PYRAMIDOLOGY

During the late nineteenth century a strange intellectual phenomenon, pyramidology, found its way to both sides of the Atlantic. In his book, *Secrets of the Great Pyramid*, Peter Tompkins relates in full how modern pyramidology, as distinct from its ancient counterpart, (1) got its start.

As discussed in Secrets of the Great Pyramid and also in Martin Gardner's *Fads and Fallacies in the Name of Science,* in 1859 John Taylor, an eccentric British publisher, produced a work entitled *The Great Pyramid: Why Was It Built? And Who Built It?* Accordingly, Taylor posited that the architect who had planned and supervised the building of the Great Pyramid of Cheops was not an Egyptian but probably the biblical patriarch Noah. Later pyramidologists suggested that its designer was Melchizedek,(2) but in many other ways they accepted Taylor's hypothesis.

Although Taylor had never been to Egypt, the Great Pyramid had long interested him. What he ascertained from his study of it was that the architectural proportions of the Great Pyramid had many interesting geometric and mathematical properties. For example, Taylor discovered that the ratio of the perimeter of the base of the pyramid to twice its height gave a fairly close approximation of the number , or the ratio of the circumference of a circle to its diameter. Taylor believed that this important universal constant was intentionally incorporated in the dimensions of the pyramid. The presence of the ratio was regarded as particularly amazing in view of the fact that there is no historical record of anyone having calculated an accurate value for it until many centuries after the construction of the Great Pyramid.

With this geometric proportion in mind, Taylor searched for other related properties. He noted that is approximately equal to 366/116.5. Of course, it is an irrational number and therefore cannot be precisely represented as such a fraction. Taylor, however, was intrigued by the similarity of the number 366 in the numerator of this ratio to the number of days in a year. By manipulating the number 366 and other dimensions of the pyramid, he concluded that its builders had used a unit of length which differed from the British inch by only a few thousandths of an inch. Twenty-five of these "pyramid inches" made a "pyramid cubit," and 10 million pyramid cubits approximates the length of the radius of the earth on its polar axis fairly closely. These and a series of similar calculations provided what Taylor considered to be adequate evidence that the Great Pyramid had been built as a model of the earth, to serve as a record for mankind of the important dimensions and proportions of the globe.(3)

Taylor's ideas would probably never have become popular except for Professor C. Piazzi Smyth, a British Israelite and the Astronomer-Royal of Scotland. Not only did Smyth accept Taylor's basic assumptions, but he built on them and popularized pyramidology in Great Britain, America, and on the European continent as well. He published a number of works on the subject including *Our Inheritance in the Great Pyramid* (1864), *Life and Work at the Great Pyramid* (1867) and *On the Antiquity of Intellectual Man* (1868).

Smyth set himself the task of testing Taylor's ideas. As Taylor had done, he studied the measurements and observations made by others who had taken an interest in the pyramid. He did not allow the matter to rest there, however. Largely at his own expense, Smyth traveled to Egypt and spent considerable time in collecting vast quantities of data relating to the pyramid. As a result, he not only convinced himself of the validity of Taylor's claims, but discovered many more facts demonstrating, as he thought, the special nature of the pyramid. The number and variety of geometric, mathematical, physical, geographical and astronomical measurements made by Smyth is truly amazing. A brief description of few such characteristics of the Great Pyramid serve to indicate Smyth's perseverance, attention to detail, and imagination in searching for evidence that the pyramid was more than a mere pharaoh's tomb.

The architecture of both the exterior and the interior of the pyramid supplied Smyth with the majority of the "proofs" for his conjecture. He verified the existence of the ratio by simple trigonometry and a careful measurement of the ascending angle of one of the few remaining casing stones which had originally covered the exterior of the pyramid. He also went to great trouble to measure accurately the length of a side of the base of the pyramid.(4)Using this length, he satisfied himself that the "pyramid inch" had indeed been the unit of length used in building the Great Pyramid,(5)and that this and other pyramid dimensions were closely related to the length of the year in days as supposed by Taylor.

