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Book design and production Rod Lawton

Cover design Frank Bartucca

Authors Steve Faragher, Davey Winder

Introductions Steve Jarratt, Matt Bielby

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Amiga Format November 1994

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FLIP THIS BOOK OVER!

General introduction

Why we've produced this book

Welcome to "Get into CD-ROM, Get into the Net", your free book given away only with the November issue of Amiga Format.
But just because it's free, don't imagine it's only worth a quick glance and a trip to the bin.
Take a closer look! CD-ROM and comms are big news right now. They are the two biggest things to happen to computers in the '90s. CD-ROM is important because it offers vast storage at minimal cost. This has opened up the doors to fantastic digitised graphics, video clips, CD-quality sound and a whole new world of interactive entertainment.

The Net is just as important. Perhaps even more so. Ten years ago if you had a modem you also had NHS specs, a Parka and no friends. Today, you have a key to a global information network of breathtaking scope and potential. Today, modems are easy to instal, software is cheap to obtain, and phone charges are lower in real terms than they've ever been. And joining the Internet is like opening your front door after spending your whole life locked in your house...

What's in it

Take the time to read this book. You'll find out everything you need to know to understand and take your first steps in these two important new areas.

You'll find out how CD-ROMs work, what models are available for your A1200 and which one you should get.

You'll also find out how modems work, what software you need, and how to get started. Simple.

The chapters in this book are excerpts from two brand new Amiga Format books:

A1200s, CD-ROMs, and the Things You Need To Know

Internet, Modems, and the Whole Comms Thing

We chose these excerpts because they will help you get started and they are useful on their own. But when you want to know more, you know where to go, don't you? See the enclosed order card for special offers on these books...

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leading magazines for so long (well, why be modest?) we've developed very clear ideas on what our readers want, and we've carried these ideas through to our books.

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An obvious one, this. Wherever there's a tip to save you a few minutes, a few quid, or even a few sleepless nights, here's how we mark it.

Speaks for itself, really. When you see this sign, do make sure you read the text alongside. It could save you money, save you time and even save your sanity.

Where we think a technical term needs an on-the-spot explanation, this is how we mark it.

"Get into CD-ROM, Get into the Net" is your first step into the future. It hasn't cost you anything and it won't cost you anything to read it. But it may well change the way you use your Amiga. It may even change your life!

Steve Jarratt

A1200s, CD-ROMs, and the Things You Have To Know by Steve Faragher

Excerpt introduced by Steve Jarratt, editor of AMIGA FORMAT

Amiga Format November 1994

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Preface

This covermounted book contains a section from the brand new Amiga Format book "A1200s, CD-ROMs, and the Things You Need To Know". In this section you'll find out how CD-ROMs work, what products are available for your A1200 and which is the best option for you. The results might surprise you. And some of the possibilities too – for example, did you know your A1200 could play most CD32 games? And audio CDs? And even many CDTV titles? And Photo CD too? We thought you'd be interested...

How this book will help you

This sample book will help you do two things:

1) Decide whether you want CD-ROM

2) Choose which hardware option to go for

It will also give you a taste of "A1200s, CD-ROMs, and the Things You Need To Know". If you've just got a CD-ROM for your A1200, you need this book to find out exactly what it can do for you.

Apart from the theory of CD-ROM and the hardware you can buy, "A1200s, CD-ROMs, and the Things You Need to Know" also tells you:

- What games you can get, where you can get them, how much they cost and whether they're any good
- What serious CD-ROM software is available and where you can get it
- What software and hardware manufacturers are planning for the future
- How to take care of your CD-ROMs

That's not all. The book itself comes with two CD-ROMs! One is for games fans, and is the disk supplied with the latest issue of Amiga Format's sister CD32 magazine. The disc is packed with spectacular games and demos designed for the CD32, but compatible too (with only a few exceptions) with both the official Commodore CD-ROM drive and the Archos drive.

The other CD is a massive compendium of top Amiga PD and shareware, put together by Almathera. This disc contains a LOT of useful Amiga software. Certainly a lot more than we've got the space to list here.

So there you have it. Once your A1200 has CD-ROM capability (or you've upgraded your CD32 to an A1200 with the excellent Microbotics SX-1 kit!), "A1200s, CD-ROMs, and the Things You Have To Know" will tell you everything you need to know about CD-ROM *and* provide enough software to keep you busy!

