually creating new circumstances affecting human life, and their influence will be determined by the ideals which arise from them.

It is difficult now to realize the liberation of life and intellect brought about by the works of Copernicus, Galileo, and other pioneers of scientific learning and their influence upon European civilization. The very foundations of belief were shaken when the earth was dethroned from the position in which the thought of man had placed it, and was shown to be a minor member of a group of planets revolving around a sun which was itself only one of many millions of suns in stellar space.

The Holy Scriptures, together with the works of early Christian fathers and some Greek philosophers, were believed to contain the truth about all things, visible and invisible, and men used them as the final court of appeal as to what was true in Nature. When Galileo discovered the four satellites of Jupiter by means of his small telescope, the philosophers of his time would not look through the instrument to see these bodies for themselves ; for, as Galileo

remarked, "These people believe there is no truth to seek in Nature, but only in the comparison of texts." They held that the moon was perfectly spherical and absolutely smooth, and it was in vain that Galileo appealed to the evidence of observation to the contrary. The sun was supposed to be immaculate; therefore Galileo's observations of spots upon it were illusions. Contrary to Aristotelian teaching, two unequal masses dropped from a height were found to reach the ground together. Prof. Lane Cooper has shown <sup>1</sup> that there is no contemporary historical evidence of this demonstration having been made before an assembled company at the Leaning Tower of Pisa. But in his *Two New Sciences*, consisting of dialogues between the interlocutors Salviati, Sagredo and Simplicio, Galileo himself, as Sagredo, says to Simplicio—a believer in Aristotle—"But I, Simplicio, who have made the test can assure you that a cannon ball weighing one or two hundred pounds, or even more, will not reach the ground by as much as a span ahead of a musket ball weighing only half a pound, provided both are dropped from a height of 200 cubits."

When Newton had shown that his law of gravitation was sufficient to account not only for the movements of the planets, but also for the paths of comets, it was no longer reasonable to believe that they were sent as signs or warnings to the human race. Consider the tremendous revolution involved in this substitution of permanent natural law for the conception of a world in which all events were believed to be reflections of the moods of a benign or angry God. The doctrine of daily supernatural intervention meant that men regarded themselves merely as clay in the hands of the potter, and did little to shape their own destiny on the earth. They accepted disease as an act of God instead of cleansing their houses, and believed that all the qualities they possessed, as well as the actions they took, were determined by the positions of the planets and other celestial bodies. Every organ of the human body was supposed to have its counterpart in the sky, and when Vesalius

<sup>1</sup> *Aristotle, Galileo and the Tower of Pisa.* (Ithaca, N. Y. : Cornell University Press ; London ; Oxford University Press, 1935.)

by his dissections, and Copernicus by his doctrine, showed that there was no relationship between the human frame and the order of the universe, the ponderous superstructure of faith and pseudo-philosophy which had been built upon it, fell to pieces, and a new mental world had to be constructed.

Instead of a few thousand stars supposed to exist to influence the earth and affect the purposes of man, we now know there are many millions which can never be seen without telescopic aid, and millions more that are not visible with any optical means. The universe has thus been vastly extended, and the puerile ideas of past centuries have given place to far nobler conceptions of the majesty and power of Nature. The intellectual expansion thus brought about, together with the sense of justice which resulted from the existence and permanence of law in Nature, profoundly influenced human thought and resulted in social changes which had the greatest civilizing effects. As the result of the appeal to direct observation and experiment involved in the work of Galileo, Newton, and other pioneers of the new philosophy, the political thinking and writing of the seventeenth century became more scientific and based upon reason.

When the earth was deposed from its position as the centre of a universe created for man, the foundations of many superstitions were destroyed and it became necessary to adjust theological ideas to a new relationship between terrestrial and celestial things and purposes. We forget to-day what this revolution in thought signified in the seventeenth century, but Dr. W. R. Inge (formerly Dean of St. Paul's) regards it as even more significant than the theory of man's development from sub-human ancestors.

“By degrees the Copernican astronomy”, he says, “has passed into the region of common knowledge; and, though Rome put it under ban, the devout Romanist is no longer expected to assert that the earth is the centre of the universe. But the retreat of Church authority has been gradual, and, as usual, unavowed; there has never been a time when it seemed urgently necessary to consider the new situation created by the revolution in



The "Sorcerer". Wall painting by prehistoric man on a wall of the cavern of Les Trois Frères, Department of Ariège, France



Hathor, the cow-headed sky-goddess. From the Eleventh Dynasty Temple at Deir-el-Bahari (about 2300 B.C.)



