**Charles Piazzi Smyth 1819-1900**

**http://en.wikipedia.org/wiki/Charles\_Piazzi\_Smyth**



**Charles Piazzi Smyth** (January 3, 1819 – February 21, 1900), was [Astronomer Royal for Scotland](http://en.wikipedia.org/wiki/Astronomer_Royal_for_Scotland) from 1846 to 1888, well-known for many innovations in [astronomy](http://en.wikipedia.org/wiki/Astronomy) and his [pyramidological](http://en.wikipedia.org/wiki/Pyramidology) and [metrological](http://en.wikipedia.org/wiki/Pseudoscientific_metrology) studies of the [Great Pyramid of Giza](http://en.wikipedia.org/wiki/Great_Pyramid_of_Giza).

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## Astronomical career

Charles Piazzi Smyth[[1]](http://en.wikipedia.org/wiki/Charles_Piazzi_Smyth#cite_note-0) was born in [Naples](http://en.wikipedia.org/wiki/Naples), Italy to Admiral [William Henry Smyth](http://en.wikipedia.org/wiki/William_Henry_Smyth) and his wife Annarelia. He was called Piazzi after his [godfather](http://en.wikipedia.org/wiki/Godparent), the [Italian](http://en.wikipedia.org/wiki/Italy) astronomer [Giuseppe Piazzi](http://en.wikipedia.org/wiki/Giuseppe_Piazzi), whose acquaintance his father had made at [Palermo](http://en.wikipedia.org/wiki/Palermo) when serving in the [Mediterranean](http://en.wikipedia.org/wiki/Mediterranean). His father subsequently settled at [Bedford](http://en.wikipedia.org/wiki/Bedford) and equipped there an [observatory](http://en.wikipedia.org/wiki/Observatory), at which Piazzi Smyth received his first lessons in astronomy. At the age of sixteen he became an assistant to Sir [Thomas Maclear](http://en.wikipedia.org/wiki/Thomas_Maclear) at the [Cape of Good Hope](http://en.wikipedia.org/wiki/Cape_of_Good_Hope), where he observed [Halley's comet](http://en.wikipedia.org/wiki/Halley%27s_comet) and the [Great Comet of 1843](http://en.wikipedia.org/wiki/Great_Comet_of_1843), and took an active part in the verification and extension of [Nicolas Louis de Lacaille](http://en.wikipedia.org/wiki/Nicolas_Louis_de_Lacaille)'s [arc of the meridian](http://en.wikipedia.org/wiki/Arc_of_the_meridian).

In 1845 he was appointed [Astronomer Royal for Scotland](http://en.wikipedia.org/wiki/Astronomer_Royal_for_Scotland), based at the [Calton Hill Observatory](http://en.wikipedia.org/wiki/City_Observatory,_Edinburgh) in [Edinburgh](http://en.wikipedia.org/wiki/Edinburgh), and professor of astronomy in the [University of Edinburgh](http://en.wikipedia.org/wiki/University_of_Edinburgh). Shortly after his appointment, the observatory was placed under the control of [Her Majesty's Treasury](http://en.wikipedia.org/wiki/Her_Majesty%27s_Treasury) and suffered from a long series of under-funding. Because of this, most of his notable work in astronomy was done elsewhere. Here he completed the reduction, and continued the series, of the observations made by his predecessor, [Thomas James Henderson](http://en.wikipedia.org/wiki/Thomas_James_Henderson). In 1853, Smyth was responsible for installing the "[time ball](http://en.wikipedia.org/wiki/Time_ball)" on top of [Nelson's Monument](http://en.wikipedia.org/wiki/Nelson%27s_Monument) in Edinburgh to give a time signal to the ships at Edinburgh's port of [Leith](http://en.wikipedia.org/wiki/Leith). By 1861, this visual signal was augmented by the [One O'Clock Gun](http://en.wikipedia.org/wiki/Edinburgh_Castle#One_O.27Clock_Gun) at [Edinburgh Castle](http://en.wikipedia.org/wiki/Edinburgh_Castle).