Steve Jarratt

Commodore and CD-ROM

Commodore have always had a strong commitment to CD-ROM. In early 1991, Commodore launched the ill-fated CDTV. This machine was touted as the complete home entertainments system.

CDTV Doesn't stand for Compact Disc Television, as you might expect, but instead means Commodore Dynamic Total Vision. This box containing an A500 and a CD-drive, with an infra-red remote controller, was a flop.

CDTV was supposed to appeal to people who weren't especially interested in computers. This was reflected in the design; CDTV looked more like a hi-fi unit than a personal computer. Unfortunately for Commodore, their idea was a little bit ahead of the times. Compact discs are only now a coming force, and the CDTV flopped. Basically, CDTV was an Amiga 500 with a couple of extra on-board ROMs to help run the CD drive. Thus it came as no great surprise when Commodore announced the A570 in late 1991.

The A570 was a CD-drive for the A500 and the A500Plus. It was basically the drive from a CDTV with a couple of bits of software on ROM to make it work.

ROM is Read Only Memory. ROM is unalterable memory. Unlike RAM which is wiped out every time you switch the Amiga off, ROM retains its contents no matter what.

RAM (Random Access Memory) is simply memory that can be altered and is used to store information while your Amiga is running. Software is loaded from CD, hard drive or floppy into the Amiga's RAM. The A1200 comes with 2Mb of RAM as standard.

There is an interesting parallel to draw here with what is happening today. In late 1993, Commodore launched their brand new baby, the CD32. Designed for a non-computer owning generation, it looked like a games console, significantly having no keyboard or floppy drive. But inside the CD32 is an A1200 with a few extra ROMs with the information necessary to run a CD drive. Sounds familiar, eh? So the logical and expected thing to happen was for Commodore to announce within a few months that the CD drive that was inside the CD32 would be available as a stand-alone device for the A1200.

Well, finally this is the case. But not until after a good deal of prevarication from Commodore. Commodore, it seemed, were afraid that if they released the A1200 CD-drive, it would harm the excellent sales of the CD32. And

Commodore, in dire financial straits, couldn't afford that risk.

Finally the deadlock has been broken. A French company, Archos, has designed its own A1200 compatible CD-ROM drive and thrown down the gauntlet to Commodore. Now, both drives are available (although only the Archos drive is actually being sold in this country) and for the happy A1200 owner it's just a question of which to choose.

The next few pages will hopefully help you out with that decision. As well as introducing you to all the basic concepts behind CDs and CD-ROM drives, they will answer lots of your questions about CDs. How do they work? How are they different from floppies? Why are they read-only? How good are they, really?

CD-ROM is no longer the way of the future, it's the way of today. Everywhere you look there are new publications, new bits of CD hardware, and most importantly, new and exciting CD-ROM software titles. The CD revolution is finally here.

So make sure you don't miss out. Come on board and learn about today!

CD-ROM background

Ever since the invention of the phonograph by Thomas Edison in 1878, we have sought to record information for later retrieval. Over the years we

have seen a vast range of storage media come and go – from the gramophone to magnetic tape and on to the floppy disk.

Most of these forms have been used at some time or another by computers for the storage of data in digital form. Without such storage, computers would be useless. As the power of computers has grown, so the demands placed upon the storage media has grown with them. No sooner is a form of storage lauded as the 'next big thing' than it's already starting to show its weaknesses.

This is exactly what has happened with the floppy disk. The very first Amiga used a 3.5-inch floppy, and this at the time was seen as a revolutionary move, one that enabled Amiga owners to place 800K of data on a single disk, as compared to the then standard 360K on a 5.25-inch floppy disk.

Over recent years as the size of applications for the Amiga has expanded, so the number of disks required for Amiga games has grown. In the early days of Amiga computing it was quite unusual for games to come on anything more than two disks. Recently games such as Innocent until Caught have come on 15 floppies!

With this background it is no surprise that companies have started looking towards CD as the storage medium of the future. A single CD costs about as much as a floppy disk to produce, but can store 660Mb of data compared to the

floppies' 800K. This means that a CD can store as much information as 825 floppies.

Philips announced the introduction of their brand new product, the Compact Disc, in 1981. By 1983 CDs were in full production and other companies around the world risked serious injury as they launched themselves onto the rolling bandwagon.

The information on a CD is stored digitally, in the same way as computers store their information, so it comes as no surprise that CDs are now so roundly, and correctly, touted as 'the next big thing'.