*British Museum*

Human-headed bull from a doorway in the palace of Sargon, King of Assyria, 722-705 B.C.



astronomy. The task has been put off from generation to generation, and to this day little has been done to relieve the strain upon the intellect and conscience of the Christian world. Those Churchmen who airily declare that there is no longer any conflict between Christianity and science are either very thoughtless or are wilfully shutting their eyes. There is a very serious conflict, and the challenge was presented not in the age of Darwin, but in the age of Copernicus and Galileo.”<sup>1</sup>

When Napoleon asked Laplace whether he evoked divine intervention in arriving at his theory of the origin of the solar system, the great astronomer and mathematician is said to have answered : “ Sire, I have not found this hypothesis necessary.” The reply was, however, not made in any spirit of irreverence, for Laplace was a profoundly religious man, as well as an accomplished courtier, and such an answer would have been regarded as offensive by Napoleon, who was, at this time, the restorer of French Catholicism. M. Faye, in his book *L'Origine du Monde*, says that in previous theories of the system of the universe the calculations had not been pushed far enough, and in course of time the theoretical system would break down. It was, therefore, assumed that, after long periods, there was divine intervention to restore order ; and Laplace believed that his theory made such intervention unnecessary. The fact that the theory is not now held to be satisfactory does not mean, however, that a supernatural factor has to be introduced into the calculations in order to complete them.

Just as Copernicus deposed the earth from the position it was supposed to occupy in the universe, so Darwin placed man in a new relationship to the rest of living creatures. Indeed, the great controversy between the evolutionists and the creationists in the second half of the nineteenth century corresponded closely to that between the Copernicans and Ptolemaists three hundred years earlier. It is often supposed that Darwinism leaves ethical and moral ideas out of consideration and stands only for the doctrine of “ Nature, red in tooth and claw ” ; but this is due to lack of understand-

<sup>1</sup> *The Church in the World*. (London : Longmans, Green & Co., 1932.)

ing of the principle. Evolution embodies the idea of social ethics and makes the welfare of the community the essential purpose of the life of the creature. The view that Darwinism signifies nothing more than striving after personal or national mastery at all costs is a crude misconception of this great principle, and was repudiated alike by its founder and by Huxley, its most powerful exponent, as contrary to the best ends of civilization.

Nearly fifty years ago, in his inspiring essay on *Evolution and Ethics*, this champion of scientific thought and intellectual liberty expressed the higher meaning of evolution in words which cannot be too often repeated. He said :

“ The practice of that which is ethically best—what we call goodness or virtue—involves a course of conduct which, in all respects, is opposed to that which leads to success in the cosmic struggle for existence. In place of ruthless self-assertion it demands self-restraint ; in place of thrusting aside, or treading down, all competition, it requires that the individual shall not merely respect but shall help his fellows ; its influence is directed, not so much to the survival of the fittest, as to the fitting of as many as possible to survive. It repudiates the gladiatorial theory of existence. It demands that each man who enters into the enjoyment of the advantages of a polity shall be mindful of his debt to those who have laboriously constructed it ; and shall take heed that no act of his weakens the fabric in which he has been permitted to live. Law and moral precepts are directed to the end of curbing the cosmic process and reminding the individual of his duty to the community, to the protection and influence of which he owes, if not existence itself, at least the life of something better than a brutal savage.”

This is the religious message of science ; and all the evils of civilized life arise from the neglect of it by individuals and communities.

## *Chapter Twenty-nine*

### SCIENCE AND SOCIAL ETHICS

**I**n recent years there has been much discussion of the ethical or social consequences of the application of mechanical and other scientific discoveries to industry. In the early days of the industrial revolution in England, there was little of the scientific spirit in industry. The discoveries of science were used with as much indifference to science as to humanity. The inventions of the eighteenth and early nineteenth centuries came from the workshop rather than from the scientific laboratory. Machines were devised and operations developed largely by trial and error methods, and academic research had few points of contact with industrial practice. The characteristic of the present age is the utilization in industry of principles, properties and products revealed by scientific research, whether carried on solely in the pursuit of knowledge or with a practical purpose in mind.