Smyth derived a complex set of numerical interrelationships between such things as the number of stones used in the construction of the inner chambers of the pyramid, the volume and shape of the stone coffer found in the King's Chamber of the pyramid, the number of faces and angles of the pyramid, and the number of courses of masonry between various chambers within the pyramid, among many other things. For some reason Smyth considered relationships of involved combinations of numbers such as 25, 50, 10, 366, and 9 as particularly significant. He felt that these numbers were included in the pyramid's dimensions as a record of the "perfect" standards of measurement that God intended man to use.(6)

Besides linear measurements, Smyth spent much time investigating other physical properties of the pyramid such as the temperature and barometric pressure in the inner chambers and the weight and density of the stone coffer in the King's Chamber.(7) Again, he derived supposedly important relationships between these measurements, and he concluded that perfect units of weight and temperature were embodied in these dimensions.(8)

The pyramid was found to have interesting geographical and astronomical properties. For example, it is oriented so that its sides point almost precisely due north and south. Smyth believed that it was so constructed by intention, and that this proved that the earth's crust had not shifted significantly since the time that the pyramid was built. He also maintained that the parallel of latitude and the meridian which intersect at the Great Pyramid traverse

more land area (as opposed to water) than any other parallels or meridians.(9)Taylor's thesis that the pyramid was a model of the earth was reinforced in Smyth's mind by his verification of the fact that the distance of the earth from the sun is approximately ten raised to the ninth power multiplied by the height of the Great Pyramid.(10) He regarded these numbers as significant, for some unknown reason. These are but a few of the hundreds of measurements and calculations that he put forward as evidence of the pyramid's special nature.

While it is doubtlessly true that the pyramid does have many of the interesting properties ascribed to it by pyramidologists, the real difficulty lies in judging what one can reasonably infer from the presence of them. For example, Taylor and Smyth were both certain that the ratio was present in the pyramid's dimensions by design, and that this indicated some special knowledge on the part of the builders of the pyramid-likely knowledge of divine origin. Yet Taylor himself was aware of the belief apparently held by Egyptians of earlier periods that the pyramid had been constructed so that the area of one of its faces would equal the square of its height.(11)

The mathematical sophistication required to achieve this is not great, and in any case a trial and error calculation would soon lead to a close approximation of this proportion. The point is this: if, in fact, the pyramid builders had intended to incorporate the above mentioned proportion, then the ratio of the perimeter of the base to twice the height would be 3.145, which differs from only in the third decimal place. This is essentially as accurate an approximation of as Smyth was able to claim from his investigation. So, the ratio could occur as a completely coincidental by-produce of a design which would not have been concerned at all with the ratio of the circumference of a circle to its diameter. Thus the inference that the ratio must have been consciously included is unwarranted.

Many of Smyth's calculations and the inferences he based upon them seem artificial and arbitrary. What, for example, is the significance of the number 109 as used in relating the height of the pyramid to the distance of the earth from the sun? What meaning does the number ten million have, other than the fact that there are approximately ten million pyramid inches in the polar radium of the earth? The pyramid is a rich source of the kind of data Smyth worked with, and it would be surprising if he had been unable to come up with some interesting number combinations after manipulating such data.

The general philosophical problem of attaching the proper meaning to empirical evidence is very difficult. There seems to be no simple, satisfactory way to determine what criteria one should use in deciding, for instance, that certain constructed objects include particular pre-planned geometrical forms and measurements within them if historical evidence is lacking. Clearly individual notions vary greatly. John Taylor and Piazzi Smyth were utterly convinced that nearly every detail of the architecture of the Great Pyramid was included intentionally, that is, designed. On the other hand most scientists, historians, and even interested laymen are immediately convinced, upon reading Smyth's claims, that he inferred far too much from the data he gathered.