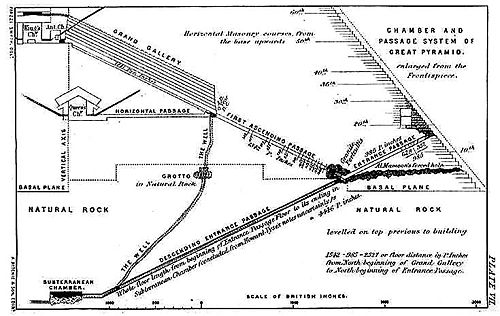
On his [honeymoon](http://en.wikipedia.org/wiki/Honeymoon) in 1856 he made experimental observations on the peaks of [Tenerife](http://en.wikipedia.org/wiki/Tenerife) in the [Canary Islands](http://en.wikipedia.org/wiki/Canary_Islands) with a view to testing the astronomical advantages of a mountain observatory. The [Admiralty](http://en.wikipedia.org/wiki/Admiralty) awarded him a grant of £500 for the purpose and the yacht *Titania*. A fine 74 inch (1.88 m) equatorial [telescope](http://en.wikipedia.org/wiki/Telescope) was placed at his disposal by friends. The purpose of the expedition was to verify [Isaac Newton](http://en.wikipedia.org/wiki/Isaac_Newton)'s surmise that "a most serene and quiet air... may perhaps be found on the tops of the highest mountains above the grosser clouds." The scientific results were detailed in reports addressed to the [Lord Commissioners of the Admiralty](http://en.wikipedia.org/wiki/Lord_Commissioners_of_the_Admiralty), the [Royal Society](http://en.wikipedia.org/wiki/Royal_Society), and the *Edinburgh Observations* in 1858. He wrote a popular account of the voyage in *Teneriffe, an Astronomers Experiment*. This was the first book ever illustrated by stereoscopic photographs ("photo-stereographs"), it contains 20 photographic stereoviews of Teneriffe, taken by the author. Smyth thus founded the first high-altitude observatory, pioneering the modern practice of placing telescopes at high altitudes for better observing conditions.

In 1871 and 1872 Smyth investigated the spectra of the [aurora](http://en.wikipedia.org/wiki/Aurora_%28astronomy%29), and [zodiacal light](http://en.wikipedia.org/wiki/Zodiacal_light). He recommended the use of the rain-band for [weather forecasting](http://en.wikipedia.org/wiki/Weather_forecasting) and discovered, in conjunction with Alexander Stewart Herschel, the harmonic relation between the rays emitted by [carbon monoxide](http://en.wikipedia.org/wiki/Carbon_monoxide). In 1877-1878 he constructed at [Lisbon](http://en.wikipedia.org/wiki/Lisbon) a map of the [solar](http://en.wikipedia.org/wiki/Sun) [spectrum](http://en.wikipedia.org/wiki/Spectrum) for which he received the [Makdougall Brisbane Prize](http://en.wikipedia.org/wiki/Thomas_Makdougall_Brisbane) in 1880. Smyth carried out further [spectroscopic](http://en.wikipedia.org/wiki/Spectroscopic) researches at [Madeira](http://en.wikipedia.org/wiki/Madeira) in 1880 and at [Winchester](http://en.wikipedia.org/wiki/Winchester) in 1884, pioneering the techniques of [infrared](http://en.wikipedia.org/wiki/Infrared) astronomy by studying the heat emitted by the [moon](http://en.wikipedia.org/wiki/Moon). He also researched [wet collodion process](http://en.wikipedia.org/wiki/Collodion_process) [photography](http://en.wikipedia.org/wiki/Photography).

In 1888 Smyth resigned as Astronomer Royal in protest at the chronic under-funding and age of the equipment at his facilities. This brought events to a head and the Royal Observatory was almost closed when [James Linday, Earl of Crawford](http://en.wikipedia.org/wiki/James_Lindsay,_26th_Earl_of_Crawford) made a donation of new astronomical instruments and the complete *Bibliotheca Lindesiana* in order that a new observatory could be founded. Thanks to this donation, the new observatory [Royal Observatory](http://en.wikipedia.org/wiki/Royal_Observatory,_Edinburgh) on [Blackford Hill](http://en.wikipedia.org/wiki/Blackford,_Edinburgh) was opened in 1896. After his resignation, Smyth retired to the neighbourhood of [Ripon](http://en.wikipedia.org/wiki/Ripon), where he remained until his death.

