5-1-1996

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Recommended Citation

Whitaker, Robert J. "The legislation of the value of Pi." The Physics Teacher 31, no. 4 (1993): 212-213.

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Within the folklore of physics and mathematics is the story that at one time some state legislature set forth to legislate the value of pi. Which state must take the credit (or the blame) often varies with the telling. While the true story has been told a number of times, one or two aspects of it do not appear to have been noted, and some readers might still not be familiar with it. Most accounts begin with the event itself. However, let us begin several years before that.

In January, 1894 the new journal, *The American Mathematical Monthly*, made its debut. It was an informative journal, providing biographical sketches of famous mathematicians, discussion of mathematical principles, and a section in which problems were posed and solved by readers. In addition it contained an informal section, "Queries and Information," which carried letters from readers and miscellaneous comments on mathematics. Among these, in the July 1894 issue, was a note by Edward J. Goodwin of Solitude, Indiana, entitled, "Quadrature of the Circle." Below the author's name appears the line, "Published by the request of the author."

The note begins: "A circular area is equal to the square on a line equal to the quadrant of the circumference; and the area of a square is equal to the area of the circle whose circumference is equal to the perimeter of the square. (Copyrighted by the author 1889. All rights reserved.)" The note continues, in similar manner, for about a page.[1]

In the November 1895 issue, in response to a query about the "trisection of an angle" and the "duplication of the cube," a four-line note by Edw. J. Goodwin appears, "By request of the author."[2] These seem to be the only contributions to this journal by Edward Goodwin. Their mention is made here, however, because these two notes are used as evidence in what follows.

On January 18, 1897 House Bill No. 246 was introduced in the House of Representatives of the Indiana Legislature by Mr. Taylor I. Record, representative from Posey County in far southwest Indiana, which included Solitude. The author of the bill was Edward J. Goodwin, M.D. The bill consisted of a brief preamble and three sections. The preamble read:

> A Bill for an act introducing a new mathematical truth and offered as a contribution to education to be used only by the State of Indiana free of cost by paying any royalties whatever on the same, provided it is accepted and adopted by the official action of the legislature of 1897.[3]

Sections 1 and 2 of the bill expand the discussion that had appeared in *The American Mathematical Monthly* in its first year. This, like the original, is nearly incomprehensible. However, Section 3 states:

Table I. Chronology of 1897 House Bill No. 246.

Action	Date
Introduction in the House	January 18
Referred to House Committee on Canals (often called "Committee on Swamp Lands")	January 19
Referred back to House with recommendation to refer to Committee on Education	January 19
Referred to Committee on Education	January 20
Reported back to the full House with recommendation, "do pass"	February 2
Bill brought up for second reading of full House	February 5
Motion for rules to be suspended so bill could be read third time (motion passes 72 to 0)	February 5
House voted on bill; bill passed, 67 to 0	February 5
Bill referred to Senate	February 10
Read in Senate first time; referred to Committee on Temperance	February 11
Committee reported back to Senate with recommendation, "do pass"	February 12
Bill read for second time	February 12
Motion to amend bill by striking out enacting clause; motion failed	February 12
Motion to postpone further consideration of bill indefinitely; motion passed	February 12

In further proof of the value of the author's proposed contribution to education, and offered as a gift to the State of Indiana, is the fact of his solutions of the trisection of the angle, duplication of the cube and a quadrature of the circle having already accepted as contributions to science by the American Mathematical Monthly, the leading exponent of mathematical thought in this country. And be it remembered that these noted problems had been long since given up by scientific bodies as unsolvable mysteries and above man's ability to comprehend.

The chronology of the bill, as it made its way through the legislative procedure, is worth following. Note the rapid action of the various committees and the two legislative houses as listed in Table I!

Note how the bill died in the final hours of the legislative session. The reasons for its progressing as far as it did in the legislative process are not too hard to find. Dr. Goodwin had published his (copyrighted) mathematical findings in a respected mathematical journal. The senators who spoke in support of the bill admitted their ignorance of the mathematical merits of these findings. The State Superintendent of Education had lobbied the legislature for the bill's passage because its contents could be used in the state textbooks and would be available to the children of Indiana free of royalty payment; other states would be required to pay royalties to the author.

Had the Indiana newspapers not publicized the actions of the legislature and, as a result, had it not become a topic of public amusement, one wonders if House Bill 246 might not have passed. It was purely by accident that a Purdue University mathematician, C.A. Waldo, happened to be present to testify on another matter just at the time the House passed the bill and sent it to the Senate. He then briefed some of the senators on the implications of the legislation prior to the final debate and vote. The subject of validity of the contents of the bill did not seem to be a question for the members of the legislature, but several of the senators did express concern as to whether the subject was a proper one for legislation. That they decided in the negative was a lesson apparently lost when legislation against the teaching of evolution was introduced, and subsequently passed, by legislatures of Oklahoma and Florida in 1923; Tennessee in 1925; Mississippi in 1926; Arkansas in 1981 (the 1928 law was passed by the voters of the state in an initiative petition and remained on the books until struck down in 1968 by the U.S. Supreme Court in *Epperson v. Arkansas*); and Louisiana in 1981.[4]

References

1. Edward J. Goodwin, *Am. Math. Month.* **1**, 246 (July, 1894).
2. Edw. J. Goodwin, *Am. Math. Month.* **2**, 337 (November, 1895).
3. The complete bill has been published in Thomas F. Holgate, *The Atlantic Monthly* **156**, 118 (July, 1935); and in Will E. Edington, *Proceedings of the Indiana Academy of Science* **45**, 206 (1935). The discussion that follows is adapted from Edington's account of the progress of the bill in the legislature. Edington also corrects the short reminiscences of Professor Waldo, who had written about this event earlier. See C.A. Waldo, *Proceedings of the Indiana Academy of Science* **27**, 445 (1917). A brief summary of this event, along with a discussion of pi as an irrational number, is given by M.H. Greenblatt, *American Scientist* **53**, 427A (December, 1965).
4. A thorough and readable account of the legal prohibition of the teaching of evolution may be found in Edward J. Larson, *Trial and Error: The American Controversy over Creation and Evolution*, updated ed. (Oxford, New York, 1989). The author details the enactment (and eventual repeal) by the respective legislatures (or courts) of much of the anti-evolution legislation up to 1987. Attempts to "square the circle" were not new with Dr. Goodwin. During the mid-nineteenth century mathematician Augustus De Morgan wrote extensively about those who believed that they had successfully "squared the circle," "trisected an angle," or who promoted views that today we would call "pseudo-science." He termed these people "paradoxers." These writings are collected together in Augustus De Morgan, *A Budget of Paradoxes*, edited by David Eugene Smith (Open Court, Chicago, 1915; Books for Libraries Press, Freeport, NY, 1969), 2 vols. The first edition was posthumously published in 1872.