land, and ordering that all unbaptized Moors in the kingdoms of Castile and Leon above the age of infancy should leave the country by the end of April. They might sell their property, but not take away any gold or silver; they were forbidden to emigrate to the Mohammedan dominions; the penalty of disobedience was death. Their condition was thus worse than that of the Jews, who had been permitted to go where they chose. Such was the fiendish intolerance of the Spaniards, that they asserted the government would be justified in taking the lives of all the Moors for their shameless infidelity.

What an ungrateful return for the toleration that the Moors in their day of power had given to the Christians! No faith was kept with the victims. Granada had surrendered under the solemn guarantee of the full enjoyment of civil and religious liberty. At the instigation of Cardinal Ximenes that pledge was broken, and, after a residence of eight centuries, the Mohammedans were driven out of the land.

The coexistence of three religions in Andalusia—the Christian, the Mohammedan, the Mosaic—had given opportunity for the development of Averroism or philosophical Arabism. This was a repetition of what had occurred at Rome, when the gods of all the conquered countries were confronted in that capital, and universal disbelief in them all ensued. Averroes himself was accused of having been first a Mussulman, then a Christian, then a Jew, and finally a misbeliever. It was affirmed that he was the author of the mysterious book "De Tribus Impostoribus."

In the middle ages there were two celebrated heretical books, "The Everlasting Gospel," and the "De

Tribus Impostoribus." The latter was variously imputed to Pope Gerbert, to Frederick II., and to Averroes. In their unrelenting hatred the Dominicans fastened all the blasphemies current in those times on Averroes; they never tired of recalling the celebrated and outrageous one respecting the eucharist. His writings had first been generally made known to Christian Europe by the translation of Michael Scot in the beginning of the thirteenth century, but long before his time the literature of the West, like that of Asia, was full of these ideas. We have seen how broadly they were set forth by Erigena. The Arabians, from their first cultivation of philosophy, had been infected by them; they were current in all the colleges of the three khalifates. Considered not as a mode of thought, that will spontaneously occur to all men at a certain stage of intellectual development, but as having originated with Aristotle, they continually found favor with men of the highest culture. We see them in Robert Grostete, in Roger Bacon, and eventually in Spinoza. Averroes was not their inventor, he merely gave them clearness and expression. Among the Jews of the thirteenth century, he had completely supplanted his imputed master. Aristotle had passed away from their eyes; his great commentator, Averroes, stood in his place. So numerous were the converts to the doctrine of emanation in Christendom, that Pope Alexander IV. (1255) found it necessary to interfere. By his order, Albertus Magnus composed a work against the "Unity of the Intellect." Treating of the origin and nature of the soul, he attempted to prove that the theory of "a separate intellect, enlightening man by irradiation anterior to the individual and surviving the individual, is a detestable error." But the most illustrious antagonist of the great com-

mentator was St. Thomas Aquinas, the destroyer of all such heresies as the unity of the intellect, the denial of Providence, the impossibility of creation; the victories of "the Angelic Doctor" were celebrated not only in the disputations of the Dominicans, but also in the works of art of the painters of Florence and Pisa. The indignation of that saint knew no bounds when Christians became the disciples of an infidel, who was worse than a Mohammedan. The wrath of the Dominicans, the order to which St. Thomas belonged, was sharpened by the fact that their rivals, the Franciscans, inclined to Averroistic views; and Dante, who leaned to the Dominicans, denounced Averroes as the author of a most dangerous system. The theological odium of all three dominant religions was put upon him; he was pointed out as the originator of the atrocious maxim that "all religions are false, although all are probably useful." An attempt was made at the Council of Vienne to have his writings absolutely suppressed, and to forbid all Christians reading them. The Dominicans, armed with the weapons of the Inquisition, terrified Christian Europe with their unrelenting persecutions. They imputed all the infidelity of the times to the Arabian philosopher. But he was not without support. In Paris and in the cities of Northern Italy the Franciscans sustained his views, and all Christendom was agitated with these disputes.

Under the inspiration of the Dominicans, Averroes became to the Italian painters the emblem of unbelief. Many of the Italian towns had pictures or frescoes of the Day of Judgment and of Hell. In these Averroes not unfrequently appears. Thus, in one at Pisa, he figures with Arius, Mohammed, and Antichrist. In another he is represented as overthrown by St. Thomas.

He had become an essential element in the triumphs of the great Dominican doctor. He continued thus to be familiar to the Italian painters until the sixteenth century. His doctrines were maintained in the University of Padua until the seventeenth.

Such is, in brief, the history of Averroism as it invaded Europe from Spain. Under the auspices of Frederick II., it, in a less imposing manner, issued from Sicily. That sovereign had adopted it fully. In his "Sicilian Questions" he had demanded light on the eternity of the world, and on the nature of the soul, and supposed he had found it in the replies of Ibn Sabin, an upholder of these doctrines. But in his conflict with the papacy he was overthrown, and with him these heresies were destroyed.

In Upper Italy, Averroism long maintained its ground. It was so fashionable in high Venetian society that every gentleman felt constrained to profess it. At length the Church took decisive action against it. The Lateran Council, A. D. 1512, condemned the abettors of these detestable doctrines to be held as heretics and infidels. As we have seen, the late Vatican Council has anathematized them. Notwithstanding that stigma, it is to be borne in mind that these opinions are held to be true by a majority of the human race

CHAPTER VI.