Though few men of science participate in the profits derived from industrial applications of their discoveries, they are fully conscious of the social changes thereby involved. For a number of years the presidents of the British Association for the Advancement of Science have referred, in their inaugural addresses, to the social implications of science—to the influences for evil, as well as for good, which scientific discovery may have upon human life. At the centenary meeting in 1931 General Smuts, taking as his subject “The Scientific World-Picture of To-day”, outlined upon his canvas the intersections of science with lines of progressive development in which the material and the vital were differently coloured pencils combining to represent the conception of an harmonious whole. But though

science ranks with art and religion in its spirit and vision, its true values to the human race are often misunderstood and misused. The result is that increase of scientific knowledge is regarded with fear and misapprehension instead of being welcomed and used for the highest good.

“Indeed,” said General Smuts, “one of the greatest tasks before the human race will be to link up science with ethical values, and then to remove grave dangers threatening our future. A serious lag has already developed between our rapid scientific advance and our stationary ethical development, a lag which has already found expression in the greatest tragedy of history. Science must itself help to close this dangerous gap in our advance which threatens the disruption of our civilization and the decay of our species.”

In the concluding part of his presidential address at the York meeting in the following year, Sir Alfred Ewing took up this theme from the point of view of an engineer. But after describing some of the rich fruits which science and invention have showered upon the human race, he confessed that he was disillusioned as to their social effects ; for he said :

“Beyond question many of these gifts are benefits to man, making life fuller, wider, healthier, richer in comforts and interests and in such happiness as material things can promote. But we are acutely aware that the engineer’s gifts have been and may be grievously abused. In some there is potential tragedy as well as present burden. Man was ethically unprepared for so great a bounty. In the slow evolution of morals he is still unfit for the tremendous responsibility it entails. The command of Nature has been put into his hands before he knows how to command himself.”

This indictment—not of science but of civilized man—was referred to by Sir F. Gowland Hopkins in his inaugural address at the Leicester meeting in 1933. As a biologist he did not share Sir Alfred Ewing’s outlook, because the contributions of biological science have been used for man’s betterment and not to aid his destruction. This is true,

notwithstanding vague plans to introduce into warfare the infection of communities with harmful bacteria. On the whole, Sir Gowland Hopkins held that the gifts of science and invention to humanity at large are immense enough to outweigh their misuse for purposes of destruction and other evils.

At the same meeting at Leicester, Lord Stamp, in an evening discourse, discussed the economic effects of rapid scientific progress upon social life, and remarked, "If changes in social forms and human nature or behaviour cannot possibly be made rapidly enough for the task, then in that sense science may 'ruin' economic progress, and the world might be better served in the end if scientific innovation were retarded to the maximum rate of social and economic change." He did not suggest, however, that science should slow down at the notice of "Halt at Major Road Ahead" before emerging into the highway of civilization, but that scientific workers themselves should assist in solving the problems of social science.

Sir James Jeans took up the challenge to science in his presidential address at Aberdeen in 1934, and pointed out that "the country which called a halt to scientific progress would soon fall behind in every other respect as well—in its industry, in its economic position, in its naval and military defences, and, not least important, in its culture". Better, like Icarus, perish while flying too near the sun, than be slaves of a social system like that of the bees and ants.

Lord Stamp surveyed the outstanding peaks derived from "The Impact of Science upon Society" in his presidential address at Blackpool in 1936, and urged that "if the impact of science brings certain evils, they can only be cured by more science". In the following year Sir Edward Poulton touched upon the influence of environment in promoting the development of powers to meet changing needs and difficulties and bringing the peoples of the earth together; and in 1938 Lord Rayleigh devoted a portion of his presidential address at Cambridge to some relationships of science to warfare. He exposed conclusively the vain belief that scientific men are specially responsible for the application

of fundamental discoveries of science to purposes of war, and showed how impossible it is to control such discoveries or to foresee their misuse.

These problems have arisen because civilization signifies a new process of social evolution which is independent of natural conditions, except in so far as they can be used for man's own ends. In a biological sense the human race is but an incident in the history of forms of life upon the earth. Sir Albert Seward expressed this graphically in his presidential address at Dundee in 1939. He pointed out that, if each of the twelve hours on the dial of a clock be regarded as representing one hundred million years, and the zero hour of life be taken as midnight on this time-scale, primitive man would not appear until less than a minute to noon, and all the achievements of civilization would be crowded into a period of less than one-tenth of a second.

It is not surprising, therefore, that in this brief moment of time in the period of twelve hundred million years since life began on the earth, the human race has failed to adjust itself to the new evolutionary order it has created. The fact that, in spite of set-backs, there has been a general rise of standards of human values among civilized peoples, gives hope for the future. "In the short past", said Sir Albert Seward, "man has been moving towards a higher intellectual, spiritual and moral standard, and the biological view would be that, in the immediate future (geologically speaking), that movement will continue, and that for human beings this future lies in the development of perfection of social life and in the spreading of the social idea to include peoples and nations, as well as individuals, with all the correlated advances that these imply."

