The Reverend Thomas Bayes, F.R.S. — 1701?-1761
Who Is this gentleman? When and where was he born?

The first correct (or most plausible) answer received in the Bulletin Editorial office in Montreal will win a prize!

This challenge was made in *The IMS Bulletin*, Vol. **17**, No. 1, January/February 1988, page 49. The photograph is reproduced, with permission, from the page facing December of the *Springer Statistics Calendar 1981* by Stephen M. Stigler (pub. Springer-Verlag, New York, 1980). It is noted there that "the date of his birth is not known: Bayes's posterior is better known than his prior. This is the only known portrait of him; it is taken from the 1936 History of Life Insurance (by Terence O'Donnell, American Conservation Co., Chicago). As no source is given, the authenticity of even this portrait is open to question". The original source of this photograph still remains unknown. The photo appears on page 335 with the caption "Rev. T. Bayes: Improver of the Columnar Method developed by Barrett. [There is a photo of George Barrett (1752-1821) on the facing page 334: "Mathematical genius and originator of Commutation Tables: Ignored by the august Royal Society in its *Transactions* because he had never gone to school." – See also comments by Stephen M. Stigler on page 278.]

The most plausible answer received in the Bulletin Editorial office is from Professor David R. Bellhouse, University of Western Ontario, London, Ontario, Canada. A prize is on its way to Professor Bellhouse, who wrote:

“The picture in *The IMS Bulletin* is supposedly of Thomas Bayes, who died in 1761 aged 59 and so was born in 1701 or 1702. I have added “supposedly” since I believe that the picture is of doubtful authenticity. There are three clues in the picture which lead me to this conclusion. For the purpose of comparison, consider the pictures (below) of three other Nonconformist ministers: on the left Joshua Bayes, Thomas's father (d. 1746); in the middle Richard Price (this portrait is dated 1776), who read Bayes's paper before the Royal Society; and on the right Philip Doddridge (1702–1751), who was a friend of Bayes's brother-in-law, Thomas Cotton.

“The first thing to note in this picture is the apparent absence of a wig, or if a wig is present, it is definitely the wrong style for the period. It is likely that Bayes would have worn a wig similar to Doddridge's, which was going out of fashion in the 1740s, or a wig similar to Price's, which was coming into style at the same time. The second thing to note is that Bayes appears to be wearing a clerical gown like his father or a larger frock coat with a high collar. On viewing the other two pictures, we can see that the gown is not in style for Bayes's generation and the frock coat with a large collar is definitely anachronistic. Finally, Price is wearing a stock or wide collar on his shirt which appears around his neck in the picture; this was fashionable from about 1730 to 1770. Since Doddridge, one generation younger, appears without any stock or shirt collar, it is questionable whether Bayes would have worn a stock. However, the nineteenth century-looking clerical collar in this picture is again anachronistic. For reference, I have used C. Willett Cunnington and P. Cunnington, *Handbook of English Costume in the Eighteenth Century*, pub. Faber & Faber, London, 1964.

“It may be impossible to determine Thomas Bayes's exact date of birth. All that is known is that he died on 7 April 1761, at the age of 59. That is what is recorded on his tomb in Bunhill Fields in London. It also corresponds to his death notices in three eighteenth century periodicals – *Gentlemen's Magazine*, *The Public Advertiser*, and the *Whitehall Evening Post*. I might add that the date of death has been erroneously given as 17 April in several places (e.g., *The History of Statistics: The Measurement of Uncertainty before 1900* by Stephen M. Stigler, pub. Harvard Univ. Press, 1986, page 971 going back to at least the mid-nineteenth century.

“The inscription on the front of the tomb (as illustrated) reads: “Vault of the families of Bayes and Cotton. Thomas Bayes Cotton, son of Bayes Cotton and Sarah, his wife, and great grandson of the said Joshua and Ann Bayes (10). 21 March 1787.” On the top of the tomb is inscribed: “Rev. Thomas Bayes, Son of the said Joshua and Ann Bayes (59). 7 April 1761. In recognition of Thomas Bayes's important work in probability. The vault was restored in 1969 with contributions received from statisticians throughout the world.”