The only real surprise about computers and CDs is that it has taken over a decade for the possibilities to really catch on. These possibilities were surely obvious from the start, so why has it taken so long?

One possible answer is the cost of investment. Not the cost for the electronics giants who have poured money into CD from the start, but the cost of investment for the home computer owner. Traditionally, CD drives have been expensive. It's the same with all new kinds of electrical hardware – as they become more commonplace and more widely purchased, the consequence of mass-production is that they get cheaper.

CDs themselves have never been expensive. They are made from relatively cheap raw

materials and as the technology has advanced so their cost has decreased even more.

The same has not been true of lasers. As we shall see later, lasers are essential to the successful performance of CD drives and this technology has been slower in falling in price. This has made CD drives relatively expensive. Even now, a new CD drive will cost you twice as much as a floppy drive.

Another reason for the slow take-up on CDs may be their relatively slow data transfer rates. Traditionally, a CD could only deliver 150K of data per second. Nowadays, with double-speed CD drives, this is up to 300K per second. Even so, while both of these compare reasonably favourably to a floppy drive, they are still slower than a hard drive.

Double-speed drives are twice as fast as your average CD drive, meaning data transfer rates of 300K per second instead of 150K.

The final flaw with everyday CDs is that is still not possible for users to write any data to them. They are a read-only medium. This is certainly true of the two CD drives immediately available for the A1200. There are WORM (Write Once, Read Many times) drives available, but the cheapest of these is still a very expensive proposition for the average home enthusiast.

WORM drives let you write onto CDs. You can only do it once, as the name suggests, and after that your CD is the same as any other. This process is still fairly expensive.

There are two things going for the CD, though. As previously mentioned there is the enormous amount of data that a CD can hold. As well as this there is the fact that CDs are now becoming a dominant format across the whole spectrum of home entertainment. From the now familiar Audio CDs to the relatively new technology of Kodak's PhotoCD, compact discs are the ubiquitous medium of the 90s and beyond. They are no longer avoidable.

Kodak's PhotoCD is a format enabling pictures to be stored on compact disc.

You can now buy a PhotoCD camera and using one of the many PhotoCD developers, such as Boots, around the country (most towns now have someone who can do this for you) you can put your pictures onto CD. This means that you can also put them straight into your computer's memory. Pretty handy, huh? This is a very cheap option for having your own pictures made ready to be incorporated into desktop publishing packages when compared to most scanning bureaux. It's also a handy way to keep your slide

selection ready for boring your friends and relatives. And you can view them on your TV!

Ordinary CDs are only 'single session'. Each CD has a directory of its contents. This directory is placed at the beginning of the CD and is like an index, listing all the contents of the disk and telling the CD-drive where to find them. Kodak had to develop the multi-session CD when they launched their PhotoCD. Because you can have pictures added to your PhotoCD several times before it's full, the CD has to have a new directory added each time. A single-session CD-drive will be unable to recognise these new directories and you will only be able to use the contents of a small part of the disc.

CD-ROM and the future

There is a revolution taking place in home computing. Suddenly the press, both the computer-specialist press and the mainstream, have taken notice of the compact disc as a computer storage medium. As a result of this, words such as 'multimedia' and 'interactive entertainment' have become buzzwords.

On the Amiga scene, most attention has so far been grabbed by the CD32. This was the world's first 32-bit CD games console when it was released. It was thought that the increased

storage capacity of the CD would allow a whole new generation of games to be born. Dissapointingly, though, most of the releases for the CD32 so far have been re-workings of old Amiga games, so that other than flashy introductions, the CD32 has offered little new to the Amiga world.

There are one or two notable exceptions, however. Microcosm from Psygnosis is a much talked about game. The story is a version of the old film Fantastic Voyage. You are miniaturised and injected into a human body, where you must seek out and destroy enemy invaders. Microcosm was developed over 21 man years by Psygnosis using a team of 30 people, including programmers, researchers, artists, sound technicians, props builders, costume designers, co-ordinators and designers. More than 44,000 frames of animation were developed for it. Unfortunately, in all their excitement Psygnosis overlooked a vital element – gameplay. Microcosm is, however, still a stunning demonstration of what can be acheived with CD technology.