It is evident from these declarations that leading authorities in different departments of science are keenly conscious of the interrelation between natural science and social problems, and desire to assist in the use of knowledge for the advancement of the human race instead of its degradation. The wise application of science especially involves questions of ethical values, and is linked up closely with the general conditions and standards of the society in which

scientific work is carried on; for belief in honesty of purpose, liberty of thought, and high ideals of service are essential for creative endeavour in any field of intellectual activity.

Charles Darwin made a notable contribution to this part of ethics when he traced the development of moral principles in human life from the point of view of natural selection in three chapters in his *Descent of Man*. He showed that the higher rules of human conduct are founded upon the social instincts and relate to the welfare of others, while different rules arise from public opinion matured by experience and cultivation. "As man advances in civilization", he said, "and small tribes are united into larger communities, the simplest reason would tell each individual that he ought to extend his social instincts and sympathies to all the members of the same nation, though personally unknown to him. This point being once reached, there is only an artificial barrier to prevent his sympathies extending to the men of all nations and races."

It is in this spirit of international, as well as social, relationships of science, that a new Division for Social and International Relations of Science was established at the Cambridge meeting of the British Association in 1938. This development of function is in close co-operation with the American Association for the Advancement of Science, which has similarly extended its field of activity.

In the United States Professor E. A. Hooton, of Harvard University, has painted in darkest colours the picture of present-day trends in mechanized society, which he regards as rushing headlong along the downward path on a well-engineered road.<sup>1</sup> Man's mechanized science, he holds, has so far outstripped his biological status and social ideals and behaviour that it has become a menace. Both in Great Britain and in the United States the difficulties of the economic situation have been attributed to over-rapid development in methods of production, which by eliminating effort in various ways has reduced the call for labour and thus

<sup>1</sup> *The Simian Basis of Human Mechanics or Ape to Engineer*. The Tenth Henry Robinson Towne Lecture. Delivered at the Annual Meeting, New York, N.Y., Dec. 6-10, 1937, of the American Society of Mechanical Engineers.

caused economic and social dislocation. In both countries it has been suggested that a halt might be called in research and the application of invention to production in order to check the further progress of this dislocation.

Fortunately, this suggestion has not resulted in anything so drastic as a slowing down or checking of scientific research, as seemed at one time possible. Yet obviously there must be a strong inclination to follow this course. When, for example, in a major industry such as agriculture, improved machinery and more scientific methods of cultivation have reduced labour and increased production, the result is not to place the industry in a stronger position economically, but to depress it, while socially, by increasing migration to the towns, the effect is positively harmful. This is not the occasion to discuss the remedy for this situation, which is a matter for the economist. It is mentioned here solely as an example, frequently quoted, of a maladjustment attributed to an application of invention and scientific research to material progress, which in the long run has proved the reverse of beneficial to general well-being.

It is possible to over-state the deadening effect of mechanization on the human mind. Much depends upon the individual and his character, qualities and interests. In the days before mechanization it was the deadening effect of manual labour of any kind, now contrasted with mechanization, which was blamed, and often not unjustly, for the inertia and the baseness of the masses in our population. They always have been and always will be coarse in some degree, while they are unleavened by the desire and the opportunity for self-development. Such an opportunity must now come in our modern civilization through the development of a regulated mechanization, which will give labour the necessary leisure. The most highly cultured society of which we have clear record, the Greek democracy of the fifth century B.C., was a society of such a type, in which leisure and opportunity for its employment in individual development were afforded by what was then the equivalent of mechanization—the employment of slave labour.

But, again, surely the moron-like character of the "base mechanic" is much exaggerated. The mental and social effects of mechanization through atrophy of the powers of the mind, and the dangers of passive receptivity induced by gramophone, wireless and the cinema are patent, indeed, but are they really as serious as they are said to be? The introduction of the talking film has placed the cinema more nearly on the level of the theatre as an educative and cultural influence. Its failure is now in its material rather than in its method of presentation—this does not refer to natural history and other instructional films—and the shortcomings of the film as drama are being remedied rapidly. Both cinema and wireless now reach millions, where formerly the theatre, music and literature influenced hundreds, or it may be only tens. The effect is to be seen around us everywhere in daily life in a raising of the general cultural level. Nor is individual performance likely to be seriously affected. Photography and the gramophone were, it was feared, to put an end in turn to painting and music. Both have helped the development of these arts and the understanding of their principles, while as regards the individual executant, they may possibly have eliminated a few who never would have attained perhaps even a mediocre competence.

