

## The magazine for members of

**K**M Club



The full report of the new RISC OS computer

> Using Net100 to link laptop and Risc PC

Successful buying and selling at auction online

At the Midlands and South East Shows

Issue 45 — Spring 2003

# EDITORIAL Our Digital Photography Special

In response to members' suggestions we have our first 'Special' edition of Eureka this issue — dealing with digital photography. We offer suggestions for those who are thinking of buying a digital camera and some help and advice for those who wish to improve the results they get, which we hope will also be of interest to film-using camera owners.

This is one of the fastest growing uses for computers and, even though it is still possible just to take photographs and leave all the printing to a camera processing shop, it can easily become addictive and tempt anyone who does more than take the occasional snapshot into wanting to go on to complete the picture themselves.

One of the problems that RISC OS computer users have always faced when wanting to go digital has been the difficulty of connecting the hardware: cameras, printers and scanners, and the inability to use the Windows and Mac drivers provided. The connection problem has now been eased with the provision of USB sockets on the new RISC OS computers now appearing and some software is available from RISC OS suppliers. The best advice is to buy from RISC OS dealers so that you know your equipment will work, even if you may find the hardware cheaper from the PC box shifters.

We realise that photography does not interest every reader of Eureka so there are no plans to devote so much space to it in any future issues. Let us know what you think. Would you like to see more single articles on the subject and are there any other topics you think would be worth giving a special section?

If you would like to contribute an article on any subject remember that it will give you a free extension to your membership as well as the satisfaction of seeing your views in print!

#### **Peter Jennings**

All opinions expressed in Eureka are those of the authors and not necessarily those of the Club or its Committee members and officers.

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Interested in new PD software and want free Club membership?

Eureka is looking for someone to write a regular column reviewing PD software.

If you would like to look at and report on the new programs, just once every three months, you will get your membership of The ARM Club renewed free of charge.

Free membership is available to anyone who contributes to the magazine. You can get three months' free renewal for every issue you have contributed to, which means that a regular contributor need never pay another subscription!

If you're interested contact The Editor by email or letter at the addresses on page 76.

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# **Converting To 32Bit**

If you have bought an Iyonix or thinking of buying an one, you might want to start converting some of your programs to run on the new machine. As I've already written far too much for the last issue of the magazine I'll keep try to keep it brief!

little to do for pure C programs and modules. Further documentation is supplied with the suite.

So that leaves programs and modules written in assembler, which will need converting to be 32bit neutral. The

Following on from his massive introduction to the Iyonix in our last issue, David Ruck now offers some valuable advice for getting your old 26bit programs to run on it.

First, if your program is written in pure BASIC, it is likely it will run without modification. Small changes may be necessary if it runs outside the desktop and uses screen modes with less than 256 colours, as these are not supported by the PCI graphic card (a similar situation to the ViewFinder). However it may run inside a window using my Graphic TaskWindows program (www.armclub.org.uk/free), as this supports all numbered modes.

If the program is written in C, you'll need a copy of Castle's C/C++ development suite or the latest version of *gcc*. The tools default to building 32 bit code, so there is very

process while tedious if you are doing it day in day out like me, is quite straight forward — as long as you choose the easy way!

The easy way is to manipulate the processor status flags using the *MSR* and *MRS* instructions, which are available in all processors from the ARM 6 onwards. The disadvantage is that they are not available on the ARM2 and ARM3 so you lose RISC OS 3.1 (and RISC OS 2) compatibility.

The hard way is to use more complex code that checks which mode the processor is running in using either MRS instructions or an ARM2/3 compatible sequence. The big disadvantage to this is the complexity (more to go wrong) and the reduction in performance from the extra instructions.

I'll only be tackling the easy way here. The way I see it is that it is not worth the extra complication of supporting ARM2/3 in most circumstances. I'll keep the old 26bit versions of my programs available for people with RISC OS 3.1 machines, but all new 32bit versions will run on a minimum of RISC OS 3.5 and onwards.

Now for my top 10 tips.