In addition, Smyth was hardly a dispassionate, objective scientist when dealing with the pyramid. His writings shows that he certainly had a deep emotional commitment to demonstrating "scientifically" that the Christian religion is true, and that he saw his work with the pyramid as a means by which he could do so. Smyth also had a great antipathy towards the metric system, which he regarded as the flawed produce of the minds of atheistic French radicals. Over and over again in his book The Great Pyramid, Smyth heaps ridicule and scorn upon the metric system and its inventors for using "unnatural" standard units of measurement. For example, Smyth pointed out that the meter was devised by dividing the distance from the equator to the pole into 10 million parts, while the pyramid inch (and thus the closely related British inch) was based upon a division of the length of the radius of the earth, as discussed above.(12)He felt that such distinctions made the British system obviously vastly superior, while many readers of his work (even among his contemporaries) regarded such comparisons as ludicrous.(13)Again, Smyth's conviction in this matter was related to the fact that he believed that the British system reflected God's will in that the British units of measure were close to those "discovered" in the pyramid. His reasoning in this respect was quite circular and emotionally and religiously motivated.

It turns out to be more difficult to pinpoint what it is about Taylor's and Smyth's work that makes it seem so implausible than it would at first appear to be. This is perhaps because the underlying problems are somewhat more subtle than they seem on the surface, as in the case of determining what criteria to use in judging how a thing has been designed.

Reflecting upon the nature of Smyth's work, and his character, one is left with the suspicion that a similar kind of analysis, with equally astonishing results, could be done on other structures. Given the lack of a powerful, general philosophical or scientific response to pyramidology, it is perhaps reasonable to deal with the matter by supplying a counter example. This is exactly what Martin Gardener has done in the book Fads and Fallacies in the Name of Science. He states:

> Just for fun, if one looks up the facts about the Washington Monument in the World Almanac, he will find considerable fiveness. Its height is 555 feet and 5 inches. The base is 55 feet square, multiplied by 60 (or five times the number of months in a year) it gives 3,300, which is the exact weight of the capstone in pounds. Also, the word "Washington" has exactly ten letters (two times five). And if the weight of the capstone is multiplied by the base, the result is 181,500-a fairly close approximately of the speed of light in miles per second. If the base is measured with a "monument foot," which is slightly smaller than the standard foot, its side comes to 56 1/2 feet. This times 33,000 yields a figure even closer to the speed of light.

And is it not significant that the Monument is in the form of an obelisk-an ancient Egyptian structure? Or that a picture of the Great Pyramid appears on a dollar dill, on the side opposite Washington's portrait? Moreover, the decision to print the Pyramid (i.e., the reverse side of the United States seal) on dollar bills was announced by the Secretary of the Treasury on June 15, 1935-both date and year being multiples of five. And are there not exactly twenty-five letters (five times five) in the title, "The Secretary of the Treasury"?

It should take an average mathematician about fifty-five minutes to discover the above "truths," working only with the meager figures provided by the Almanac. Considering the fact that Smyth made his own measurements, obtaining hundreds of lengths with which to work, and that he spent twenty years mulling over these figures, it is not hard to see how he achieved such remarkable results.(14)

THE SPREAD OF MODERN PYRAMIDOLOGY

A number of Christian religious leaders accepted the Taylor-Smyth theory and made it an article of faith. Numerous Englishmen took it up, and in France the abbé F. Moigno, the cannon of St. Denis at Paris, became its foremost advocate.(15) It was in America, however, that it obtained its greatest support. There, a book first published in 1877 by Joseph Seiss entitled Miracle in Stone became popular and because of such popularity "ran through fourteen editions."(16) Although many persons of many religious backgrounds came to subscribe to pyramidology, in the United States it received its primary acceptance among the heirs of the Millerites or the followers of William Miller who had expected Christ to return in 1843 and then in 1844.

Piazzi's Smyth's ideas concerning the Great Pyramid were no doubt already known in American earlier, but in June 1876 he published an article in the *Bible Examiner*, a journal owned by George Storrs of Brooklyn, New York. Thus Smyth made known the "Glory of the Great Pyramid" to the American Second Advent community. The Bible Examiner served as an outlet for a great variety of persons both important and unimportant in the English-speaking, nonconformist world.

It is not surprising, then, that a few years later George Storrs published a series of major articles on the Great Pyramid and its prophetic significance in the *Herald of Life and the Coming Kingdom*,(17) the official organ of a small Adventist movement, the Life and advent Union which Storrs had helped to found. Quite evidently the Union was influenced directly by Smyth's Bible Examiner article and by Joseph Seiss's study as well.(18) Significant is the fact that pyramidology was taken up by the leader of what was to become a fairly large, better-known religious group-Charles Taze Russell, the first president of what is now the Watch Tower Bible and Tract Society and the founder of the International Bible Students and their spiritual descendants, Jehovah's Witnesses.