A reply to the charge that progressive science and invention are responsible for the troubled condition of the world to-day, owing largely to over-production, is that it would be just as unreasonable to blame the Almighty for good harvests, or for providing in some parts of the world all the means of existence for primitive man without the need for labour. The fault is not with those who create gifts for men's comfort and enjoyment, but with the social system which prevents their easy distribution and use. A century ago most of the machines and engineering works which now make up a large part of our industrial life, and are supposed to have led to unemployment, did not exist, yet there was then widespread unemployment and poverty. The population of Great Britain was then only sixteen millions, yet there were two millions in workhouses or receiving outdoor relief.

The terrible conditions of those days were bitterly described by Carlyle in *Past and Present*. "We have", he wrote, "more riches than any Nation ever had before; we have less good of them than any Nation ever had before. Our successful industry is hitherto unsuccessful; a strange success if we stop here! In the midst of plethoric plenty, the people perish; with gold walls and full barns no man feels safe or satisfied. Workers, master workers, under-workers, all men, come to pause; stand fixed, and cannot go further."

In the "hungry forties", the mechanization of transport and industry was only in its early stages; and if the description of Carlyle is a correct one, it is apparent that there is little justification for trying to lay the blame for the unemployment of to-day at the feet of the mechanical inventors. When Carlyle wrote, men still travelled by stagecoach and sailing ships, and multitudes of things were done by manual labour which to-day are done by machinery. When first introduced, new machines, it is true, do tend to displace labour in one direction, only, however, to stimulate it in another, and in the end greater wealth is created. The problem to-day, as it was a century ago, is to adapt the social and economic systems to the new conditions brought about by advances of science and inventions. For a people to be made wretched in proportion to the increase of means of producing plenty, shows that there is something radically wrong in industrial or social economics.

It is, of course, natural that labour, with its memory of bitter struggles against long hours and low wages, should stress much more acutely the problem of distribution of the products of its toil than that of the factors of industrial progress. The artisan has had good reason for regarding every labour-saving device as a wage-saving device; and it is almost a mockery to suggest to men who find themselves unwanted through the introduction of particular machinery that the ultimate effect will be increased employment. The thought, however sound it may be in industrial economics, affords poor satisfaction for present needs. Men thus displaced through no fault of their own may rightly claim, on the ground of humanity alone, that the community which is

eventually to benefit by the saving in costs of production should accept a measure of responsibility for the maintenance of those whose means of existence are suddenly taken from them.

The position now is much the same as it was a little more than a hundred years ago, when the introduction of machinery into industry threw large numbers of workmen out of employment and led to rioting and arson. It was then argued that the unemployed would be absorbed by other industries, and this happened in due course, though not without much misery and individual hardship. That remedy seems closed to-day. Nevertheless, it would be a fatal policy to attempt to check either scientific discovery or industrial invention based upon it. That way stagnation and eventual extinction lies before a progressive society. A measure of dislocation must be faced, lasting possibly for some time, but it should not be beyond the powers of enlightened statesmen to minimize its effects by concentration on improving methods of exchange and distribution, which at present clog the free working of demand and supply.

The events which enabled Great Britain to take a leading place in industrial progress are matters of history. Not only did industrial conditions develop earlier there, but the fortunate escape from the more extreme forms of political agitation which troubled European countries in the middle of the nineteenth century gave Britain the advantage of a more equable development in social progression. This was not without its effect in the great upheaval of social values which followed the Great War of 1914-1918. That a great social revolution has taken place no one can deny who is in a position to contrast present-day conditions with those of the days before the War. It is to be hoped that this revolution has brought with it a spiritual advancement among the people as a whole, not necessarily religious in form, notwithstanding a certain wave of pessimism and discouragement ; but whether this will be the verdict of history time alone will show.

The outbreak of war in September 1939, and the consequent blocking of the normal channels of international

commerce, together with the withdrawal of a large proportion of the able-bodied population of the more important powers from their regular forms of employment, for military service or purposes of defence, have interrupted for the moment the further development of the social and economic factors involved in world unrest and the international and domestic conditions, to which reference has been made. It cannot be doubted, however, that whatever may be the issue of the present struggle, the close of hostilities will herald an era of reconstruction in intensified form. In the economic planning, which no less than political planning, must form part of post-war reconstruction, the "peace aim" of all the Great Powers should be directed to so guiding by co-operative action the future development of world resources as to secure the greatest benefit for mankind—a benefit which is its due—without adding, as in the past, to the sum of individual unhappiness.

