MARS is too close to the sun during the months of May and June to be observed.

JUPITER is a prominent morning star in the eastern sky before sunrise during May. In June, it rises shortly after midnight and can be seen in the eastern sky for the rest of the night.

SATURN is located halfway between Spica and Regulus, and may be seen as a first magnitude object well up in the sky at sunset. In June it is past the meridian at sunset and sets before midnight.

—— Jimmy Weinstein

THE EDITOR'S BOOKSHELF

One of the best books on astrophysics ever to be written is now in stock at most good bookstores. PHYSICS OF THE SUN AND STARS, by W. H. McCrea may well be called a primer of astrophysics. The first five chapters are taken up with basic atomic physics. Other chapters are on: The solar interior, the classification of the stars, stellar constitution and variable stars. All amateurs should have this book for their shelves.

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Ed. Note

A speech given By Jack Edmonds on April 18, in competition for a Trip to the National Science Fair in St. Louis.

The major part of my exhibit is on Desargues' Theorem. Numerous people have asked me the purpose of the exhibit and of what use it is. The ancient Greek mathematicians considered it degrading to have their work put to any practical use. Fortunately this attitude no longer exists but even today mathematicians worr very little as to whether or not their theories and discoveries will find application. Nevertheless they usual ly seem to.

Take for example the non-Euclidean geometrys. They are merely products of fertile imagination and were not thought to be of use to anyone. Now they play quite an important role in Einstein's theories.

Mathematics can stand on its own. The reason for this is that it is deduced from accepted premises. These premises may be arbitrary as long as they are not contradictory. The only tools necessary are a pencil, paper, logic and a little imagination. The finished product is a thing of aesthetic beauty and of fundamental value in art and science. I consider nothing more beautiful than the theory of sets. All that it appears to be is a lot of strange looking symbols, but behind those symbols lie ideas that are basic to all knowledge. Mathematics needs no empirical verification, no experiments or measurements to see if it works. If the axioms upon which it is based work, it has got to work.

For example I recently invented a linkage for trisecting the general angle which is explained in one of the papers included in my exhibit. It is not Euclidean, of course. I have never made a model of it, and to my knowledge no one else has, but there is not the least

bit of doubt in my mind as to whether it will work.

This is characteristic in varying degrees of all the sciences. They have mathematics to thank. The purpose of my exhibit was to give examples of this beauty of mathematical demonstration in a fairly unknown and easily understood field.

Properties of geometric figures may be classified as metric and projective. These properties which are related to the notion of measurement are metric, whereas those which are essentially unrelated to measurement are projective properties. Examples of the former are the equality of line segments and similarity of triangles; projective properties include the concurrence of lines and the collinearity of points. Two or more lines are said to be concurrent if they intersect at a common point. Collinear points are points lying in a straight line. Projective geometry, of course is a study of the projective properties of a configuration.

Desargues' Theorem is as follows:

If the lines joining corresponding vertices of two triangles are concurrent, that is, meet in a common point, the intersections of the three pairs of corresponding sides are collinear, that is in a straight line.

You can see that this theorem involves only projective properties of the figure to which it applies. It is sometimes regarded as the fundamental theorem of projective geometry. There are proofs of it that are metric in character. The proof exhibited however is completely non-metric in nature. This is more desirable from the standpoint of projective geometry. The proof is brought about by the intersection of planes in the third dimension. Then it is projected on a plane point with no change in the so-called projective properties.

In these few minutes I have tried to bring out the glory and independence of mathematics. In closing I would like to emphasize that the importance of mathematics to humanity is in its application to science. Mathematics is an auxiliary science; as E. T. BELL puts it, it is the handmaiden of the sciences. If the sciences didn't bring mathematics out of its ivory tower it would be of no more value than the game of chess.

---John R. Edmonds, Jr.

THE FIFTH WASHINGTON SCIENCE FAIR

In the recent district science fair, many astronomical exhibits could be seen. Among the Junior High School exhibits were a great number of projects demonstrating the fundamentals of the solar system. Other astronomical exhibits on the Jr. High level were:- The earth-moon relationship in three dimensions, a demonstration of how to find the north star with a small telescope using a protractor as a settling circle, and a few exhibits on space travel.

On the Senior High level were several exhibits pertaining to astronomy. Among these was John Lanford's exhibit on Stellar Photography, in which he showed some of the many star pictures he has taken. Along with this he showed his astronomical camera and many explanations about color index, color-temperature relation, etc. There was a three-inch reflecting telescope made from a Harry Ross kit and lunar photographs made with it.

Last but by no means least was Jack Edmond's exhibit on projective geometry. Jack was awarded the first prize in the Applied Mathematics Section and was eligible to compete for a trip to the National Science Fair in St. Louis. For further details on the weighty subject matter of this exhibit see the exhibitor.

- - - Jimmy Weinstein

THE PLANETS FOR MAY AND JUNE

MERCURY is a morning star during the month of May, reaching its greatest western elongation on the 22nd of May. In June, it is poorly placed for observation.

VENUS is a very conspicuous evening star dominating the western sky at sunset, during the months of May and June. It reaches its greatest eastern elongation on the 25th of June and appears gibbous in a telescope.