Another game developed specifically for the CD format is Mindscape's Liberation. A similiar amount of time has gone into its development, but Mindscape have managed to make it an extremely playable and interesting game as well. Liberation is a quest through a future city to free a wrongly accused prisoner. You take control of

four androids and guide them through the many buildings in a three-tier city, using taxis and avoiding the police, whether they are on foot or in helicopters. Liberation has over 50Mb of graphics, 6 hours of digitised speech, 30 minutes of full orchestral music, animated characters with individual personalities and more than 4000 levels. According to its creators, it would take more than a single lifetime to complete.

Just because the CD32 has been developed first by Commodore, it doesn't necessarily follow that all CD applications are games. There are a wealth of other possibilities out there.

If you take a look through one of the new, CD specicifc magazines that have appeared, such as CD-ROM Today, you will soon realise that there's much more to CD-ROM than increased storage capacity for games. Reference works of all kinds, in particular, are very well-suited to being given the interactive treatment.

There are a long list of titles now available on the more established Macintosh and PC CD-ROM markets that should soon make their way to the Amiga. The range of reference titles is impressive. For example, there are recipe cookbooks of the rich and famous. There are wine choosing programs that will consider your menu for the evening and not just suggest a few wines that would go well, but give you a history of the region the wine comes from, and display the

label of the bottle so that you'll have no trouble recognising it in the supermarket.

There are fitness programs with video footage to show you how to perform your exercises and questionnaires to help you monitor your progress towards the leaner, fitter you.

There are atlases, dictionaries, encyclopaedias and astronomical charts. There are talking books for children. And recently there has been a move by some of the more experimental musicians to get into CD-ROm as well.

Peter Gabriel, David Bowie and Symbol (who used to be Prince, of course) have all jumped on board the CD-ROM bandwagon, releasing interactive versions of their music. Ice-T is planning to do one later in 1994. In these music CD-ROMS you are typically given an artificial environment to explore. In certain areas you'll find video footage of the stars talking about their music. In other sections you'll find videos of their work which you can display on screen.

About the most interactive these music titles have yet become is in the mixing-room sections, where you can re-mix all the levels of the instruments in particular songs. You like guitars? Well turn 'em up! You like drums? Do the same! You don't like the way Pri.., sorry, *Symbol*, sings? Well turn him off and listen to the music without him. It's in the provision of this sort of power

that CD-ROM starts to show its superiority over books or ordinary music recordings.

The Amiga is not yet so well catered for in this more serious side of the CD revolution. There are admittedly some titles hanging around from the CDTV and the A570 (Commodore's CD drive for the A500) that will work with your new A1200 CD-ROM drive, such as Hutchinson's encyclopaedia, or Illustrated Shakespeare. When the A1200 CD-ROM drive really takes off, though, you can be sure that there will be many more of these.

How does CD-ROM work?

The way that a CD-ROM drive works is amazingly simple. Ever since the first computers used transistor valves to perform their data processing, computer data has been stored in binary format. This simply means that a numerical system is used that only has possible values, 1 and 0.

The first computer used this binary system of data storage using valves that were either 'on' or 'off'. This basic system has stayed with us, even though technology has dramatically changed. The basic 'on' or 'off' of computer data is represented by a '1' or '0' respectively, in much the same way as some power switches use 1 and 0 to signify on and off.

A CD drive easily emulates this system. The drive spins the disc and shines a light on its surface. At each point on the disc light may be reflected or 'unreflected' to indicate 1 or 0. So how does the CD drive actually recognise these reflected and 'unreflected' areas? After all, if you hold a disc up to the light the whole thing looks reflective, so what's the difference? This is where things start to get a little more technical.

The light-source in a CD-ROM drive is a laser beam. The important thing about lasers is that they only emit light of a single wavelength and all the light waves are in phase (we'll get a bit more into the significance of phases shortly). The light is focused on to the compact disc by various lenses and a prism. When they bounce back from the surface the reflections are then read by a light-sensitive diode.

The disc itself is laid out in a long spiral track – just the same as the groove that runs around a vinyl LP.

There are two major differences, though. Firstly, the CD-ROM's track starts at the centre and works its way out to the edge, and secondly, the track is so narrow that if you stretched it out in a straight line, it would be about three miles long.

As with an Audio CD, the production of a CD-ROM disc involves etching the surface of this spiral – the data track – to produce a series of holes and bumps. The resulting irregularities on

the disc's face are know as 'lands' and 'pits' and it's these that cause the refracted colours you see when you hold a disc up to the light.