Material progress must in the nature of the case be more striking, more patent to observation, than progress in man's ethical and social development; and it is also no more than to be expected that there should be a lag in the latter. It was more than a generation after the initial movement of the industrial revolution in Britain that progress in other directions began to affect the population of the country at large. To everyone who takes long views and compares conditions of to-day with those of a hundred to a hundred and fifty years ago it must appear a rash statement which characterizes man's progress in that period as one of command over the material resources of the world only. This is to deny certain obvious facts. For example, in every department of human life—at any rate, in Great Britain—there has been in that period a stupendous awakening to a sense of social responsibility—a very real development in man's mentality and the growth of society. In effect it now demands that the latest results of all branches of scientific research, but more especially of those affecting hygiene, both physical and mental, should be applied to the conditions of life of the population as a whole. This is not philanthropy or religion as such in the narrow sense, but arises from a

broadening in the conception of the relations and obligations of man to man.

When this movement towards social betterment began more than a hundred years ago, the study of economic and social problems was not envisaged as a matter of scientific research, but, in so far as it stood apart from philanthropy, as a question of philosophic principle, as in the doctrines of the Philosophic Radicals, Romilly, Bentham and the Mills—James and Stuart. Some or most of these men were regarded as virtually atheists, but on these questions they were allied with Quakers and other philanthropic and religious reformers. Bentham's formulation of the ethical basis of conduct and the "end" or purpose of the State as "the greatest good of the greatest number", if a philosophic dogma, at any rate comes as near to being a normative principle in applied social science as was possible in his day.

In alliance with other influences at work in the community at that time, it fostered the sense of responsibility which demanded a more equitable distribution of the wealth derived from the industrial revolution and the introduction of machinery. It is the main theme of the social history of Britain in the nineteenth century—a history covering the crusade against child labour, which was sapping the vitality of the nation, set up by Lord Ashley (Shaftesbury) exactly a hundred years ago, factory legislation, the extension of the franchise, the education acts, the growth of trade unions, the amelioration of conditions affecting wages, hours and surroundings of labour, the after-care of labour in old age pensions and compensation for accident, the medical inspection and feeding of school children—these measures forced on the education authorities by men of science—improvement in school buildings and in housing, prison reform and reform of penal law.

A record of these civilizing influences would include hundreds of other social reforms, many of which have been enacted as a direct outcome of the results of scientific research on the conditions inimical or conducive to well-being in human life in the environment of modern civilization. Out of the philosophic and philanthropic ideals of the early nine-

teenth century there has grown up a vast and practical social science which gathers up and applies the latest results of scientific research in all branches of the circumstances and conditions of life which effect the mind and body of man as an individual and as a member of the State.

Apart, however, from the mental and moral effect, difficult to gauge, of improved conditions of life, the increased application of the results of scientific research to those conditions has been accompanied by a parallel growth in the sense of responsibility in the community towards every member of that community. It is now held that, of the wealth of the community, a toll must be taken to ensure that from the cradle to the grave each individual member shall be ensured a certain measure of healthy nourishment, opportunity for growth in body and adequate instruction in mind by education to become a useful member of the community, with assurance of medical attention in employment, a measure of sustenance to the unemployed and of provision for old age.

If this is communism, then it is communistic to admit that I am my brother's keeper ; yet it is precisely towards this admission that practical application of the modern science of man is directing mankind, both as an inference from the study of societies of the past and the humbler societies of to-day among primitive peoples, as well as from a diagnosis of the elements which appear to make for progress in modern civilization. It may be held that a modern society with a sense of responsibility, but which, it must be admitted, we have not yet fully attained, is only now approaching the position of the primitive group in its sense of responsibility to its members. That is perfectly true, but the advance, the spiritual progression, lies in the range of that sense of responsibility. Whereas in the primitive form it embraces the members of the blood kin only, or those of the local group within which the members are more or less intimately acquainted, within a modern society it may reach out to embrace all members of a great nation, and possibly when warring creeds agree to sink their differences it may extend to all men of good will, to whom the dignity of man

as an individual entity transcends racial and political boundaries.

When, if ever, that comes to pass, it will be possible to gauge how far man has advanced along the road of spiritual as well as material progress. To many the way seems long to go. The urge of nationalism and its ideals has diverted the thoughts of peoples—fascist, Nazi-socialistic and communist—away from the main stream of human progress into narrower channels in which rocks and rapids threaten at every turn to shipwreck all that is best in civilization.