1) If you are using the BASIC assembler, set bit 4 in your OPT command to allow you to use the MSR and MRS instructions. For example change:

```
FOR opt%=0 TO 2 STEP 2
P%=code%
[ OPTopt%
...
]:NEXT
```





FOR opt%=&10 TO &12 STEP 2 P%=code% [ OPTopt%

#### ]:NEXT

2) If you are writing a module, you have to tell the OS it is a 32bit compatible one, or it won't run under RISC OS 5. This involves supplying all the optional module header fields, and adding a new one at &30 which is the \_offset\_ to a word containing just bit one set. So your module header should look a bit like this:

		which are the 32bit ones using
EQUD	start	*Help modules
EQUD	init	
EQUD	final	3) Next go through your code and
EQUD	service	remove all flag preservation from all
EQUD	title	subroutine exit instructions, such as:
EQUD	help	
EQUD	command	MOVS PC,Rn
EQUD	SWIChunkNo	LDMFD R13!,{,PC}^
EQUD	SWIhandle	
EQUD	SWItable	becomes:
EQUD	0 ; not providing	
	SWIdecode entry	MOV PC,Rn
EQUD	0 ; no	LDMFD R13!,{,PC}
	messagetrans file	
EQUD	modflags	Don't forget all those MOVNES
.modflags	5	PC,R14 and LDMVSFD R13!,{,PC}^
EQUD	1 ; 32 bit compatible	too.
.title		
EQUS	"My module"	If you are writing a module, none of
EQUB	0	the entry points needs to preserve
ALIGN		flags on exit.
.help		
EQUS	"My Module 1.00"	4) Remember to explicitly clear the V
EQUB	9	flag before exiting any routines
EQUS	"4.11 ("+MID\$(TIME\$,5,11)	which used to preserve the flags, and
	+") [32bit]"	either return to the OS or a caller that
EQUB	0	checks the V flag. As otherwise
ALIGN		spurious errors may be picked up if V
		happens to be set as the result of a
The "[32	bit]" in the help string is	comparison or a SWI whose error

The "[32bit]" in the help string is optional but I use it on all my converted modules, so it's easy to tell

condition you want to ignore.

Use:		ORR PC,R14,#1<<2	28	; set V and exit
MSR CPSR_f,#0 MOV PC,R14	; clear V	Change to:		
		MSR CPSR_f,#1<<2	28	; set V
or:		LDMFD R13!,{R1,	,PC} egisters	; restore and exit
MSR CPSR_f,#0	; clear V			
LDMFD R13!,{,PC}^		6) Change any p change sequences t	rocess o using	or mode g the PSR
5) Change any explicit f exits from routines to usi	flag setting ng the PSR	instructions.		
instructions, for example t usually set with:	he V flag is	For example:		
		MOV R2,PC		
ORR PC,R14,#1<<28	; set V and exit	ORR R2,R2,#3	; swito mode	to SVC
		TEQP PC,R2		
Change this to:				
MSR CPSR_f,#1<<28	; set V	Change to:		
MOV PC,R14	; and exit			
		MRS R2,CSPR		
You can also optimise s which used to unstack th	sequencers ne registers	ORR R2,R2,#3	; swito mode	to SVC
before adding the V flag setting V flag in the	to R14, to PSR and	MSR CPSR_c,R2		
unstacking the registers in	cluding the	7) Watch out for th	e inter	rupt flags
PC.	C	though as they are	at dif	ferent bit
		positions in the 26	bit PC-	-PSR and
For example:		the separate 32bit PS	SR.	
LDMFD R13!,{R1,,R14} registers and retu	; restore rn address	For example:		

```
MOV R2,PC
ORR R2,R2,#1<<27 ; disable IRQs
BIC R2,R2,#1<<26 ; enable FIQs
TEQP PC,R2
```

Change to:

MRS R2,CSPR ORR R2,R2,#1<<7 ; disable IRQs BIC R2,R2,#1<<6 ; enable FIQs MSR CPSR\_c,R2

8) As subroutines and SWIs are no longer flag preserving (SWIs never actually were) watch out for multiple conditional calls, which assume the condition still holds on exit.

For example: CMP R0,#0 BLEQ this BLNE that

either branch over calls to subroutines/SWIs or re-issue the test:

CMP R0,#0 BLEQ this CMP R0,#0 BLNE that

Watch out for conditional instructions after subroutines/SWIs, such as:

CMP R0,#0 ADDEQ R1,R1,#1 BL foo SUBNE R2,R2,#1 ; is this conditional on the CMP result or flags ; returned from the subroutine?