“Before the calendar reform of 1752, the English New Year was on March 25. So – Bayes died on 7 April 1761: subtract the 11 lost days for the reform of 1752 which makes his death date in the old style as March 27 or two days after the new year. Now subtract his age (59). Since the year 1701 occurred from March 25 of 1701 (new style) to March 24 of 1702 (new style) then it is almost certain that the year of his birth would have been recorded, if it has been recorded at all, as 1701.

"It was reported by J.D. Holland [*J. Roy. Statist. Soc. Ser.* ***A*** **125** (1962): 451–461] that he searched for Bayes's birth date in the parish registers of Bovingdon, Hemel Hempstead, Hertfordshire, Bayes's most likely place of birth. He also reported that the parish registers and bishop's transcripts of the registers were missing for the period 1700–1706 so that a birth date could not be fixed. I believe that Holland was looking in the wrong place. I checked the International Genealogical Index (IGI) compiled by the Church of Jesus Christ of Latter Day Saints (Mormons) and found no children of Joshua Bayes listed even after the family's move to Southwark and London. This leads me to believe that all the children of Joshua Bayes were baptized in the dissenting chapel, not in the established church. I am currently trying to find the Nonconformist registers that would most likely contain Thomas Bayes's baptismal record. It is unlikely that anything will come of this search since many early Nonconformist registers have not survived. That is the most likely explanation for the lack of Bayes children appearing in the IGI indexed by the Mormons. I will let you know if anything comes of this search.

"I have done some further investigation of Bayes. I have found a genealogy of his family and a related family, the Cottons. No birth date is given for Thomas but there may be some clue to where one might find a picture of him. The genealogy states that the Cotton family possessed some portraits of members of another family which was related to them. Also, a descendant of Joshua Bayes's son-in-law, Thomas Cotton, was an attorney-clerk to the Williams Library. That is probably how Joshua Bayes's picture wound up in this library. If they had a picture of Thomas, it may have been kept in the family, since Thomas Cotton's son was named Thomas Bayes Cotton. Tracing a picture of Thomas Bayes then requires hunting down the descendants of the Cottons, a difficult but not an impossible task."

We also received a letter from Professor Andrew I. Dale, University of Natal, Durban, South Africa, who noted that the photo is in the book by O'Donnell (1936), Professor Dale also observed that:

"While the style of dress as shown in the picture is not atypical of that of a nonconformist minister of the 18th century, there is no reason to suppose that it is in fact a portrait of the illustrious Bayes. O'Donnell's book, as he states in the preface, is "a plethora of rare and curious old illustrations", and no reference to the source of the photograph is provided. Moreover, the reference to insurance sheds further doubt on the ascription. O'Donnell is elsewhere unreliable. For example, he refers to the author of "An Essay on Probabilities and their Application to Life Contingencies and Insurance Offices" as William de Morgan (who was in fact Augustus's son). The reference is, however, correctly attributed in the Bibliography."

As we go to press (20 May 1988) we received these comments from Professor Stephen M. Stigler, University of Chicago, USA.

"George Barrett (1752–1821) was an actuary who prepared a series of life tables for the Hope Life Office around 1813. He came from Petworth Sussex, and is usually considered the originator in England of the method of calculating the values of annuities by means of a commutation table, a method sometimes called Barrett's columnar method. The method was apparently developed between 1788 and 1811, explained to Francis Baily in 1811, and read to the Royal Society by Baily in 1812. If Bayes improved the method before his death in 1761, he was indeed precocious. It could be noted that inaccuracies in O'Donnell's captions do not necessarily invalidate the picture. It still seems likely that O'Donnell got the picture from some (perhaps 19th century) source where it was identified as Bayes. The question would then be: "What is that source, and what was that source's source?" So little is said of Bayes in O'Donnell's book that it is extremely implausible that he would choose him (and Thomas Simpson, who is also depicted in a similar style) as the subject for an invented picture."

Many thanks to Professors Bellhouse, Dale, and Stigler for their comments. The *Bulletin* Editor would like to draw our readers' attention to the Wald Memorial Lectures to be given this year at the IMS Annual Meeting in Fort Collins, Colorado. As noted on page 189 of this issue of the *Bulletin* these lectures will be given this year by Professor Dennis V. Lindley (Minehead, Somerset, England) on "The present position in Bayesian statistics".

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