Although Russell never regarded himself as a Second Adventist, many of the persons who influenced him in a major way were. According to his own admission, Storrs and an Advent Christian preacher, George Stetson, had the greatest influence on him.(19) And in 1876 he adopted a whole system of prophetic speculation regarding the parousia of Christ and the approaching end of the world from Dr. Nelson Barbour, another Second Adventist who had-like Storrs and Stetson-been involved with William Miller.(20) So while he rejected the name, in fact Russell was basically an Adventist in the Second Adventist tradition.

It is quite probable that Russell came to accept pyramidology because of the influence on him of such men as Dr. Joseph Seiss and George Storrs. Following their lead, he

announced that God had placed the great Pyramid as a sign in Egypt on page 3 of the September, 1883 issue of *Zion's Watch Tower*. Yet he did not stress the importance of pyramidology until 1897 when he published Volume iii of his famous Studies in the Scriptures entitled Thy Kingdom Come.

With a full chapter devoted to the Great Pyramid in Thy Kingdom Come, Russell, went beyond Taylor, Smyth, Seiss, Storrs and others. What he did was to give a major historical-eschatological interpretation of the structure of the pyramid which he related to Barbour's system of biblical chronology and prophetic speculation.(21) Accordingly, he came to teach that the Great Pyramid was the "divine plan of the ages in stone." Interestingly, he submitted his ideas to Smyth for examination and received the latter's approval for them.(22)

John and Morton Edgar, two Scottish brothers, became faithful members of Russell's Bible Students and pursued pyramidology with a passion. John, a professor of gynecology at Glasgow, published a number of works on the Great Pyramid until his death in 1912. Morton, who had collaborated with him, continued his studies and published several books on the subject during the following decades.(23) Only after Charles T. Russell's successor, Judge Joseph F. Rutherford denounced pyramidology as unscriptural and of the devil in 1928,(24) did Bible Students connected with the Watch Tower Society abandon it. Hence their spiritual heirs today, Jehovah's Witnesses, are hardly aware of its existence, but several schismatic Bible Student groups still advocate it.(25)

RELIGION, MODERN SCIENCE, AND PYRAMIDOLOGY

Why, then, did pyramidology manifest such attraction to Charles T. Russell, the Edgars, and Bible Students in general? Were they, Taylor, Smyth, Moigno, Seiss, Storrs, and others simply naïve devotees of fadism as unofficial groups such as the disciples of Immanuel Velikovsky and the neo-gnostic followers of Karl Jung are accused of being today?

One factor was that many of Smyth's contemporaries and disciples were as hostile to the metric system as was he. With some amusement Martin Gardner recounts the fact that in the United States the pyramidologist Ohio Auxiliary Society, of which President James A. Garfield was a supporter, published a journal entitled The International Standard to defend the "true inch" and other measurements against the metric system. Its president, an engineer "who prided himself on having an arm exactly one cubit in length," wrote:

> We believe our works to be of God; we are actuated by no selfish or mercenary motive. We depreciate personal antagonisms of ever kind, but we proclaim a ceaseless antagonism to that great evil, The French Metric System .... The jests of the ignorant and the ridicule of the prejudiced, fall harmless upon us and deserve no notice .... It is the Battle of the Standards. May our banner be ever upheld in the cause of Truth, Freedom, and Universal Brotherhood, founded upon a just weight and a just measure, which alone are acceptable to the Lord.(26)

Later The International Standard published a poem, the fourth verse of which reads:

Then down with every "metric" scheme Taught by the foreign school, We'll worship still our Father's God! And keep our Father's "rule"! A perfect inch, a perfect pint, The Anglo's honest pound, Shall hold their place upon the earth, Till time's last trump shall sound!(27)

