Book Reviews

Reviews in Graph Theory, edited by William G. Brown, American Mathematical Society, 1980. Volumes I, II, III, IV (paperback).

Certainly one of the foremost tasks facing any researcher is to determine what is already known about his problem. This task is particularly difficult in graph theory research as there are many periodicals that publish such work. Of course the American Mathematical Society has been performing a great service for many years by publishing *Mathematical Reviews*. Thus to a large extent this literature search problem has been solved. However if one is specifically interested in graph theory, then one would need all the volumes from the start in 1940 to the present. In addition, one would have to do a great deal of "hunting" to find the references to his problem. William G. Brown has done that job for everyone by publishing a four-volume paperback edition of *Reviews in Graph Theory*, which covers the first 56 volumes of *Mathematical Reviews* (1940–1978). These 7-inch by 10-inch paperbacks are the most handy and useful tools that any graph theorist could own.

Perhaps the content alone of these four volumes explains how worthwhile they are. However, I shall make a few further comments. Clearly the key to the utility of such a compendium is the classification scheme. It becomes obvious by looking at the contents that Brown gave a great deal of thought to the classification process. The entire subject of graph theory is broken down into 27 major categories and 530 subcategories. These major topics are well chosen and agree with many of the chapter headings that one finds in books on graph theory. Since any two people who tried to compile such a list of major topics would probably arrive at different answers, it seems very foolish to comment on the choice. However, I do think that the choice of categories is excellent. In addition to these graph theory subjects, the four volumes contain a general category which includes books and bibliographies. There is an author index and a subject index. Also it contains a "key" index which gives information on collections, conference proceedings, problem lists, and obituaries. There is an extensive section on "information for the reader" and a form for readers comments.

My own personal experience in using these four volumes during the past few months is that of delight. They have become a very important tool for me, and I recommend that every graph theory researcher own them. Examples abound as to their value. Recently I found the answer to a question that was given as an unsolved problem in one of the famous graph theory books. Since I needed the result for something I was doing, I was very pleased to have found it so easily.

The only fault I could find was the difficulty in learning to use the cross references. For example, in subject category 054 on page 222 of Volume 1 the review numbered 46#5177 refers the reader to an author's related paper only identified as 37#5124. No information is given regarding its location. I had to look in the author index to find that this other work was located in subject category 290. But this is a very minor complaint since I did find what I wanted. In summary, therefore, I would say that these four volumes are very well organized and an indispensable tool.

I hope that they will be updated periodically.

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