The Euler Society Newsletter

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Visit The Euler Society home page at
http://www.eulersociety.org.

Fred Rickey Gives First Euler Lecture

Professor V. Frederick Rickey of the United States Military Academy at West Point delivered the First Euler Lecture on the morning of August 5, 2002 at the E2K+2 conference in Rumford, Maine. Fred titled his talk "A Reader's Guide to Euler's *Introductio*."

Fred began by setting the stage for the publication of the *Introductio in analysin infinitorum* in 1748. That was the same year that Maria Agnesi published her best known work, also an introduction to the mathematics one ought to know in order to learn calculus. (An English edition of Agnesi's book is barely visible on the projection screen in the picture above.) When they studied calculus, Leibniz and the older Bernoullis studied the variable geometric properties of curved lines. Euler, in his *Introductio*, changed the object being studied from curves to functions, a major shift in the paradigms of mathematics.

Fred turned to describing how to read the *Introductio*. He encourages a reader to look for the Context, the Content and the Effect of any reading of an original mathematical text. He needs Agnesi to help give the context of the *Introductio*. The content, he says, is a summary of the work itself. We find the effect when we find where later works derive from the *Introductio*.

Next, Fred changed his definition of the expression "how to read the *Introductio*" and gave us a short lesson in how to read Latin. He says that he reads Latin with an English dictionary, not a Latin dictionary, and demonstrated his technique, using passages from the *Introductio* itself.

During question time, Fred suggested forming a "Slow Reading Group" that would read and discuss the *Introductio* slowly and carefully, over the course of many months.

Fred bravely stepped into the role of First Euler Lecturer when the Chancellor of The Euler Society, Ron Calinger, fell ill in early July and was unable to attend the Conference. Ron seems to have recovered. People who were in the New York area on October 2 were able to attend the Pohle Colloquium heard the talk Ron would have given.

At the Bookstore

June 8, 2004: Venus in Transit, by Eli Maor

Eli Maor is a talented writer of popular mathematics and scientific books. This little volume is about a relatively infrequent astronomical phenomenon, a so-called Transit of Venus, when the disk of Venus passes directly between the Earth and the Sun. Transits tend to occur either 8 years apart or 105 or 121 years apart, in patterns and for reasons described in detail in the book. An eight-year pair is about to occur, in June of 2004 and again in June of 2012.

The pair of 1761 and 1769 was of great importance in the history of science. They gave scientists their first good opportunity to measure the distance from the Earth to the Sun. The 1761 Transit occurred in the middle of the Seven Years War. Nevertheless, France and England managed a small bit of cooperation in trying to take observations of the Transit around the world, and so to use parallax to estimate the distance. The effort had reasonable success, and involved such notables as Mason and Dixon, who later achieved fame in America as surveyors. It was the world's first significant effort at international scientific cooperation.

In 1769, Euler helped coordinate a similar international effort, though Maor mostly omits this aspect of the story. Euler sent a Russian expedition to Siberia headed by one of the political thorns in his side, but chose his son Charles to lead the expedition to take observations at the resorts on the Black Sea. It sometimes pays to get along with the boss.

Maor does his usual good job of simplifying the mathematical concepts, especially ideas like *nodes* and how they make it so that Transits of Venus can occur only in June and December. The mathematical reader will get more out of the book by checking the calculations as much as possible.

The book is a little short on Euler, but it is a good account of the scientific and astronomical issues of his time.

186 pages. ISBN 0-691-04874-6. Princeton University Press, 2000.

Gamma: Exploring Euler's Constant, by Julian Havil

Euler described the value we now call *gamma* as the difference between two infinities, the infinite sum of the harmonic series and the natural logarithm of infinity. The issue came up in the 1730's as he was developing what we now call Euler-Maclaurin series, the subject of David Pengelley's talk at last summer's Euler Conference.

Most mathematics students know, or at least have heard, the definition of *gamma*. Some even believe their professors when the professors say, "*Gamma* is important and interesting." Few learn why. Havil tells us.

The book is rather technical, lots of summation signs, a few graphs and integral signs, and even a continued fraction and some infinite products. The mathematics, though, is mostly elementary, in the sense that it involves mostly topics in calculus, with a little from number theory and complex variables. It is, however, often intricate, so readers had best keep a pencil and more than a scrap of paper handy.

Over the last few years, we've seen books on e, pi, i, zero and now *gamma*. What's left?

266 pages. ISBN 0-691-09983-9. Princeton University Press. 2003.

In the Treasure Room

The Euler-Mayer Correspondence (1751-1755) by Eric G. Forbes

Those of you who read Dava Sobol's excellent book *Longitude* a few years ago might remember the name of Johann Tobias Mayer, an also-ran in the race to determine longitude at sea. Mayer got a consolation price from the English Parliament for his excellent lunar tables. The plan was that if you could know exactly where the moon was, then you could determine time by observing when the disk of the moon passes in front of certain stars. Then, you could compare the actual time to the observed local time and determine longitude. People who pursued this plan for determining longitude were derided as "Lunarians."

Mayer's success in calculating lunar tables depended in part on Euler's work. This book describes what Mayer did, and gives annotated translations of the correspondence that passed between them between 1751 and 1755. They dealt with difficult mathematical and astronomical problems; it doesn't make much sense without Forbes' excellent commentary.

According to Craig Waff, this book has long (about 32 years now) been a standard among historians of astronomy. We Eulerians should know about it, too. My copy cost $50 0n eBay, but it's widely available on InterLibrary Loan, too.