When light from the drive's laser strikes the surface of the disk it's reflected back in phase to be registered by the light-sensitive diode. The *pits* on a disc's surface, however, are just 20nm (nano metres) deep – or one quarter of the laser light's wavelength. As this light is reflected back, it is out of phase (because of the extra distance it had to travel into the pit). This creates a cancellation effect, so almost no light reaches the light-sensitive diode.

As the disc spins, the lands and pits are converted into the 1s and 0s of computer data by the light-sensitive diode. The optical assembly (laser source and diode) scans along the length of the disc's track.

A table of contents at the start of the spiral track, similar to that on a hard drive, tells the drive where to look for specific pieces of data, and a servo-motor moves the assembly to the correct position.

The actual data-reading speed has to be uniform across the surface of the disc. As the disc speed naturally increases towards the edge, the main motor must be synchronised to vary the spin speed in step with the position of the optical assembly – effectively slowing the spin speed down as the assembly nears the edge of the disc. On a vinyl LP things were done slightly

differently, and the bumps that were picked up by the needle and translated into sound were simply positioned further apart towards the edge of the record.

The actual time it takes a CD-ROM drive to adjust the spin speed and find data on a disc is called the 'seek time'.

Most drives average between a 200 and 400 millisecond seek time. Although that sounds very impressive, it's still around 25 times slower than a good hard drive.

Another crucial factor in the speed of a CD-ROM drive is the actual spin speed itself. Single-speed drives revolve discs at the same speed as Audio CD players and produce the 150K per second transfer rate discussed earlier. Both the drives available for the A1200 are double-speed drives, delivering a much more respectable 300K per second. In addition, both drives are what is known as 'dual-speed' drives. This means that they are capable of sensing the difference between a CD-ROM disc and an audio disc and slowing themselves down to play the Audio CD at its proper speed.

Four ways to get an A1200 with CD-ROM

So, you've made the decision to hop on board the CD-ROM revolutionary tour bus, and now it's

just a question of deciding what kind of ticket you want to get.

As matters stand, you are now faced with four options:

1. You buy the official Commodore A1200 CD-ROM drive, which may mean ordering it from Germany because of the lack of availability in this country.
2. You buy the Archos CD-ROM drive, which is not officially sanctioned by Commodore but which seems to do the job very well. It is for sale in this country through many diffferent outlets and badged under various different names.
3. You try a little bit of lateral thinking and say to yourself: "Well if the CD32 is basically an A1200 with a CD drive already built in, then why don't I buy some kind of kit that provides me with a keyboard and a floppy disk drive?"
4. You wait for a couple of months and see wether the rumours of Commodore's A1800 are true or not. The A1800 is supposed to be an A1200 with an integral CD-drive that rumours suggest will be priced at around £399.

Over the next few pages we'll explore all these options and try to decipher what they each have to offer you, starting with a brief overview of each drive and finishing with a blow-by-blow account of the relative advantages and disadvantages of each option.

1) Commodore A1200 CD-ROM Drive

Commodore's official offering is a double-speed, multi-session drive. This means that it is able to transfer data at about 300 Kilobytes per second and that it is compatible with the Kodak PhotoCD system. The actual drive is a Sony one, combined with Commodore's own technology. The drive has a lifting lid, just like the CD32, which reveals the space for the CD to be placed in when it is raised.

After much speculation about the Commodore drive's existence, it was launched at the 1994 CeBit computer show. The drive is cream-coloured, to match the A1200. It has an independent power supply and a connecting lead that plugs directly into the A1200's expansion port, through the blank panel on the right-hand side of the 1200. The Commodore drive is also equipped with a headphone socket and a volume control on the left side.

At the moment the A1200 CD-ROM drive exists, but is peculiarly not for sale. Commodore's recent financial difficulties (they have been in voluntary liquidation since June 1994) means that they have no cash to spend on a marketing exercise to promote the A1200 CD-ROM drive. More than this, although Commodore UK is rumoured to have a small stock, it has no way of manufacturing any more. It may well be that Commodore UK is saving

these drives up for the future, figuring that whatever happens it will still have some new kit to launch into the shops at Christmas. This would help to maintain its credibility with both its customers and with the army of independent retailers who have been the backbone of all of Commodore's sales.

