

PROCTOR'S GREAT PYRAMID.

The Great Pyramid: observatory, tomb, and temple.

By R. A. PROCTOR. London, Chatto & Windus, 1883. 323 p., illustr. 8°.

THIS last work of Mr. Proctor's fertile and ingenious mind is of uncommon and enduring interest. To begin with, it concerns the most uncommon and the most enduring work of man, — the Pyramid of Cheops, whose mighty form has for nigh five thousand years remained the least changed and the least comprehensible of all man's great deeds. Then it comes happily into a discussion which is by far the most curious that has recently vexed the minds of learned men. There are plenty of paradoxical folk on the lower confines of science, — circle-squarers, Symms'-hole hunters, and the like; but men of learning, especially astronomers and mathematicians, are a hard-headed lot. The crack-brained do not often find their way up to their upper heights, for evident reasons. But it is a set of these really learned people that has given us the sect of the pyramid worshippers, — the most extraordinary cult of a century, that, of all the Great Pyramid has ever seen, has been the most fertile in religious whims.

Active proselyting not yet having begun, perhaps for want of needed martyrs, the general public has as yet heard little of the pyramidalists or their faith. This is surprising; for their faith has more miracles 'to the acre' than Mormonism, and these miracles are as solid and ponderable as the pyramid itself. They are before our eyes: hundreds of pages of mathematics are needed to express them, and they have all the cheap look of certainty which the public associates with algebraic formulae. The following is in brief the history of pyramidalism, the only mathematical *ism* of the nineteenth century. Many years ago a Mr. John Taylor, pondering on the matter of the Great Pyramid, — which, by the way, he had not seen, and never saw, — came to the extraordinary conclusion that the architects of the structure recorded in its proportions, and in the arrangement of its chambers and passages, certain religious and astronomical truths, which they intended should, after thousands of years of secrecy, be divulged in our day. Mr. Taylor, being otherwise unknown to fame, though clearly entitled by this tour of imagination to rank high among speculators, found no able advocates of his notion, until his book came in the way of Professor Piazzi Smyth, astronomer royal of Scotland, one of the most distinguished astronomers of our time. Cap-

tivated with this daring hypothesis, Professor Smyth visited the Great Pyramid, spent many months in a careful and costly survey of the structure, and, in his successive writings on the subject, has not only re-affirmed the conclusions of Taylor, but immensely extended the range of his conclusions. Briefly stated, his position is this: some three thousand years or more before our era, a Semitic prince, probably Melchizedek, that vast shadow of the time, inspired by God, went to Egypt, gained an intellectual mastery over King Cheops, and forced him to build this pyramid, which was designed to "keep a certain message secret and inviolable for four thousand years, . . . and in the next thousand years it was to enunciate this message to all men; . . . and that part of the pyramid's usefulness is now beginning."

This 'message' is thus summed up by Mr. Proctor: —

"The Great Pyramid was erected, it would seem, under the instructions of a certain Semitic king, probably no other than Melchizedek. By supernatural means, the architects were instructed to place the pyramid in latitude 30° north; to select for its figure that of a square pyramid, carefully oriented; to employ for their unit of length the sacred cubit, corresponding to the twenty-millionth part of the earth's axis; and to make the side of the square base equal to just so many of these sacred cubits as there are days and parts of a day in a year. They were further, by supernatural help, enabled to square the circle, and symbolized their victory over this problem by making the pyramid's height bear to the perimeter of the base the ratio which the radius of a circle bears to the circumference. Moreover, the great processional period, in which the earth's axis gyrates like that of some mighty top around the perpendicular to the ecliptic, was communicated to the builders with a degree of accuracy far exceeding that of the best modern determinations; and they were instructed to symbolize that relation in the dimensions of the pyramid's base. A value of the sun's distance more accurate by far than modern astronomers have obtained (even since the last transit of Venus) was imparted to them, and they embodied that dimension in the height of the pyramid. Other results which modern science has achieved, but which by merely human means the architects of the pyramid could not have obtained, were also supernaturally communicated to them; so that the true mean density of the earth, her true shape, the configuration of land and water, the mean temperature of the earth's surface, and so forth, were either symbolized in the Great Pyramid's position, or in the shape and dimensions of its exterior and interior. In the pyramid, also, were preserved the true, because supernaturally communicated, standards of length, area, capacity, weight, density, heat, time, and money. The pyramid also indicated, by certain features of its interior structure, that when it was built the holy influences of the Pleiades were exerted from a most effective position, — the meridian through the points where the ecliptic and equator intersect. And as the pyramid thus significantly refers to the past, so also it indicates the future history of the earth, especially in showing when and where the millennium is to

