

another was the persecution of men the head and front of whose offending were the signal success they had achieved in the realm of experimental science.

LUTHER was credulous to a degree, but vigorously opposed to education and science. BAX, in his *German Society at the Close of the Middle Ages*, shows how the father of the Reformation claimed frequent intercourse with the Evil One, and was a firm believer in astrology, fairies, changeling children (which he suggested should be drowned), and other curious superstitions of the crowd. The Protestant writer DRAPER, however, bears witness to the fact that Dr. LUTHER's credulity did not prevent his pouring out on ARISTOTLE and the schoolmen the full-charged vials of his most concentrated abuse. He raved with a fine fury against high schools and universities. They should be 'razed to the ground,' he declared, for 'during the reign of the Popes the devil spread his nets to catch the souls of men by the erection of schools and convents.' As a result of the hostility of the early Reformers, the famous universities of Erfurt, Leipsic, Rostock, Heidelberg, Freiburg, and Basel were almost deserted; the study of science was discouraged; education declined at a fearful rate; and ERASMUS—himself a man of great learning and a friend of the reformers—sorrowfully wrote: 'There is a dearth of letters wherever Lutheranism reigns.' Elsewhere he says: 'Booksellers declare that they could more easily sell 3000 books before the introduction of the new gospel than they could dispose of 600 after it.' A similar decline of letters and of science followed the spread of the Reformation in Holland, Scandinavia, England, and Scotland. According to COBBETT, there were in Catholic days 'nearly 300 halls and private schools at Oxford, besides the colleges, and there were not above eight remaining towards the middle of the seventeenth century.' LUTHER and MELANCTHON both piled abuse with liberal voice and flowing pen on the humble Polish priest COPERNICUS for his discovery that the sun, and not the earth, is the centre of the solar system—and this at a time when the dignitaries of our Church and the professors of Catholic universities were proclaiming the new doctrine far and wide.

It used to be the fashion in certain quarters to refer to GALILEO as a martyr of science. People who are acquainted with the results of recent research on this long-lived controversy know better now. We may here state incidentally that the teaching authority of the Church was not implicated in the edicts of the Congregation of the Holy Office of 1616 and 1633 affecting GALILEO, as neither decision was signed or ratified by the Pope. In any event, the question of the earth or of the sun being the centre of our system was not one which concerned faith or morals, and therefore could not form the object matter of the Church's infallibility. GALILEO was no martyr of science. All the martyrs of science that history keeps a record of were those that suffered at the hands of those who upheld the principles which were promulgated in the great religious upheaval of the sixteenth century. Thus, the distinguished astronomer KEPLER was banished by the theologians of Tübingen for having advocated the Copernican theory and the adoption of the reformed calendar of Pope GREGORY XIII. Another illustrious astronomer, TYCHO BRAHE, was banished by CHRISTIAN IV.—the leader of the Reformed troops in the Thirty Years War—and his magnificent observatory of Uraniburg (Denmark), which had cost the enormous sum (for those days) of 200,000 dollars, was completely destroyed. RENE DESCARTES, who is described as 'one of the mightiest geniuses of any age,' was, according to LECKY, made the subject of a long and bitter persecution by the Reformed clergy of Holland. In England, as MACAULAY and DIRCKS have shown, an even worse fate befel the second Marquis of Worcester, who invented and patented the first practical working steam engine over a century before WATT's machine was heard of. When the Royal Society was founded in London about 1660 for the advancement of science, 'theological odium,' says DRAPER, 'was directed against it with so much rancour that, doubtless, it would have been extinguished had not King CHARLES II. given it his open and avowed support.' Violent opposition was shown both in England and Germany against GREGORY XIII's reformed calendar, which was promulgated in 1582. Some of the strongest opposition

came from the Protestant theologians, as at Tübingen, and the calendar was not introduced into England until 1752 and in Germany until 1774. The Protestant writer ANDREW D. WHITE states that the Oxford and Cambridge universities crippled COOK's voyage of 1772 by preventing the great scientist PRIESTLEY—the discoverer of oxygen—from accompanying it. The reason of the opposition was the fact that PRIESTLEY held Socinian views on religion. Even in the present century Sir CHARLES LYELL complained bitterly of the strong animus displayed by English churchmen of his day against the science of geology. And who is not aware of the violent persecution inflicted both by clergy and laity on HARVEY for having made known his discovery of the circulation of the blood? His house was at last torn down over his head and his papers and books destroyed. JENNER and SIMPSON were, at periods far apart, denounced from the pulpits of Canterbury Cathedral and Cambridge University for having discovered and introduced, the one vaccination, and the other the use of chloroform and other anæsthetics in surgical and maternity cases. The list might easily be prolonged. But enough has been said to show that some of our hypercritical friends would do well to preserve a discreet silence regarding GALILEO and the 'martyrs of science.' DRAPER, the ultra-Protestant writer referred to above, says in his *Conflict between Science and Religion* that 'so far as science is concerned, nothing is owed to the Reformation.' The illustrious German writer HETTINGER declares that 'it is a notable fact that Protestantism checked the development of science for centuries.' Evidence justifying this statement will be found in abundance in JANSEN's monumental work, *The History of the German People*, and in Dr. Dollinger's *Reformation, its Development and its Results*.

It is not to Baron VERULAM (miscalled Lord BACON) but to the Catholic schoolmen of the Middle Ages that we owe the inductive or experimental method of study which has done so much for our present knowledge of physical science. It was announced and followed by GERBERT (afterwards Pope Sylvester II.) in the tenth century, by the illustrious ALBERTUS MAGNUS, and by the great Franciscan Friar, ROGER BACON, in the thirteenth century, and was a recognised system hundreds of years before Baron VERULAM saw the light in 1561. The renaissance of science, as DRAPER admits, began in Italy with that universal genius, LEONARDO DA VINCI, and not with VERULAM. The inductive sciences are closely connected both with philosophy and with revelation. Both of these latter throw much light on physical science. They can do without physical science. Physical science cannot do without them. The Church recognises and acts upon the principle that the truths of physical science, like those of revelation, come from the one GOD, and that there is and ever must be complete harmony between them. And she alone can give to scientific investigators after truth those aids which will prevent them falling, as so many have fallen, into the pitfall of generalising at wild random from the data of observation without reference to the known truths of philosophy or of revelation. The Catholic Church has ever been the friend of true science. She is to-day the competent—and the only—barrier left between Christianity and Agnosticism. This idea is forcibly set forth in an article by the Agnostic writer, Mr. MALLOCK, on 'The Intellectual future of the Catholic Church,' which appeared in the *Nineteenth Century* for November. The following extract, though somewhat lengthy, will give a fair idea of the scope and drift of this remarkable article:—

Year by year, as scientific knowledge increases, and as the consciousness of what it means becomes clearer and more diffused, the intellectual bankruptcy of Protestantism becomes more and more evident. The position of Rome, on the other hand, is being affected in a precisely opposite way. In exact proportion as Protestantism exhibits its inability to vindicate for itself, either in theory or in practice, any teaching authority which is really an authority at all, the perfection of the Roman system, theoretically and practically alike, becomes in this particular respect more and more striking and obvious. In the first place, the effect of science on the external evidences of Christianity, being, as we have seen on the admission of Protestants themselves, to rob these evidences of their inherent doctrinal definiteness, a living authority which shall interpret and fix their meaning, and also confront objectors with some reasonable theory of itself, is now being recognised, with a clearness unparalleled in former ages, as the sole foundation on which any doctrinal Christianity can be supported. In the second place, the logical completeness with which this foundation is supplied by Rome is, in consequence of this fact, being brought