



The Courier

The Geneva School Parent Newsletter

February 13, 2004

Nota Bene

February 13: Valentine Dance (7 - 12 grade)

February 16: Deadline for regular online application for scholarships via FFNA

February 16/17: No School

February 21: Cheerleader Clinic, 2 - 5 PM

February 25: Deadline for *fastback* online application for scholarships via FFNA

February 27: Progress Reports Sent Home (3 - 12 grade)

February 27: Student vs. Faculty Basketball Game

March 7: An Afternoon of Appreciation - 3 - 5 PM (Parents and students in grades 7 - 12)

March 8 - GPA Meeting - 7:00 PM. Nate Sweet and Michael Eatmon will be talking about how they teach the same period of history to 5th and 10th grade students

March 15 - 19: SPRING BREAK

March 27 - Auction and Dinner - 6:00 PM

Announcements

MOMS IN TOUCH: Moms meet every Monday at 8:15 AM for approximately an hour to pray for The Geneva School - students, parents, teachers, staff and Board. Come as you are to the Grammar School Library

The Geneva School

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Mathematics, Philosophy and Intuition

by Ravi Jain



When I confess to people that I teach 11th and 12th grade students math and physics, they generally feel compelled to tell me their personal feelings on the subject. Though more often than not I encounter people who despised their days in math class, occasionally I run into that individual who loved them and feels touched that I teach such a subject. But seldom do I find the person whose experience in learning mathematics left him emotionally indifferent. Most consider themselves either a "math person" or not one. This

classification of math aptitude is not new, though I hope at Geneva we can produce a third camp of scholars: the mathematically intuitive. In Precalculus, we began the year discussing a quote from Blaise Pascal, a seventeenth century mathematician, physicist, and philosopher.

The reason, therefore, that some intuitive minds are not mathematical is that they cannot at all turn their attention to the principles of mathematics. But the reason that mathematicians are not intuitive is that they do not see what is before them, and that, accustomed to the exact and plain principles of mathematics, and not reasoning till they have well inspected and arranged their principles, they are lost in matters of intuition where the principles do not allow of such arrangement. -

Pascal, Pensees I: 1

Lest you think that Pascal is handily defending a simplistic classification of people into the math and non-math types, Pascal was considered the philosopher of the heart as well as a brilliant mathematician. He does identify how different people struggle with either "mathematical" reasoning or "intuitive" reasoning. But he would not let these people off the hook simply because they struggle. His whole philosophy asserts that a balanced mind requires both aspects of thought.

At Geneva we often discuss our emphasis on the Trivium: grammar, dialectic, and rhetoric. But the Quadrivium was an equally important aspect of classical pedagogy. The fifth century BC Greek mathematician, Archytas, is credited with the establishment of the Quadrivium: the study of arithmetic, geometry, music, and astronomy. The Quadrivium supplemented the Trivium and for two millennia together they defined the seven liberal arts of classical edu-

cation. Though the Trivium emphasizes language, the Quadrivium emphasizes analytical and mathematical skills. At Geneva our curriculum does reflect the classical focus on the Quadrivium. We teach a geometry class, cover advanced arithmetic in Algebra I and II, and the Precalculus and Calculus sequence acts as a strong fusion between arithmetic and geometry. The ancient discipline of astronomy would most closely correlate to modern day physics, while the subject of music is timeless. The analytical skills required of mathematics and science have always been present in classical education. And our students will benefit greatly if we continue to uphold these traditions.

Personally, I never thought I could have so much fun teaching math and science. In the Precalculus, Calculus, and Physics classes we are attempting a different, more classical approach to the subjects. We are trying to integrate a rigorous "mathematical" training with an "intuitive" approach to understanding math. What does that mean? At the end of Precalculus I expect students not only to be able to sketch the graph of the cardioid function by hand, but I also expect them to tell me for what purpose polar coordinates were even developed. Our goal in class transcends simply being able to calculate answers to problems. It is not less than that; I do expect of the students a high degree of mathematical precision. But it is much more than that. I want them to understand how revolutions in math and science have caused revolutions in culture and philosophy. I want them to see the relationship between the Cartesian coordinate system and Descartes' whole modernistic philosophy. I want them to see that math maps to the real world and provides skills and guidelines for critical thinking.

In light of these goals, I have tried to expose the students to primary works of mathematicians and philosophers. In Precalculus they have read from the works of mathematicians ranging from Ptolemy's Almagest to Descartes' Discourse on Method. In Physics we have read and discussed some of the insights of Copernicus, Kepler, and Newton as well as outside articles commenting on the philosophy of science. How did each of these scientists build on the works of the others? How did they see things differently from others and have perspectives that would eventually lead to revolutions in science? We are trying to integrate the philosophy of science and the history of math into the fabric of the subject. In addition, there are so many ways that these subjects lead right into physics. Part of the goal is to help the students see that all of these different disciplines represent perspectives on the whole

of knowledge of God and His universe. We are looking at the same ideas through different lenses.

Though the subject matter in upper level math and physics is not easy, it is very rewarding. It has such an immense explanatory power that students often find the topics thrilling and invigorating. "I'm really glad that I took this class," commented one AP Physics student a couple of weeks ago. The course pace in AP Physics is rigorous and the material is challenging. But the concepts learned allow the students to see so many fundamental linkages between the disciplines and explain such varied phenomena that occur in the natural world that it often gets exciting for the students. On the other hand, many students find Calculus



Ravi Jain teaches Pre-Calculus, AP Calculus, Physics and AP Physics to Geneva's 11th and 12th grade students

less difficult than the math classes which precede it. And exclamations of wonder are very common in the Calculus classroom. Modern math education is really designed from the top down with every skill from elementary school to 11th grade designed to prepare students for success in Calculus. It is the great thesis which ties together the whole corpus of pre-college mathematical education. So students who previously wondered why they had to spend so much time factoring equations or studying logarithms fall silent in wonder when observing their own prowess in the effortless completion of Calculus. In some ways, Calculus is the goal for which these students have been training for the past eleven years.