## Pyramidological researches

Smyth corresponded with pyramid theorist [John Taylor](http://en.wikipedia.org/wiki/John_Taylor_%281781-1864%29) and was heavily influenced by him. Taylor theorized in his 1859 book *The Great Pyramid: Why Was It Built? & Who Built It?* that the Great Pyramid was planned and the building supervised by the [biblical](http://en.wikipedia.org/wiki/Biblical) [Noah](http://en.wikipedia.org/wiki/Noah). Refused a grant by the Royal Society, Smyth went on an expedition to Egypt in order to accurately measure every surface, dimension, and aspect of the Great Pyramid. He brought along equipment to measure the dimensions of the stones, the precise angle of sections such as the descending passage, and a specially designed [camera](http://en.wikipedia.org/wiki/Camera) to photograph both the interior and exterior of the pyramid. He also used other instruments to make astronomical calculations and determine the pyramid's accurate latitude and longitude.



Smyth subsequently published his book *Our Inheritance in the Great Pyramid* in 1864 (which he expanded over the years and is also titled *The Great Pyramid: Its Secrets and Mysteries Revealed*). Smyth claimed that the measurements he obtained from the Great Pyramid of Giza indicated a unit of length, the [pyramid inch](http://en.wikipedia.org/wiki/Pyramid_inch), equivalent to 1.001 [British](http://en.wikipedia.org/wiki/English_unit) [inches](http://en.wikipedia.org/wiki/Inch), that could have been the standard of measurement by the pyramid's architects. From this he extrapolated a number of other measurements, including the pyramid [pint](http://en.wikipedia.org/wiki/Pint), the sacred [cubit](http://en.wikipedia.org/wiki/Cubit), and the pyramid [scale of temperature](http://en.wikipedia.org/wiki/Temperature_measurement).

Smyth claimed, and presumably believed, that the pyramid inch was a God-given measure handed down through the centuries from the time of [Israel](http://en.wikipedia.org/wiki/Israelite), and that the architects of the pyramid could only have been directed by the hand of God. To support this Smyth said that, in measuring the pyramid, he found the number of inches in the perimeter of the base equalled one thousand times the number of days in a year, and found a numeric relationship between the height of the pyramid in inches to the distance from Earth to the Sun, measured in statute miles. He also advanced the theory that the Great Pyramid was a repository of [prophecies](http://en.wikipedia.org/wiki/Prophecy) which could be revealed by detailed measurements of the structure. Working upon theories by Taylor, he conjectured that the [Hyksos](http://en.wikipedia.org/wiki/Hyksos) were the [Hebrew people](http://en.wikipedia.org/wiki/Hebrews), and that they built the Great Pyramid under the leadership of [Melchizedek](http://en.wikipedia.org/wiki/Melchizedek). Because the pyramid inch was a divine unit of measurement, Smyth, a committed proponent of [British Israelism](http://en.wikipedia.org/wiki/British_Israelism), used his conclusions as an argument against the introduction of the [metric system](http://en.wikipedia.org/wiki/Metric_system) in Britain. For much of his life he was a vocal opponent of the metric system, which he considered a product of the minds of atheistic [French](http://en.wikipedia.org/wiki/France) radicals, a position advocated in many of his works.

Smyth, despite his bad reputation in [Egyptological](http://en.wikipedia.org/wiki/Egyptological) circles today, performed much valuable work at Giza. He made the most accurate measurements of the Great Pyramid that any explorer had made up to that time, and he photographed the interior passages, using a [magnesium](http://en.wikipedia.org/wiki/Magnesium) light, for the first time. Smyth's work resulted in many drawings and calculations, which were soon incorporated into his books *Our Inheritance in the Great Pyramid*, the three-volume *Life and Work at the Great Pyramid* (1867), and *On the Antiquity of Intellectual Man* (1868). For his works he was awarded a gold metal by the Royal Society of Edinburgh, but in 1874, the Royal Society rejected his paper on the design of Khufu's pyramid, as they had Taylor's. The rejection of his ideas helped contribute to his resignation from his post as Royal Astronomer in 1888.