CONFLICT RESPECTING THE NATURE OF THE WORLD.

Scriptural view of the world: the earth a flat surface; location of heaven and hell.

Scientific view: the earth a globe; its size determined; its position in and relations to the solar system.—The three great voyages.—Columbus, De Gama, Magellan.—Circumnavigation of the earth.—Determination of its curvature by the measurement of a degree and by the pendulum.

The discoveries of Copernicus.—Invention of the telescope.—Galileo brought before the Inquisition.—His punishment.—Victory over the Church.

Attempts to ascertain the dimensions of the solar system.—Determination of the sun's parallax by the transits of Venus.—Insignificance of the earth and man.

Ideas respecting the dimensions of the universe.—Parallax of the stars.—The plurality of worlds asserted by Bruno.—He is seized and murdered by the Inquisition.

I HAVE now to present the discussions that arose respecting the third great philosophical problem—the nature of the world.

An uncritical observation of the aspect of Nature persuades us that the earth is an extended level surface which sustains the dome of the sky, a firmament dividing the waters above from the waters beneath; that the heavenly bodies—the sun, the moon, the stars—pursue their way, moving from east to west, their insignificant size and motion round the motionless earth proclaiming

their inferiority. Of the various organic forms surrounding man none rival him in dignity, and hence he seems justified in concluding that every thing has been created for his use—the sun for the purpose of giving him light by day, the moon and stars by night.

Comparative theology shows us that this is the conception of Nature universally adopted in the early phase of intellectual life. It is the belief of all nations in all parts of the world in the beginning of their civilization: geocentric, for it makes the earth the centre of the universe; anthropocentric, for it makes man the central object of the earth. And not only is this the conclusion spontaneously come to from inconsiderate glimpses of the world, it is also the philosophical basis of various religious revelations, vouchsafed to man from time to time. These revelations, moreover, declare to him that above the crystalline dome of the sky is a region of eternal light and happiness—heaven—the abode of God and the angelic hosts, perhaps also his own abode after death; and beneath the earth a region of eternal darkness and misery, the habitation of those that are evil. In the visible world is thus seen a picture of the invisible.

On the basis of this view of the structure of the world great religious systems have been founded, and hence powerful material interests have been engaged in its support. These have resisted, sometimes by resorting to bloodshed, attempts that have been made to correct its incontestable errors—a resistance grounded on the suspicion that the localization of heaven and hell and the supreme value of man in the universe might be affected.

That such attempts would be made was inevitable. As soon as men began to reason on the subject at all,

they could not fail to discredit the assertion that the earth is an indefinite plane. No one can doubt that the sun we see to-day is the self-same sun that we saw yesterday. His reappearance each morning irresistibly suggests that he has passed on the underside of the earth. But this is incompatible with the reign of night in those regions. It presents more or less distinctly the idea of the globular form of the earth.

The earth cannot extend indefinitely downward; for the sun cannot go through it, nor through any crevice or passage in it, since he rises and sets in different positions at different seasons of the year. The stars also move under it in countless courses. There must, therefore, be a clear way beneath.

To reconcile revelation with these innovating facts, schemes, such as that of Cosmas Indicopleustes in his Christian Topography, were doubtless often adopted. To this in particular we have had occasion on a former page to refer. It asserted that in the northern parts of the flat earth there is an immense mountain, behind which the sun passes, and thus produces night.

At a very remote historical period the mechanism of eclipses had been discovered. Those of the moon demonstrated that the shadow of the earth is always circular. The form of the earth must therefore be globular. A body which in all positions casts a circular shadow must itself be spherical. Other considerations, with which every one is now familiar, could not fail to establish that such is her figure.

But the determination of the shape of the earth by no means deposed her from her position of superiority. Apparently vastly larger than all other things, it was fitting that she should be considered not merely as the centre of the world, but, in truth, as—the world. All

other objects in their aggregate seemed utterly unimportant in comparison with her.

Though the consequences flowing from an admission of the globular figure of the earth affected very profoundly existing theological ideas, they were of much less moment than those depending on a determination of her size. It needed but an elementary knowledge of geometry to perceive that correct ideas on this point could be readily obtained by measuring a degree on her surface. Probably there were early attempts to accomplish this object, the results of which have been lost. But Eratosthenes executed one between Syene and Alexandria, in Egypt, Syene being supposed to be exactly under the tropic of Cancer. The two places are, however, not on the same meridian, and the distance between them was estimated, not measured. Two centuries later, Posidonius made another attempt between Alexandria and Rhodes; the bright star Canopus just grazed the horizon at the latter place, at Alexandria it rose $7\frac{1}{2}°$. In this instance, also, since the direction lay across the sea, the distance was estimated, not measured. Finally, as we have already related, the Khalif Al-Mamun made two sets of measures, one on the shore of the Red Sea, the other near Cufa, in Mesopotamia. The general result of these various observations gave for the earth's diameter between seven and eight thousand miles.

This approximate determination of the size of the earth tended to depose her from her dominating position, and gave rise to very serious theological results. In this the ancient investigations of Aristarchus of Samos, one of the Alexandrian school, 280 B. C., powerfully aided. In his treatise on the magnitudes and distances of the sun and moon, he explains the ingenious though