2) The Archos CD-ROM drive
Zappo version AF rated 82%

Archos are a French company who specialise in Amiga products. Their range of Overlander hard drives for the Amiga are well known and respected throughout the industry. Their new CD-ROM drive is being distributed by many different firms in the UK. Possibly the best known of these are ZCL/Indi Direct, who are distributing the drive under their own brand name as the 'Zappo 1200 CD-ROM drive'

The drive is based around a Mitsumi CD-drive, and Archos have provided all the extra software and hardware to make it Amiga compatible. The drive comes in a cream-coloured case and has a front-loading tray for the CD. Just like the Commodore drive, the Archos drive is multi-session and double-speed, meaning that it will happily support standards such as Kodak PhotoCD and Audio CD.

But Archos don't have access to Kickstart 3.1. This is the new version of Kickstart that enables

the A1200 to recognise a CD-drive and is built into the Commodore CD-ROM drive. Archos have had to write all their own software to emulate it. This software comes on a seperate, bootable floppy disk. This is installed on to your Workbench disk, or onto your hard drive if you have one.

Kickstart is the series of programs that your Amiga runs when you start it up. These programs handle such things as driving your television or monitor, controlling the floppy drive and so on. The Commodore CD-drive comes with a new version of Kickstart to install on your machine. This enables it to recognise the CD-drive. The Archos drive has programs to handle the drive that are stored on built-in ROMs.

3) Microbotics SX-1
AF Rated 88%

If you fancy lateral solutions to your problems then this will appeal to you. Instead of adding a CD drive to your A1200, why not add an A1200 to your CD drive? Always assuming of course that your CD drive is a CD32.

The Microbotics SX-1 contains all the hardware and ROM-based software that you need for the job and even though one top Amiga

journalist recently described the it as looking more like a shoe box than a state-of-the-art expansion module, it is in fact a very powerful and extremely usable piece of kit.

Inside the very ordinary-looking grey box is a rag-tag collection of chips and connectors that will effectively turn your CD32 into an A1200 with a CD drive. These include:

- A keyboard translator that allows that all important finger interface with yor newly born console-turned-computer.
- A SIMM connector which lets you fit extra SIMMs (or memory modules), letting you increase the size of the CD32's memory from 2Mb.
- A battery powered clock.
- An IDE controller to allow you to fit a hard drive.
- Kickstart ROMs
- Floppy drive controllers
- An RGB output so that the CD32 can finally use a monitor.

Although the SX-1 uses up the expansion slot on the CD32, it has a pass-thru port so that other options, such as the FMV module can be added on at a later date.

An FMV (Full Motion Video) card enables your CD to play films and music videos. It works by decompressing the data stored on a video

disc and decoding it into two separate signals – one video, the other audio – that your monitor or television can recognise. FMV is available as a plug in module for the CD32, but is not yet available for the A1200.

4) The A1800

The final option for the wannabe Amiga CDer is to simply sit tight and wait for Commodore to do the decent thing: bring out an A1200 with an integral CD-drive. Rumours of this likelihood have already abounded and, providing Commodore manage to get themelves out of the finaancial mes they're in at the time of this book going to press, we can expect to see this option appearing before mid-1995.

What's it to be?

The decision as to which of the four options available to you is the right one depends entirely on what you want to achieve and, of course, on what hardware you already own.

For owners of the CD32, the question is whether or not to purchase the SX-1 upgrade and turn the CD32 into an A1200 with a CD-drive, or whether to keep the CD32 as a dedicated games console and buy a brand new A1200. There is surely little question here. As long as there is no

one one else in the house who uses the CD32 extensively, a small brother for instance, there is no good reason to ignore the SX-1 option. It provides all the advantages of an A1200 and absolutely guarantees that you will always have CD32 compatibility. There is a chance that some applications developed specifically for the A1200 and CD-ROM might not work with the SX-1, but given Commodore's incredibly high level of compatibility across its range this seems highly unlikely.

For users completely new to the Amiga scene, or at least to the new generation of 32-bit Amigas, the question again is which of the two options to follow: buy a CD32 and upgrade it to a computer, or buy an A1200 and add on a CD-ROM drive. Given that there is little to choose in terms of price the answer is as simple as working out where your main area of interest lies. If you're mainly interested in the huge range of games available you should probably opt for the CD32 option as you are ensured future compatibility with all CD32 releases. And this is where most of the exciting new games will appear.

In case you're confused by all this talk of 16-bit and 32-bit computers, a computer's processor can only handle so much information at once. 16-Bit processor's can handle 16 bits of information at one time, 32-

Bit processors can handle twice as much. Simple.

If, on the other hand, you have more interest in the wealth of relatively cheap, serious applications for the Amiga, then the A1200 with an optional CD drive is probably best for you.