## Influence of Smyth's pyramid theories

Smyth's theories on pyramid prophecy were then integrated into the works and prophecies of [Charles Taze Russell](http://en.wikipedia.org/wiki/Charles_Taze_Russell) (such as his [*Studies in the Scriptures*](http://en.wikipedia.org/wiki/Studies_in_the_Scriptures)), who founded the [Bible Student movement](http://en.wikipedia.org/wiki/Bible_Student_movement) (most visible today in the [Jehovah's Witnesses](http://en.wikipedia.org/wiki/Jehovah%27s_Witnesses), though Russell's successor, [Joseph F. Rutherford](http://en.wikipedia.org/wiki/Joseph_F._Rutherford), denounced pyramidology as unscriptural). Smyth's proposed dates for the [Second Coming](http://en.wikipedia.org/wiki/Second_Coming), first 1882 then many dates between 1892 and 1911, were failed predictions.

The theories of Taylor and Smyth gained many eminent supporters and detractors in the field of Egyptology during the late 1800s, but by the end of the 19th century it had lost most of its mainstream scientific support. The greatest blow to the theory was dealt by the great Egyptogist [William Matthew Flinders Petrie](http://en.wikipedia.org/wiki/William_Matthew_Flinders_Petrie), who had initially been a supporter. When Petrie went to Egypt in 1880 to perform new measurements, he found that the pyramid was several feet smaller than previously believed. This so undermined the theory that Petrie rejected it, writing "there is no authentic example, that will bear examination, of the use or existence of any such measure as a 'Pyramid inch,' or of a cubit of 25.025 British inches."[[2]](http://en.wikipedia.org/wiki/Charles_Piazzi_Smyth#cite_note-1)

## Marriage, family, and death

In 1856 Smyth married Jessie Duncan (died 1896), daughter of [Thomas Duncan](http://en.wikipedia.org/wiki/Thomas_Duncan). His brothers were [Warington Wilkinson Smyth](http://en.wikipedia.org/wiki/Warington_Wilkinson_Smyth) and [Henry Augustus Smyth](http://en.wikipedia.org/wiki/Henry_Augustus_Smyth). His sisters were Henrietta Grace Smyth, who married [Reverend](http://en.wikipedia.org/wiki/Reverend) [Baden Powell](http://en.wikipedia.org/wiki/Baden_Powell_%28mathematician%29) and was mother of [Robert Baden-Powell, 1st Baron Baden-Powell](http://en.wikipedia.org/wiki/Robert_Baden-Powell,_1st_Baron_Baden-Powell) (founder of the world [Scouting Movement](http://en.wikipedia.org/wiki/Scouting_Movement)), and Georgiana Rosetta Smyth, who married [William Henry Flower](http://en.wikipedia.org/wiki/William_Henry_Flower).

Smyth died in 1900 and was buried at St. John's Church in the village of [Sharow](http://en.wikipedia.org/wiki/Sharow) near [Ripon](http://en.wikipedia.org/wiki/Ripon). A small stone pyramid-shaped monument, topped by a [Christian cross](http://en.wikipedia.org/wiki/Christian_cross), marks his gravesite [[2]](http://www.sharow.org.uk/st-johns-church/church-charles-p-smyth.html).

## Honours

The crater [Piazzi Smyth](http://en.wikipedia.org/wiki/Piazzi_Smyth_%28crater%29) on the [Moon](http://en.wikipedia.org/wiki/Moon) is named after him.

## Sources and external links

### Selected works and sources by Smyth

* Smyth, Charles Piazzi (1855). *Description of New or Improved Instruments for Navigation and Astronomy*. Edinburgh: Neill & Co., Printers.
* Smyth, Charles Piazzi (1858). *Teneriffe, An Astronomer's Experiment: or, Specialities of a Residence Above the Clouds*. London: L. Reeve.  [Full text available from](http://books.google.com/books?id=TmsPAAAAYAAJ&printsec=frontcover&dq=charles+smyth+teneriffe#v=onepage&q=&f=false) [Google Books](http://en.wikipedia.org/wiki/Google_Books)
* Smyth, Charles Piazzi (1862). *Three Cities in Russia*. London: L. Reeve.
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* Smyth, Charles Piazzi (1882). *Madeira Spectroscopic: Being a Revision of 21 Places in the Red Half of the Solar Visible Spectrum with a Rutherfurd Diffraction Grating, at Madeira ... During the Summer of 1881*. Edinburgh: W. & A. K. Johnston.
* Smyth, Charles Piazzi (1884). *New Measures of the Great Pyramid*. London: R. Banks.