Professor Arnold Toynbee in his *Study of History*, issued under the auspices of the Royal Institute of International Affairs, examines the circumstances of the birth and growth of civilizations and the conditions of their decay. In his view neither the birth nor the growth of a civilization can be accounted for on the assumption of racial authority or by the quasi-automatic operation of environment. On the contrary, both genesis and development are the outcome of adjustments of difficult relationships between men and their surroundings, and the process is conceived by Professor Toynbee as being of a "challenge-and-response" nature. Changing circumstances, he shows, confront societies, no less than individuals, with problems for solution. These problems constitute challenge; and out of the effort and suffering which response to them entails, civilizations are born and grow.

In the case of the earliest civilizations which emerged from the primitive societies that were their forerunners, the challenges were chiefly material and external: but with later civilizations they have been mainly internal and spiritual. Growth is thus not to be measured in terms of material or technical advance, but in terms of spiritual development and the transfer of the field of action from outward and material problems to inward and spiritual concerns. Individual members of a changing creative minority first withdraw from active social life to pursue spiritual truth, and then, to be socially effective, must take up the task of converting the majority of their fellows to understanding and action upon the knowledge gained by them.

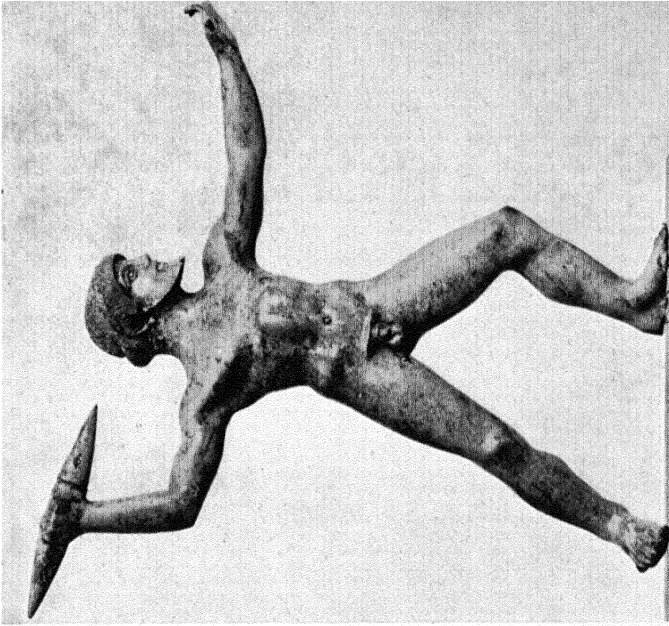
If science has a spiritual message, its function would now seem to be, therefore, to take a leading part in the process of producing a civilization which will be based upon its service.

In its high ideals science shares with art and religion the promotion of supreme human values. The principles do not become less exalted because they are often neglected or abused. Speaking at the meeting of the British Association in Leicester in 1933, the Bishop of Carlisle said :

“ Religion and science are alike in being easily degraded to become the ministers of temporary and selfish ends. Yet never perhaps in history was there greater need for the assertion of, and insistence on, eternal values. Some, at least, of these values are shared by science and religion—a common interest in truth which transcends all frontiers, uniting in equal fellowship all who share it, a determination to face facts however unwelcome, and ultimate issues however destructive they may be of present theory, an unswerving judgment which is the only security for a just and lasting social order.”

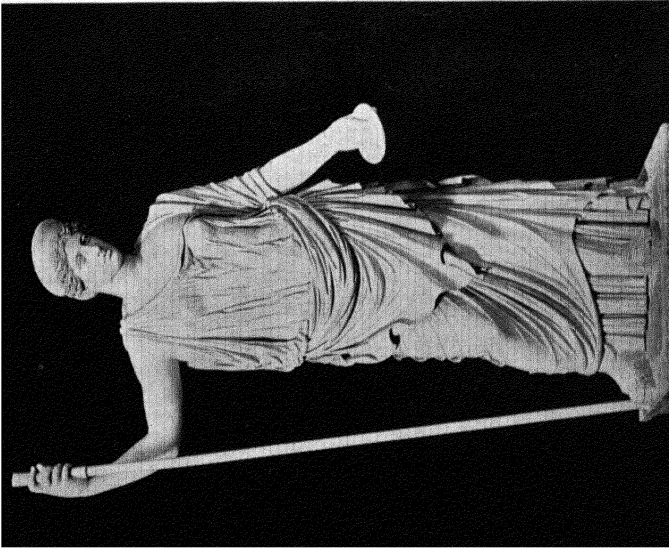
In the history of early civilizations, a condition of stagnation and of internal dissension has usually preceded their decline and extinction. The end has come through conquest by military forces of a superior type or by the invasion of hordes of barbarians whose only motive was plunder. It used to be suggested that modern civilization would be saved from this fate by the powers with which science has provided civilized peoples to protect themselves against overwhelming numbers having only primitive weapons. Few people thought that the yellow and dark races would ever be able to dispute the supremacy of the white races, even though equipped with modern weapons, but that view could scarcely be held to-day. The perils which threaten modern civilization are not, however, so much from the great numbers of peoples who may eventually possess powerful appliances of war as from the very peoples who have themselves perfected such weapons.