Either fix this by re-ordering the instructions (if R2 isn't altered by foo) or re-issuing the comparison (if R0 isn't altered by foo). If you can't do either see below.

9) If you really do need to preserve the flags, use an entry and exit sequence similar to:STMFD R13!,{...,R14} ; stack all

necessary registers MRS R14,CPSR ; get the flags STMFD R13!,{R14} ; stack the flags ... LDMFD R13!,{R14} ; pull the flags MSR CPSR\_f,R14 ; set the flags (use CPSR\_cf for flags&mode)

LDMFD R13!,{...,PC} ; restore the registers and exit

Watch out of any instructions in the body of the routine that access those registers pushed on to the stack, as there is an extra word there now. You may have to add 4 to any offset used on R13. An alternative to prevent this is to use a slightly less efficient entry and exit sequences, that stacks the flags above the rest of the registers. The R14 value will still be 4 bytes further up the stack though.

STMFD R13!,{R14}	; stack the
	return address
MRS R14,CPSR	; get the flags
STMFD R13!,{R14}	; stack the flags
STMFD R13!,{}	; stack all
ne	cessary registers
LDMFD R13!,{}	; restore the
9	general registers
LDMFD R13!,{R14}	; pull the flags
MSR CPSR_f,R14	; set the flags

(use CPSR\_cf for flags&mode) LTMFD R13!,{PC} ; exit

10) Quick plug for my !ARMalyser application (which can be found at www.armclub.org.uk/free) which can analyse code to look for those things mentioned above and quite a bit more. It's very useful to check how much there is to be done, and whether you have missed anything after conversion, which is easy to do, especially if you use macros which may hide some of the problems. ARMalyser analyses Absolute executables, modules and other filetypes, but not BASIC programs containing assembler. To check those just save out the code after its assembled and drag it to ARMalyser.

To make your program save the code, use:

DIM code% &1000		
FOR opt%=&10 TO &12 ST	ΓEΡ	2
P%=code%		
[ OPTopt%		
]:NEXT		
OSCLI("Save	Coc	le
"+STR\$~code%+"	6)	

If anyone has any questions on 32 bit conversion, just drop me an email at druck@armclub.org.uk.

I could be persuaded to write an article for the next Eureka on how to make your assembler more efficient on both the StrongARM and XScale, on the other hand I could be persuaded not to if this is a bit too techie.

Let me know either way!

# **Start Selling In On-Line Auctions**

 $\mathbf{S}$  o you have made your first few purchases on eBay and you want to turn your hand to selling. Well I hope to offer you a few wise words to make things go more smoothly.

First, before thinking of selling it is wise to have your eBay account in good order, make sure you do not have *shades* or negative feedback. is going to be collected in person. With cash sent in the mail there is no tracking and problems can occur if the money is not received.

People are also increasingly requesting sellers to accept bank transfers. If you do not mind others knowing your bank sort code and account numbers, this method of

In the second of his new series on buying and selling in on-line auctions, Matthew Cook explains the best ways to offer your goods for sale.

Buyers are less likely to want to buy items from people who have received unfavourable comments. If you have bought a couple of items and received positive feedback you will appear more trustworthy.

Before listing your items for auction on eBay it is worth considering what payment methods you are going to accept. Without any other services you can accept: cash, cheques, cash on delivery, postal order and bank transfer. I would strongly recommend you do not accept cash unless the item payment avoids the fees associated with services such as Bill Point and Pay Pal. However I do recommend you insist the buyer enters their name as the identifier when transferring the money, as this will be the name that appears on your bank statement and therefore makes identification easier.

If you are going to be selling a lot of items it is worth investigating the other online payment services: Bill Point and Pay Pal. Until very recently Bill Point was integrated into eBay and was the better option. However



#### Full instructions on site to help you start selling

eBay has recently changed this in favour of integrating Pay Pal and is phasing out Bill Point as its preferred method. If you can spare the time to set up both it will give the seller more payment options and make the purchase of your items more attractive. Note that these companies charge for their services and you may want to recover this from your buyers.

When you have your account ready with extra payment options available, it is time to list your item. First, it is recommended that you have a digital photo or scan of the item you are selling. The first photo in a listing is free and items sell much, much better with a photo.

eBay offers two different selling formats: traditional auction and *Buy it Now*. Also eBay allow you to combine the advantages of both if you wish. Buy it Now was introduced relatively recently and allows you to list a price for the item. If the buyer is prepared to pay this price, they can



The large range of services on offer

buy the item straight away and end the listing.

