

“There **have** been great plays written about mathematicians—*Breaking the Code*, *Arcadia*, and *Proof* come to mind. *Calculus* is not in that league. But it is good fun.”

Calculus: A Play by Carl Djerassi

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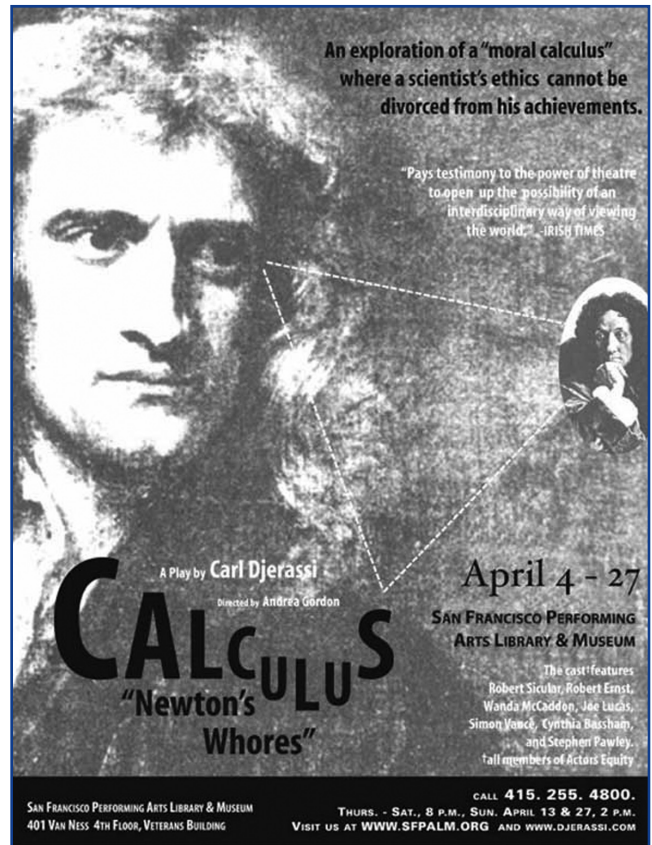
In London...

On a muggy August evening the audience for the New End Theatre’s production of *Calculus* appeared to consist more of devotees of this Hampstead fringe venue than of the play’s subject matter. But no matter, for no great knowledge of calculus is needed to understand this latest science-in-theatre effort of Carl Djerassi, a professor of chemistry, and a dedicated popularizer of the lives of scientists. *Calculus* focuses not on the merits of the claims of Newton and Leibniz but rather on the lack of moral integrity of Newton and his sycophants.

As the play opens, we learn that a noted English architect/playwright Sir John Vanburgh seeks the collaboration of the actor/playwright Colley Cibber in writing and producing a play about the report of the Royal Society’s commission to evaluate the rival claims of Newton, its president, and Leibniz to the development of calculus. That the report favored Newton is hardly surprising, but that the triumph was in some respects fleeting does not become apparent, even though the setting of the play extends to 1730, well into the period of the decline of British influence in mathematics and the growing predominance of the followers of Leibniz. The uninformed would not realize that, significant though his other work may be, Newton’s version of “calculus” had little impact on the development of mathematics. Indeed the nationalism he engendered inhibited research in Britain for many years. But the audience does not get to see how Newton’s (and his followers’) behavior interfered with the science they tried to promote—except, of course, that the title itself symbolizes Leibniz’s triumph. They aren’t there to see *Fluxions*!

That Louis Frederick Bonet, the devious Swiss diplomat and Protestant zealot, is credited with the Brutus role in this story is ironic since the Swiss Bernoullis were Leibniz’s most effective promoters. De Moivre is badly portrayed as a mendacious scrounger of bagels from the refreshments set out for the commissioners. It is true that as a Huguenot émigré in early 18th century England his life was difficult, but the characterization goes too far. In addition to Edmond Halley and De Moivre, mathematicians Brook Taylor (whose name is attached to the series), William Jones (originator of the use of

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π in its modern sense), and John Machin (whose series for π was in common use for many years), together with William Burnet, a future governor of New Jersey, were members of the “anonymous” commission, most of whom were chosen because of their avid support of Newton in the calculus controversy. The physician Dr. John Arbuthnot, who plays a crucial role in the play, was something of a statistician. Vanburgh is more likely to be recognized as the architect of Blenheim Palace than as a playwright. Alexander Pope, whose role is familiar to readers of *The Da Vinci Code*, is referred to as another of the acolytes of Newton, although not a member of the commission. The few women in the play, even the key Lady Brasenose, do not make much of an impression.

The cast in the New End production was large, comprising all eleven members of the commission plus some auxiliary characters. The all-purpose set appropriate and the costuming was elaborate.

Early in the play Cibber said, “If competence in mathematics is required for a playwright, no plays will ever be written about mathematicians.” He seems to have gotten that right.

And in Los Angeles...

Students in MATH 320 History of Mathematics at Cal State Los Angeles downloaded the script of *Calculus* from Djerassi’s pdf file <http://www.djerassi.com/calculus/calculusfull.html> and proceeded to read the play in class. Apples and overacting were enjoyed by all, and especially by those students who volunteered to be readers.

A few problems emerged. Due to time constraints, some editing had to be done. Even the greatest of playwrights has trouble predicting where the best lines and laughs will occur. Moreover, there are very few roles for women. The students

were warned by a quote from the script itself to expect a certain amount of disillusionment. Djerassi writes, “There are no heroes in this play.”

Following the reading, students remarked this mathematics play was really about “moral calculus. By showing how even small incremental changes over time . . . call them fluxions in our behavior . . . lead to measurable conflicts.”

Other student comments included, “You put Sir Isaac upon the stage and called him by his real name. A country requires heroes . . . unsullied ones. What purpose is served by showing that England’s greatest natural philosopher is flawed . . . like other mortals?” And, “Killing a scholar’s reputation is the same as murder.”

One older student remarked that *Calculus* “is not for the *Hairspray* crowd.” But reading *Calculus* proved to be a memorable in-class experience, only to be followed by the same class making its annual visit to the Huntington Library in nearby San Marino to see a first edition of Newton’s *Principia*. History of Mathematics came alive! ■