And it is quite a thrill when they can see all of their math careers tied together in the pinnacle of one course. The Calculus and upper level physics classes apply many things that the students have learned over the course of their education. And in a way, it represents the opportunity to polish their skills and to refine the truth they've learned with goodness and beauty.

Our objective is not easy: to create both intuitive and mathematical thinkers. But those who can think in this way are truly unique and remarkable. They possess an advantage and a perspective that cannot be equaled nor can it be feigned. I believe this to lie at the core of true genius. And though learning to think in this way does not come without work, it is a pearl of great price for which one should not hesitate to sacrifice much. As a school educating classical Christian scholars, we seek to teach our children to love the Lord with all of their minds. I believe training students as mathematical and intuitive thinkers is a part of helping them realize their God-given potential. And it is thus an integral part of their pursuit of an ever-deepening ability to worship God with their whole minds.

VARSITY BASKETBALL

by Coach Dan Harger

Last week, both varsity basketball teams wrapped up the 2003-2004 season with their longest road trip of the year. With their faithful band of cheerleaders in tow, the teams made the one and a half hour trek to Leesburg to take on The First Academy. Unfortunately, neither the boys nor girls were able to end their seasons with victories. In fact, both the boys' and girls' teams finished below .500 (less wins than losses, for the athletically unversed). The general consensus from these teams supporters, however, is that the teams could not have been more successful. One parent put it best when she said, "the kids had fun, improved dramatically, and brought glory to God. If you ask me, we went undefeated".

This may very well have been the most over-achieving bunch of ballers to ever take the court for The Geneva School. To say these kids had heart would be the understatement of the year. Both teams made up for a lack of natural talent with good old fashion hard word and determination. The work ethic of these teams was a reflection of outstanding coaching. The boys' team was led by James Bolar, and the girls' by Katy Cuthbert and Melissa Pierre.

First year coach James Bolar, a former player and graduate of The University of Southern Mississippi, instilled a level of intensity never before seen at TGS. His no-nonsense approach to coaching has translated into efficient practices, well-executed plays, and a level of physical condition never experienced by our students. The future looks bright for this group of budding basketball stars. This year's team consisted of not a single junior or senior, making their success all the more remarkable. Under Coach Bolar's tutelage, the sky's the limit for this team.

The girls' team faced an equally challenging but very different set of circumstances this season.



Having only six on a basketball team may sound like a difficult situation, but it's a lot better than having only four. That's what this team

was facing. With only a week before pre-season practice was due to begin, the entire season was set to be cancelled. The rules won't allow a team to play with less than five. Then, out of the clear blue, two angels appeared. Gingie Maynard and Danielle Wayne literally saved the season by climbing boldly out of their comfort zone and onto the hardwood.

On behalf of the other four, let me just say a heart-felt thank you to Gingie and Danielle for that selfless act. This gesture, though courageous, did not reduce the challenge that lay ahead for the coaches. In fact, now with enough to legally play a basketball game, the coaches were forced to press on, to actually move ahead with the season. Press on they did. Despite the odds, this team scratched and clawed its way to an amazing six wins. While other teams substituted freely, keeping fresh legs on the court all the time, our girls were forced, for the most part, to play every minute of every game. "No rest for the weary", was the theme day after day. When asked at school if they were glad to see this season come to an end, one player said, "I'm so depressed that it's over. That was so much fun". Having an attitude like that, after a season like that, speaks volumes about

the positive and uplifting voice of the coaches. It would have been very easy to cancel games or practices when one of the girls was sick or out of town, but the coaches wouldn't hear of it. The show must go on, and on it went. Despite the odds, the girls not only won some games, but finished the grueling season wanting more.



**COACHES
JAMES BOLAR
KATY CUTHBERT
MELISSA PIERRE**



**Thank the coaches!
Praise the Lord!**



It's a Great Day at The Geneva School

by Martha Tate

Have you ever tried to communicate what is different about Geneva? We have all been there. We have started to try to explain The Geneva School to a friend and have gotten tongue-tied. Maybe for some, it's the classical explanation that is hard. Perhaps it is the part about how learning comes to life at The Geneva School. I often have trouble putting into words the warm, nurturing environment. Well, for all of us, there is good news. Help is on the way.

For the past several months we have been working on a video to help tell the Geneva story. Our desire is to give families more than just a tour of the building. We want to pass on to them the vision for classical Christian education as it looks at Geneva. We want prospective parents to receive a glimpse inside the walls of the classrooms and into the hearts and minds of our teachers. We wanted them to see students experiencing learning, engaged in an atmosphere that leaves them wanting to learn more.

At the same time, we want them to see the end result - that our graduates are so very sufficiently prepared for college and for life.

We are all very excited about the finished product of our video. A talented production team, who has previously worked with Geneva, came on board for this project with great excitement. They worked closely with our staff to help capture the many facets of Geneva that we hoped to cover. The video includes excerpts from administrators, teachers, parents, graduates and current students all telling about Geneva from their vantage points. It portrays classical learning in the flesh, students engaged in theater, art, and sports.

Please begin thinking of people you would like to share the Geneva video with as soon as it comes available.

The video is currently in the process of replication and should be available for mass viewing within the month.



Faculty vs. Students Basketball Game

The Young Cheerleader squad will perform before the guys' game and the Varsity squad will perform at half-time.

Gates open at 5:30 p.m.

Enjoy dinner at the game

Ladies' game starts at 6:00 p.m.

Guys' game starts at 7:30 p.m.

Friday, February 27
The Geneva School Gym