This leaves you wanting to know which of the CD-ROM drives on the market is the best for you, and this is also true of the many existing A1200 owners who want to just buy a CD-ROM drive.

Archos drive vs Commodore drive

So, which is it to be? What are the differences between the two drives currently on offer? Does the Archos offer good enough compatibility? Is it worth waiting for the Commodore drive?
The major difference between the two drives is that while the Archos drive plugs into the PCMCIA slot on the A1200, the Commodore drive uses the expansion port. The advantage of using the expansion slot is that it will provide full 32-bit data transfer, whereas the PCMCIA slot is only 16-bit. While in theory this will enable the 32-bit A1200 to run the Commodore CD-drive at full capacity, in practice it will make little difference to the rate of transfer.

PCMCIA stands for the Personal Computer Memory Card International Association, a high-powered group representing the major computer companies and which is regulating the development of the PCM card (Personal Computer Memory card). Commodore have included a PCMCIA slot on the A600 and A1200. The card that's supposed to plug into this slot is the size of a credit card. For our purposes, though, it happens to be the slot through which the Archos CD-drive is plugged into the A1200

The major disadvantage of using the expansion port is that it is ordinarily used for adding extra memory and accelerators. The Commodore CD-drive counters this by having the facility to add up to 4Mb of fast RAM plugged straight into it, but any existing RAM that you may have bought will have to be ditched.

In addition, the absence of any kind of thru-port on the Commodore CD drive means that you will be unable to use any accelerators, such as Floating Point Units, that enhance the performance of the A1200.

The Archos drive, on the other hand, uses the PCMCIA slot to attach. This does give it a clear advantage over the Commodore drive. It is perhaps worth noting here that Commodore said in the past that it would be impossible to connect a CD-drive through this slot, Archos have proved

them wrong. While theoretically the PCMCIA slot offers only 16-bit data rates instead of the expansion port's 32-bit, in practice because of the slow speed of all CD-drives it will make no difference to the transfer rate.

The obvious advantage of using the PCMCIA slot is that it leaves the expansion port free to be used for extra memory and accelerators. This could turn out to be a huge blow for Commodore, because the sort of applications that CD-ROM encourages such as multimedia reference works and desktop publishing applications, are just the sort of applications that need extra memory and accelerated performance.

Another difference between the two drives is that the Commodore one actually has the akiko chip while the Archos drive simulates it through software.

The akiko is the special chip in the CD32 that helps it to deal with complex 'planar' graphics, the type that are typically used on PCs. The Commodore A1200 CD-ROM drive has one of these chips on board. The Archos drive emulates it through software.

Both drives offer a very high level of compatibility with existing CD32 and CDTV titles. This is something which should be maintained with new software releases.

Because the Archos drive is emulating akiko through software, however, and does not genuinely posses the chip, there must be the possibility that future software releases will have more difficulty with the Archos drive. The akiko emulation software has already been tweaked several times to ensure compatibility with some CD32 titles. It will obviously not be possible to do this with future releases, unless Archos offer software upgrades to existing owners of their drives.

The final difference between the two drives is that the Commodore CD-drive requires the new version of Kickstart – Kickstart 3.1 – in order to run, while the Archos drive has an on-board ROM that enables it to interface with the A1200. The Commodore drive comes supplied with Kickstart 3.1. However, there are no other significant advantages to using 3.1 so it is no great loss to not have it.

In conclusion then, the choice between the two drives is a difficult one. On the one hand the Commodore drive offers you guaranteed compatibility with all future releases, CD32 games included. On the other hand the Archos drive leaves your expansion port free for some undeniably useful items. The downside to the Archos is that it might not be compatible with some future releases. Indeed the review version tested in Amiga Format 62 would not run three CD32 games: The Lotus Trilogy, James Pond 3

and Ryder Cup Challenge failed to work with it. It must be emphasised, though, that this left the vast majority of CD32 games and old CDTV titles worlking without a glitch.

In the final analysis the decision you make will depend on various factors which cannot be predicted. If, for example you already run an A1200 with an accelerator and an extra 4Mb of RAM then it is hard to imagine that you will throw all that away for the Commodore drive.

Others among you will prefer to buy the product that has the Commodore badge on it, purely and simply for the fact of the ensured compatibility, and the trust you have in the name itself.

How to order these books

"A1200s, CD-ROMs, and the Things You Need To Know" and "Internet, Modems, and the Whole Comms Thing" are the two latest books from Amiga Format. You can order them direct from us using the card enclosed with this sample book. And check it out straight away because we've arranged an excellent deal for you!

