

## Symmetry and the Monster: One of the Greatest Quests of Mathematics

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## Book reviews

### **Symmetry and the Monster: One of the Greatest Quests of Mathematics**

Mark Ronan

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The book *Symmetry and the Monster: One of the Greatest Quests of Mathematics* describes historical events leading up to the discovery of the Monster sporadic group, the largest simple sporadic group. It also expounds the significance and deep relationships between this group and other areas of mathematics and theoretical physics. It begins, in the prologue, with a nice overview of some of the mathematical drama surrounding the discovery of the Monster and its subsequent relationship to number theory (the so-called Moonshine conjectures). From a historical perspective, the book traces back to the roots of group theory, Galois theory, and steadily runs through time through the many famous mathematicians who contributed to group theory, including Lie, Killing and Cartan. Throughout, the author has provided a very nice and deep insight into the sociological and scientific problems at the time, and gives the reader a very prominent inside view of the real people behind the mathematics. The book should be an enjoyable read to anyone with an interest in the history of mathematics.

For the non-mathematician the book makes a good, and mostly successful, attempt at being non-technical. Technical mathematical jargon is replaced with more heuristic, intuitive terminology, making the mathematical descriptions in the book fairly easy going. A glossary of terminology for

the more scientifically inclined is included in various footnotes throughout the book and in a comprehensive listing at the end of the book. Some more technical material is also included in the form of appendices at the end of the book. Some aspects of physics are also explained in a simple, intuitive way. The author further attempts at various places to give the non-specialist a glimpse into what mathematical proof is all about, and explains the difficulties and technicalities involved in this very nicely (for instance, he mentions the various 100+ page articles that appeared in the hey-day of finite group theory, indicating the enormous technical nature of the subject).

The book nicely paints a dramatic landscape leading up to the discovery of the Monster group, and the problems that remain to this day in trying to understand its significance. One can really take from this book a feel of the mathematics leading up to its appearance, and the importance of the classification problem which was responsible for this. One also really gets an appreciation of the efforts and commitments of the mathematicians who contributed to the subject.

All in all, this book achieves a nice balance between providing a beautiful historical account of group theory, and explaining the classification problem for finite groups in a way that is accessible to non-scientists. This should prove to be a good read for both the layperson interested in mathematics or mathematical physics, and also both mathematicians and physicists alike.

### **R J Szabo**

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