begin. Lastly, the apex or crowning stone of the pyramid was no other than the antitype of that stone of stumbling and rock of offence, rejected by builders who knew not its true use, until it was finally placed as the chief stone of the corner. Whence, naturally, 'Whosoever shall fall upon it' — that is, upon the pyramid religion — 'shall be broken; but on whomsoever it shall fall, it will grind him to powder.'"

It would require all the space of this number of SCIENCE to print in full array the evidence on which these conclusions are rested. At every step the able astronomer royal of Scotland has fortified his conclusions by careful measurements of the Great Pyramid. His method of working is as follows: having found that the unit of measurement is a certain length, about an inch, which he terms the 'pyramid inch,' he seeks, in the various measurements of the structure, for correspondences in number of these units with natural and historic units, the distance of the sun, the radius of the earth, etc. Finding a correspondence, or a *close approximation to a correspondence*, he assumes that this ratio was intended by the builders to be a statement of this truth. At first sight, the number and accuracy of these correspondences is simply astounding: they look like insuperable facts. Moreover, the measurement of the sun's distance, and perhaps some other ratios from the Great Pyramid, may turn out in the end to be closer to the truth from the pyramid revelation than they are to our present measurements.

After a sagacious review of the principal coincidences, and an effort to show their generally unintended nature, Mr. Proctor proceeds to develop his own view, which is, in effect, that the pyramids were built for astrological observatories, designed for the casting of the horoscopes of the successive kings. He shows clearly, and we believe was the first to show, that early astronomy was astrological in its aims, and that the pyramid, when it had been carried up to half of its height, would afford the best possible structure for astronomical work of that time. His ingenious, and we must say convincing, argument requires us to assume a much more advanced state of astronomical and geodetic science in those days than many would be willing to admit. Still, the old Semitic civilization is a vast unexplored realm: it is a vain fancy that we yet know what it contained. It is easier to give to it any thing in the way of learning than to accept the monstrous scheme of bungling prophecy that the pyramidalists offer in its stead.

The student of science may have something beyond the entertainment that all readers will find in this book, and the literature of which it will form an important part. He may find

in the controversy a suggestion of certain dangers that await all work of a theoretic kind. All the work of extending our conceptions of natural phenomena, all the work of true science, must be carried on by the method of coincidences. A fact, or series of facts, is compared with other facts or series, and, from their observed identities, relations are inferred. The use of this method, under rigorous scrutiny, has given us our modern science, and must give us all that is truly scientific in the time to come. The incident of the Great Pyramid inquiry may well lead us to notice certain dangers in this method. A large part of the facts with which the naturalist has to deal has for him the danger that the Pyramid of Cheops has for the mathematician. Between the thing in hand and other things, there is a practically infinite number of relations. If he sets out on his inquiry with a mind to find resemblances of a certain kind, this liberal nature is sure to gratify him. Nothing but the most rigorous correction of the reasons for an opinion by the reasons against it will keep him safely on his way.

The more fixed the opinion that guides the student in his work, the surer he is to find in the infinite that any object offers the facts to support his views. This is the great danger that lies in the way of many who are seeking to advance the development hypothesis in biology. Having become possessed with the conviction that certain things are to be found, they will see them as Smyth sees revelation in the stones at Ghizeh.

There are some faults to be found with the *making* of this book. More than one-third of it consists of separate essays on the origin of the week, — Saturn, and the sabbath of the Jews; astronomy and Jewish festivals; the history of Sunday; and astrology, — all very interesting in their way, but they are not represented in the title. There is no proper table of contents, and no index. The British seem determined to leave this work of opening their modern literature to students, altogether in the hands of the Index society.

The book is written in the admirable didactic English of which the author is a master.

MINOR BOOK NOTICES.

Man before metals. By N. JOLY. New York, 1883. (International science series, no. 45.) 8+365 p., illustr. 8°.

THE author of this attractive volume, unlike many European writers on archeology, gives but little space to the subject of North-American antiquities; and, of the one hundred and