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The Amiga is the world's premier low-cost graphics workstation. But its basic power, built-in expandability and ever-widening range of quality software and add-ons mean it's capable of highly professional results. All it takes is the know-how. 'Amiga Desktop Video' shows you how to:

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Δ Manipulate images
...and much, much more

The author, Gary Whiteley, is a professional videographer and Amiga Shopper magazine's 'tame' desktop video expert. In this book he explains desktop video from the ground up – the theory, the techniques and the tricks of the trade.

Amiga Shopper PD Directory

Commercial software is expensive. Which is why more and more users are turning to the public domain/shareware market for their software. You can build a huge Amiga software library for the price of a couple of commercial packages! But first you need to know what software is available. And then you need to know what it does. And then you need to know whether it's any good. How do you find out? You find out here!

The Amiga Shopper PD Directory has been assembled from the first 30 issues of Amiga Shopper. All the PD/shareware reviews since issue one have been collated, compiled and indexed in a single 500-page volume. Programs are divided into categories, reviewed and rated. We name the original suppliers of the programs and we've also included a directory of current suppliers at the back of the book.

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400 pages packed with all the information you need to get the best out of the Amiga's ultimate games creation package! 'Ultimate AMOS' also includes a disk containing all the routines and programs printed in the book, plus four skeleton stand-alone games.

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If you've got an Amiga, you've got the world's most powerful, versatile and cost-effective computer. If it can be done a computer, it can be done on the Amiga. But getting started in comms, desktop publishing, music or any other area of computing is difficult if you don't have a friendly guide. This book is your guide! It covers

every Amiga application, from desktop video to programming, from games to music, explaining the jargon, the techniques and the best software and hardware to buy. And...

- Δ Discover the Amiga's history
- Δ Get to grips with Workbench.
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Pocket Workbench and AmigaDOS Reference

How do you copy files? How do you format floppy disks? How do you move things from one folder to another? If you've just got your Amiga, Workbench and AmigaDOS can be confusing. This handy pocket guide helps you:

- Δ Understand Workbench menu options
- Δ Customise Workbench for your needs
- Δ Make the most of the supplied Tools, Utilities and commodities

PLUS For more advanced users there's a full AmigaDOS 2 & 3 command reference, listing all the commands in alphabetical order and quoting function, syntax and examples. This pocket-sized book contains the essential AmigaDOS reference

section from "Get The Most Out of Your Amiga" in a ringbound, handy edition – and much, much more.

Official Cannon Fodder™ Guide

Sensible Software's 'Cannon Fodder' scored a massive hit on the Amiga in late 1993, and now it's available on the PC and Atari ST.

- Δ Discover hints and tips on how to survive in the Cannon Fodder warzone
- Δ Kill kill kill! Use your firepower and weaponry to turn that green and pleasant countryside a rather nasty shade of red
- Δ Fight your way to victory in each phase of each mission, using our walk-through instructions, annotated maps and screen shots of key moments

'The Official Cannon Fodder Playing Guide' gives you general playing tips plus a guide to every phase of every mission. In the Cannon Fodder warzone, this book will save your life.

The Official Syndicate™ Playing Guide

Syndicate was one of the biggest hits of 1993 on the PC. It combined tough strategy with glorious excesses of violence and sheer gameplay. Electronic Arts have since released a missions disk, 'American Revolt', which adds a further 21

extra-tough missions for battle-hardened veterans.

'The Official Syndicate™ Playing Guide' also covers the Amiga version of the game. The strategy is identical and the solutions to each mission are the same for each version of the game.

If you've got Syndicate, and you're getting murdered, get this book!

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You probably also know about **Amiga Shopper**, sister magazine to Amiga Format and the UK's leading 'serious' Amiga magazine.

And you ought to know about **Amiga Power**, THE magazine for Amiga games nuts – a magazine with *attitude*.

If you haven't checked out either of these magazines, put this book down and take yourself down to W H Smiths right now.

Apart from these magazines there is also Future Publishing's **CD32** magazine, published once every two months and supplied with a free CD-ROM packed with games and demos. If you've got a CD32 or an Amiga with a double-speed CD-ROM drive, you've just got to get this magazine.

And on the subject of CD-ROMs, you should also take a look at Future Publishing's newly-launched **CD-ROM Today** magazine.

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