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# CD-ROM Review

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**Title: *Raising Public Awareness of Mathematics* by Ronnie Brown  
Centre for the Popularisation of Mathematics, Bangor. Price £5**

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This CD-ROM is designed not for the specialist mathematician but is aimed at members of the public with the purpose of raising public awareness of the role and methods of mathematics. It comes as a stand alone application on CD-ROM, structured into four parts titled, raising public awareness of mathematics, Geometry and Topology, Mathematics and Knots exhibition, and Symbolic Sculpture. First I'll deal with the content of the package and secondly the form of the software.

The first section is titled "raising public awareness of mathematics". This contains an introduction to the CD and the philosophy of raising public awareness of mathematics. Next are seven posters by Stephane Durand with some explanatory text expanding on the themes. Five of the posters use examples from mathematical biology (the others mention snow flakes and the big-bang) with what seems to be an emphasis on Fibonacci numbers and the Golden Ratio.

The second section explains some geometry and topology, the usual candidates (Möbius band etc) are present and these ideas are made concrete with links to the sculptures in section four.

The third section, the Mathematics and Knots exhibition, explains some basic knot theory. Although self contained, in the sense that this material is derived from an exhibition, it continues the theme of pure mathematics and topology.

The last part of the material, titled Symbolic Sculptures, is devoted to the work of the sculptor John Robinson. There are galleries of images and animations of his sculptures with corresponding information about their relationship with Geometry and Topology. This I very much enjoyed, although my taste would have been better satisfied with more mathematical information! This criticism is unfair though in a CD of this nature, more information would almost certainly overwhelm a non-mathematician. The images and animations will certainly be interesting to students of contemporary art and the general public.

Overall the emphasis is on topology, knot theory and the CD has a pure feel. Perhaps not an obvious choice for the would-be proponent of mathematics for the general public but over all I think it achieves its aims very well without swamping the reader in detail. The links to sculpture and art make the material contemporary and adds relevance. Thus aspects of these abstract pure topics have been given real physical existence.

The CD itself contains a stand alone application which guides the user through the material via a series of buttons which I found hard to use and didn't particularly like. Let me elaborate. Firstly the authors have chosen a fixed format with a series of individual pages, each

linked by a series of buttons. This gives the package the feel of an electronic book. In particular it is impossible to resize the fonts and the default text (small dark writing on a grey graded background) was very hard to read. The scanned images of the posters contained very small black writing on a white background which was even worse. Given that the material is collected from a website this is a real pity. Perhaps the authors could include the text from the posters in a re-sizable format. Anyone who is visually impaired, or who has a good internet link might prefer to look at the material online instead, at [www.cpm.sees.bangor.ac.uk](http://www.cpm.sees.bangor.ac.uk). Of course one could provide the facility to resize the material by including the website itself with larger animations on CD-ROM and view them through a browser.

Secondly the buttons were not consistent or obvious. For example to get from within the Mathematics & Knots text to the Main Menu one has to return to the Start page. Other sections have a Main Menu button at the bottom. Exit, sometime present, means close the application. Surely a return to the Main Menu throughout would make more sense?

Thirdly some of the animations didn't want to stop and a re-boot was necessary. Perhaps this is a function of my machine only but it was frustrating none the less, and the website animations don't seem to suffer these problems. (For reasons explained below I wasn't able to view the animations on another computer which does not have access to the Web).

So, the format got a big thumbs down from me. Certainly a CD helps people without fast web access view the animations which must be huge files. However, one still needs to download and install some separate proprietary software from the web, if you have not already done so. Without the animations there is little difference, except perhaps the cost, between the CD in its chosen format and a traditional paper based book.

Of course this might leave the reader with a very negative view of the package. More important, of course, is the content and that (I'm glad to say) is very much worth reading. In summary: an interesting subject and CD. If you find the CD itself hard to obtain certainly look at the website which contains much of interest.

### Response from the developers Mike Yates and Ronnie Brown

Over 3000 copies of this CD have so far been distributed, and we have had an enthusiastic response from people ranging over research mathematicians, designers, the general public and teachers. In particular, young viewers have found fresh aspects. For example, from a student:

*I was very pleased to receive your CD ROM and even more pleased when I had a go on it. It's like an encyclopaedia - it must have taken a load of effort! The animations are fantastic and make it far more appealing, visually. The one that really amazed me was the rotating rod and ball that morphed into what seems to me to be an analogy of inter-dimensional trafficking. I think I will have many fun and mind blowing hours studying it! Thanks very much!*

Any software is capable of improvement and we hope to have the opportunity to incorporate improvements in the future, in particular following up some of the reviewer's remarks. We will turn to these at various points in this reply. First, we have to take issue with those criticisms we believe to be unfair.

The major reason for the CD is to make the web sites and animations available for those who have a good computer but who do not have fast and free internet access to UK web sites. For the immediate future, this will obviously be a standard situation - a reviewer of a CD for the public should be aware of this. We have even had complaints from EC mathematicians about problems with downloading graphics from our current web sites. In particular, the internet is quite unsuitable for the large and beautiful animations which are a major feature of this CD, and which evoke general acclaim. These full-screen animations each inhabit several megabytes of digital space and would take ages to download.

Using a browser format is a perfectly good idea and was our original plan. We felt, however, that the method chosen improved and uniformised the look and feel of the three disparate web sites involved, as well as allowing the display of the large animations. Using the browsers has its pros and cons. Certainly, one of the pros is the ability to adjust text size.

The reviewer states:

*However, one still needs to download and install some separate proprietary software from the web, if you have not already done so. Without the animations there is little difference, except perhaps the cost, between the CD in its chosen format and a traditional paper based book.*

We agree with the first point, but, fortunately, the necessity to have internet access is something which Apple have agreed to help us remove in the next version of our CD.

The second sentence seems a strange remark since the animations are a large part of the justification for the CD. But here we would like to take up another point. The web sites, which the reviewer refers to and on which this CD is based, arose exactly because of the ridiculous expense of producing the material in book form. So to dismiss an inexpensive electronic book even without the animations is not correct.

Finally, we come to points with which we agree.

*Secondly the buttons were not consistent or obvious. For example to get from within the Mathematics & Knots text to the Main Menu one has to return to the Start page. Other sections have a Main Menu button at the bottom. Exit, sometime present, means close the application. Surely a return to the Main Menu throughout would make more sense?*

Fair enough - comments like this are very useful for later editions.

*Thirdly some of the animations didn't want to stop and a re-boot was necessary. Perhaps this is a function of my machine only but it was frustrating none the less, and the web site animations don't seem to suffer these problems.*

No, it is not just the reviewer's machine - we had to use a similar machine for a presentation, so we sympathise! We think the cause was an antiquated CD drive. This only occurs with the full screen animations, which are not available on the web site because they are far too large.