115 pages. ISBN 0-444-19580-7. American Elsevier Publishing, New York. 1971.

Upcoming Events

Euler 2003 – Countdown to the Tercentenary

The Euler Society's next big event is scheduled for Roger Williams University in Newport, Rhode Island, August 10-13, 2003. Activities will begin with a reception the evening of Sunday, August 10.

Roger Williams is actually in Bristol, but we're meeting at their conference center on the other side of the New Hope Bridge in Newport. See the announcement at the end of the Newsletter about how to register. Abstracts, or at least solemn promises to send abstracts, were due May 1, but because the Editor has procrastinated until after the Halifax meeting of the CSHPM, we can actually accept abstracts until June 7. Send abstracts to Ed Sandifer at esandifer@earthlink.net.

We already have abstracts, or at least solemn promises to deliver them soon, from

Ed Sandifer
Fred Rickey
Larry d'Antonio
Rob Bradley
John Glaus
Sam Kutler
Ron Calinger
Craig Waff
Stacy Langton

Call for Papers

The Euler Society calls for papers to be presented at the Euler 2003 Conference, August 4-7, 2002 (See below). Send proposals (title, abstract, presenter and contact information) to esandifer@earthlink.net by June 7, 2003.

Call for contributions

The Newsletter will gladly include short contributions about Euler, his life, works and influence, and we will provide links to longer contributions. Contact the Editor at esandifer@earthlink.net.

The Mission

The Mission of **The Euler Society** is threefold: It encourages scholarly contributions examining the life, research, and influence of Leonhard Euler. In part, these will be set within his times, that is, within the Enlightenment, the rise to European power status of Russia and Prussia, and the growth of royal science academies. **The Euler Society** will also explore current studies in the mathematical sciences that build upon his thought. And it will promote translations into English of selections from his writings, including correspondence and notebooks, in leading up to the tercentenary of his birth in 2007.

The Euler Society Executive Committee

Chancellor	Ronald Calinger	Catholic University	calinger@cua.edu
President	Robert Bradley	Adelphi University	bradley@panther.adelphi.edu
Vice President	Ruediger Thiele	University of Leipzig	thieler@medizin.uni-leipzig.de
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Treasurer	Mary Ann McLoughlin	College of St Rose	mcloughm@strose.edu
Ombudsman (ex officio)	John Glaus	The Euler Society	restinn@midmaine.com

Euler 2003 Conference

COUNTDOWN TO THE TERCENTENARY

SUNDAY, AUGUST 10 – WEDNESDAY, AUGUST 13, 2003
ROGER WILLIAMS UNIVERSITY, BRISTOL, RHODE ISLAND

THE 2003 EULER CONFERENCE WILL BE HELD AT THE ROGER WILLIAMS UNIVERSITY RESIDENCE AND CONFERENCE CENTER. THIS FACILITY IS LOCATED JUST MINUTES FROM HISTORIC BRISTOL AND THE EXCITEMENT OF NEWPORT. DURING E2K+3 YOU WILL BE ACCOMMODATED IN THE CONFERENCE CENTER'S LUXURY BEDROOMS INCLUDING SATELLITE TV, IN-ROOM COFFEE, INDIVIDUAL CLIMATE CONTROL AND DRY CLEANING SERVICES. THE CENTER ALSO OFFERS AN INDOOR HEATED POOL, SAUNA AND FITNESS CENTER FACILITY.

DIRECTIONS:

ROGER WILLIAMS UNIVERSITY RESIDENCE AND CONFERENCE CENTER IN PORTSMOUTH, IS LOCATED 1.5 MILES FROM THE UNIVERSITY'S MAIN CAMPUS IN BRISTOL AND ABOUT 12 MILES NORTH OF THE PICTURESQUE NEWPORT BEACHES, QUAINT SHOPPING VILLAGES AND HISTORIC MANSIONS.

RATES:

FOR ALL FOUR DAYS $329.00
INCLUDES: LUXURY ACCOMMODATIONS, BREAKFAST, LUNCH AND MORNING AND AFTERNOON REFRESHMENT BREAKS.

DAY MEETING PACKAGE: $29.00 PER DAY
INCLUDES: BREAKFAST, LUNCH AND MORNING AND AFTERNOON REFRESHMENT BREAKS.

THERE IS A $50.00 REGISTRATION FEE TO BE MADE PAYABLE TO THE EULER SOCIETY

PLEASE MAKE YOUR RESERVATIONS DIRECTLY WITH:

LORIE PROULX
ROGER WILLIAMS UNIVERSITY RESIDENCES AND CONFERENCE CENTER: LPROULX@RWU.EDU OR WWW.RWU.EDU

CALL FOR PAPERS:

ABSTRACTS ARE PAST DUE TO ED SANDIFER, BUT HE HASN'T MADE THE PROGRAM YET, SO YOU CAN STILL EMAIL HIM UNTIL SATURDAY, JUNE 7 AT ESANDIFER@EARTHLINK.NET WITH YOUR TITLE.

BLURB:

LAST YEAR'S ATTENDEES CAME FROM KYOTO, OXFORD, WEST POINT, CORNELL, MIAMI, WESTERN CONNECTICUT, NEW MEXICO, SAN DIEGO, MAINE, AND ELSEWHERE. THEY UNANIMOUSLY AGREED THAT THE EULER CONFERENCE WAS THE BEST MEETING THEY HAD EVER ATTENDED. EXPECT NEWPORT TO BE JUST AS GREAT.