Modern warfare makes no distinction between the destruction of masterpieces of architecture and ammunition dumps ;



*Cambridge University Press*

Zeus casting the thunderbolt. Greek sky-god personified in human form



Juno Regina—Queen of Heaven. Roman copy of a cult-image of Hera



and barbarous aerial bombing of any centre of life or of beauty seems to be accepted as a means of offensive action by nations which claim to be civilized. Instead of science having to save modern civilizations from being overwhelmed by barbarous hordes, it seems to have provided the means of self-destruction. Though the standard of human values have been raised, man has advanced so little in his regard for them that he is just as much a barbarian in his use of aerial bombs and poison gas as he was when his weapons were only clubs and arrows.

Such prostitution of the rich gifts with which modern science has endowed the human race must be condemned by all who see, in the general feelings of civilized people to-day, incipient stages in the development of characteristics which distinguish man from other living creatures. The law of the jungle is that of the battle to the strong and the race to the swift. It recognizes no right to live except by might ; destroys the weak ; has no sympathy with suffering, and no sense of the highest human values. In the struggle for existence man has survived because his physical structure and intelligence have enabled him, individually and in communities, to master the things which would destroy him. His social instincts have at the same time been extended from the family to the tribe, the nation, and the empire, and will reach their highest and best when they embrace the world.

The virtues which should be prized most to-day, if civilization is to mean the evolution of social ethics to a noble plane, are regard for spiritual values, love of truth and beauty, righteousness, justice and mercy, sympathy with the oppressed, and belief in the brotherhood of man. Any nation or people which separates itself from the rest of the world in the name of race or religion, and cultivates ideals of conquest by force in order to assert its claims, is not assisting human evolution, but retarding it. Science has made the world one through the facilities of communications and transport now available : it recognizes no political or racial boundaries in its realm and speaks in a tongue which meets with universal understanding.

The conception of science as a social factor intimately linked up with human history and destiny gives a new meaning to scientific research, and also to the position of citizens who are engaged in it. Both rightly and wrongly, science has been blamed for much of the wastage of life which has been brought about by the rapid application of scientific knowledge to purposes of peace and of war. Men of science are, however, citizens as well as scientific workers ; and they are beginning to realize their special responsibilities for making sure that the fruits of scientific knowledge are used for human welfare. They can no longer remain indifferent to the social consequences of discovery and invention, or be silent while they are blamed for increasing powers of production of food supplies, providing means of superseding manual labour by machines, and discovering substances which can be used for destructive purposes. It would be a betrayal of the scientific movement if scientific workers failed to play an active part in solving the social problems which their contributions to natural knowledge have created.

The view that the sole function of science is the discovery and study of natural facts and principles without regard to the social implications of the knowledge gained, cannot rightly be maintained. It is being widely realized that science cannot be divorced from ethics or rightly absolve itself from the human responsibilities in the application of its discoveries to destructive purposes in war or economic disturbances in times of peace. Men of science cannot rightly stand aside from the social and political questions involved in the structure which has been built up from the materials provided by them, and which their discoveries may be used to destroy. It is their duty to assist in the establishment of a rational and harmonious social order out of the welter of human conflict into which the world has been thrown through the release of uncontrolled sources of industrial production and of lethal weapons.

Science can only continue to render its fullest service to the community as the relations between the general scientific worker and the general citizen are harmonized and the

purposes and methods of science are widely understood. In the establishment of such a sympathy, a nobler type of citizenship becomes possible, adequate to defend us against the dangers to which civilization is exposed and to build a social order on an ethical system worthy of the limitless powers which the increase of natural knowledge has placed in the hands of man.



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