But Russell and the Bible Students were not particularly concerned with anti-metric sentiment nor did they become involved with anti-metric movements. The Bible Students were all, in one way or another, the heirs of William Miller and as such had long tried to calculate the time of Christ's parousia or second advent from Daniel, the Revelation, and other prophetic books of the Bible. Thus they were greatly intrigued by the mysterious numbers often found in those Scriptures and regarded them as a key to understanding eschatological prophecy. In addition to that, they were also greatly impressed by the natural sciences which they considered a key to knowledge of things metaphysical as well as physical. Charles T. Russell was, if anything, a rationalist. Like all in the Adventist tradition, he was also an heir of the Enlightenment. In the introduction to his first volume of Studies in the Scriptures, The Divine Plan of the Ages, he appealed to reason. Therein he states that he had "endeavored to build upon that foundation the teachings of Scripture, in such a manner that, so far as possible, purely human judgment may try its squares and angles by the most exacting rules of justice which it can command." (28)

Nelson Barbour, a physician, had written from the same standpoint. His first major publication was a paean of praise to the natural sciences as well as an Adventist prophecy of the Second Coming.(29) In consequence, these men and others such as George Storrs and members of the Life and Advent Union were impressed by Piazzi Smyth's arguments respecting the Great Pyramid. Smyth claimed there were three "keys" required for the "opening" of it. Those were "pure mathematics, as supplied chiefly in medieval and modern times;" "applied mathematics, or .. astronomical and physical science"; and "positive human history-past, present and future-as supplied in some of its leading points and chief religious connections by Divine Revelation to certain chosen and inspired men of the Hebrew race ...."

(30) Thus in taking up pyramidology, Charles Russell was later able to state:

The Great Pyramid, however, proves to be a storehouse of important truth-scientific, historic and prophetic-and it testimony is found to be in perfect accord with the Bible, expressing the prominent features of its truths in beautiful and fitting symbols. It is by no means an addition to the written revelation: that revelation is complete and perfect and needs no addition. But it is a strong corroborative witness to God's plan; and few students can carefully examine it, marking the harmony of its testimony with that of the written Word, without feeling impressed that its construction was planned and directed by the same divine wisdom, and that it is the pillar of witness referred to by the prophet [Isaiah at Isaiah 19: 19, 20](31)

1 Anciently, the Pythagoreans regarded the pyramid as a form with special significance.
2 Notably Charles T. Russell and his followers.
3 Peter Tompkins, Secrets of the Great Pyramid (New York: Harper & Row, 1978), p. 72
4 Piazzi Smyth, The Great Pyramid: Its Secrets and Mysteries Revealed (New York: Bell

Publishing Company, 1978), pp. 26-30

5 Ibid., pp. 193-210

6 Ibid., pp. 11-14, 343-358

7 Ibid., pp. 143-85

8 Ibid., p. 313

9 Ibid., pp. 89-90

10 Ibid., pp. 56-63

11 Tomkins, p. 70

12 Smyth, pp. 51-4

13 Tomkins, chapter VIII

14 New York: Dover Publication, 1957, p. 157

15 Ibid.

16 Ibid., p. 180

17 Various issues in 1878

18 Seiss, a Lutheran, had a great deal of influence on the Adventists as well as other nineteenth-century, Protestant, premillennialist movements.

19 The Watch Tower, 1906, reprints pp. 3820-6

20 Nelson H. Barbour, The Midnight Cry (Rochester, NY: printed privately, 1871), passim

21 Brooklyn, NY: International Bible Students Ass., 1913, pp. 313-80

22 Ibid., p. 312

23 These included The Great Pyramid: Its Spiritual Symbolism (Glasgow: Bone and Hulley, 19240 and The Great Pyramid: Its Time Features (Glasgow: Bone and Hulley, 1924).

24 The Watch Tower, 1928, p. 339-45

25 This is particularly true of the Dawn Bible Students, but pyramidology is certainly not limited to them.

26 Gardner, p. 180

27 Ibid.

28 Brooklyn, NY: International Bible Students Ass., 1924, pp. 10-11

29 This work, Three Worlds, was published in 1877 with Russell's financial support.

30 Smyth, pp. xv-xvi

31 Russell, Thy Kingdom Come, pp. 314-15