### Useful Biographical Information

* [Critical comments](http://articles.adsabs.harvard.edu/full/1955ASPL....7...97E/0000097.000.html) on some of Smyth's books, by Olin J. Eggen (1955).
* Brück, Hermann A. (1983). *The Story of Astronomy in Edinburgh*. Edinburgh: Edinburgh Univ. Press.

### External links

### *This article incorporates text from the* [Encyclopædia Britannica*, Eleventh Edition*](http://en.wikipedia.org/wiki/Encyclop%C3%A6dia_Britannica_Eleventh_Edition)*, a publication now in the* [*public domain*](http://en.wikipedia.org/wiki/Public_domain)*.* - see, for instance [here](http://www.1911encyclopedia.org/Charles_Smyth)

* ["Charles Piazzi Smythe" at History of Astronomy in South Africa](http://www.saao.ac.za/assa/html/his-astr_-_smythe_cp.html)
* [Pyramidology - A Case of Science, Pseudo-science and Religion](http://www.greatdreams.com/pyramid.htm)
* [Charles Piazzi Smyth, *Our Inheritance in the Great Pyramid* (1877) Plate Index](http://www.pinetreeweb.com/piazzi-smyth-pyramid-plates-index.htm)
* [C. Piazzi Smyth, Charles Taze Russell and the Great Pyramid of Gizeh](http://members.cox.net/jellogator/pyramid/pyramid.htm)
* [Amazing Pyramid "Facts"](http://www.catchpenny.org/pyramid.html)
* [B-P's Uncle: Charles Piazzi Smyth](http://pinetreeweb.com/bp-piazzi-smyth.htm)
* ["Charles Piazzi Smith" at the *Gazetteer for Scotland*](http://www.geo.ed.ac.uk/scotgaz/people/famousfirst298.html)
* [St. John's Church, Sharow: Charles Piazzi Smyth](http://www.sharow.org.uk/st-johns-church/church-charles-p-smyth.html)
* [The Astronomical Society of Edinburgh: A Guide to Edinburgh's Popular Observatory](http://www.astronomyedinburgh.org/publications/booklet/#Smyth)
* [Doomsday 1701-1970](http://www.abhota.info/end2.htm)
* ["Charles Piazzi Smyth - Teneriffe" at the George Eastman House Still Photograph Archive](http://www.eastman.org/fm/stm/htmlsrc4/m199501520009_ful.html)
* ["The Sphinx and the Great Pyramid at Giza, 1865" photograph by Smyth](http://www.leeds.ac.uk/cath/events/2003/1205/programme.html)
* [The Royal Observatory, Edinburgh](http://www.roe.ac.uk/)
* [Astronomers Royal For Scotland: Summary of Archives](http://www.roe.ac.uk/roe/library/astroyal.html)

## See also

* [Astronomer Royal for Scotland](http://en.wikipedia.org/wiki/Astronomer_Royal_for_Scotland)
* [Royal Observatory, Edinburgh](http://en.wikipedia.org/wiki/Royal_Observatory,_Edinburgh)
* [Pyramidology](http://en.wikipedia.org/wiki/Pyramidology)
* [Pyramid inch](http://en.wikipedia.org/wiki/Pyramid_inch)
* [Pseudoscientific metrology](http://en.wikipedia.org/wiki/Pseudoscientific_metrology)
* [Great Pyramid of Giza](http://en.wikipedia.org/wiki/Great_Pyramid_of_Giza)
* [John Taylor](http://en.wikipedia.org/wiki/John_Taylor_%281781-1864%29)

## Footnotes

1. [**^**](http://en.wikipedia.org/wiki/Charles_Piazzi_Smyth#cite_ref-0) His last name is often misspelled as "Smith" or "Smythe". His tombstone and published works all read "Smyth".
2. [**^**](http://en.wikipedia.org/wiki/Charles_Piazzi_Smyth#cite_ref-1) W. M. Flinders Petrie, *The Pyramids and Temples of Gizeh* (London, 1883), p. 189 [[1]](http://www.ronaldbirdsall.com/gizeh/petrie/index.htm).

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