

étrie des espaces de Riemann. Only in the closing notes do the authors unbend and approach showing the beginner what differential geometry is all about; on the other hand there is not enough advanced material to really serve the expert as a reference book.

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Introduction to knot theory. By R. H. Crowell and R. H. Fox. Ginn and Co., Boston, Mass., 1963. 10+182 pp. \$8.00.

It takes a bit of hunting to find any reference to the real world in most modern books on topology. The roots of knot theory however are in our physical world, so that it is not surprising that this introduction to knot theory places itself in the position of attacking a "practical" problem. What is surprising is the degree of practicality maintained throughout the book, for it is frequently the case that a mathematician's solution to a *real* question is useless from a pragmatic point of view.

The mathematician who is unfamiliar with knot theory, but familiar with topology will find in this book an emphasis which may be foreign to him, that is, given a knot (say by a photograph) the absorption of the contents of this book makes relatively easy the actual computation of invariants of the knot.

The mathematician who is unfamiliar with topology will find this book an excellent starting point. The juxtaposition of a theory with its applications makes for interesting and instructive reading. It is often very hard to understand a theorem in vacuo, and this book is so well knit that this unfortunate state of affairs is generally avoided.

It must be said that although the foregoing comments may seem to imply a rather special and simpleminded sort of mathematics being done in this work, such is very definitely not the case. Although the distinguishing of knots sounds innocent enough, the mathematics used is occasionally quite general, occasionally quite sophisticated, occasionally quite interesting, and always precise. That is not to say that the book is of a formal character; it is formal only when it needs to be, formality for its own sake is carefully avoided, a virtue which is unfortunately not universally agreed upon as such.

Reluctance to buckle down and *learn* the theory put forward in this book will not prevent the reader from profiting from a reading. There is often a good deal of informal discussion prior to making a definition or a proof, and this makes it possible to learn about the subject without wading through yards of notation. On the other hand this aspect of the presentation also makes it possible to better understand the details of the subject.