The second listing stage involves category selection. It is important you select an appropriate category for your listing. People browsing the items on eBay will not see your item if you have listed it in a different place to other items of a similar nature. With that it mind you may want to search for similar items to yours, to see which categories they are listed in.

The main categories are then subdivided into more specific section with possible third or fourth levels of sub division. As with the main category it is important to get the right section or you will not get maximum exposure. You will start to spot trends. For example, people list both hardware and software in the category Computers & Gaming, Vintage Hardware, Acorn. If you abided strictly with the category titles and listed the item under a software category it is very likely your software would have been overlooked.

You can list your item under two categories but, as you would expect, this doubles most of the listing fees. So unless you need a wider exposure on an item of greater value then it is probably not worth it. It is also worth noting you can move your item between categories at a later date.

The next stage is very important. You have to describe the item you want to sell. This is where the inner salesman in you has to be teased out. I cannot re-iterate enough the importance of writing a good description with as much information as you can. This serves two purposes: it makes the item look attractive to buyers and it also stops buyers needing to ask you too many questions.

Try to put as much detail into the *Item Title* as you can. If we take a Risc PC for example: 'SA Risc PC 64MB, 1.2GB, CD, R4, 2 Slice + NIC'

contains a lot of information for the buyer to make them interested enough to click on the listing to find out more. It is worth avoiding the temptation to put ASCII art and words like 'rare' into the description unless the item really is rare. Another trick people use is to insert words that are common searches, for example: 'SA Risc PC (Easy to use like a Mac!)'. People searching for 'Mac' on eBay will then get your listing in the search hits as well as Apple Macintosh machines for sale. It is unlikely that people wanting to purchase an Apple Macintosh will purchase the Risc PC instead, so I would recommend the more detailed item description.

The Item Description field gives a larger area for you to describe your item as well as giving information about postage options and terms of the sale. It is always best to try to put as much information into the description as you can but, unlike an advert in the newspaper, space is not at a premium so there is little need for acronyms.

HTML is also accepted, so you can create lists and place paragraph breaks and horizontal rules in appropriate places to improve reading. It is worth avoiding the temptation to insert pretty backgrounds and other tags that make listings look un-professional.

After entering the Item Description, the following page requires lots of information from pricing to location details. First decide on the period you want to list the item for, you have a choice of three, five, seven or nine days.Careful listing of an item to include two weekends will give buyers who use eBay from home instead of work time to look and bid on your auctions. I recommend a nine day auction, starting on either Thursday or Friday evening or Saturday morning.

You also have to decide on a start price and reserve price. Personal experience shows buyers on eBay dislike reserves and you get lots of emails asking you to disclose the reserve. If you are unsure if your item is of value or do not mind what price it reaches, I recommend you start the listing at £1 and let the bidders raise the price. However if you do set a reserve, you may want to state the reserve in the item description text. The Item Location information is self explanatory and is very useful for bidders who may want to collect!

The most important part of the listing in my opinion is a photograph. At a real auction, you have the opportunity to view the item and, over the internet, the next best thing is a photograph. I personally would not consider listing an item without a photograph as past auctions have shown items without photographs do not fetch as high a final bid.

As the first photograph that is listed is free, it really is a must. The only problems I have faced are with uploading the photos with a RISC OS browser.

At the bottom of the page, there are some extra cost options that are worth considering for higher value items. The one I would recommend is *Gallery*. For an extra 15p you can have the item photograph on the listings page.

Payment options are on the next page, you need simply to check the boxes that relate to the payment options you are willing to accept. eBay also allows you to integrate Pay Pal payments by entering in your Pay Pal email address.

It is very important to outline who pays for postage and I recommend you find the postage costs before listing the item. Buyers like to know the amount they have to pay before bidding. Do not be tempted to try to make money on postage. Buyers will leave negative feedback if they think they are being ripped off. A charge of 80p for packaging (new jiffy bag and tape) plus postage fees seems acceptable. You can list the postage insurance available at this stage, 63p for recorded delivery and appropriate registered postage costs.

You can also list payment instructions to aid the buyer. This is important if you accept payment by Pay Pal or Bill Point and want the buyer to pay for the payment fees. An accepted eBay practice is for the buyer to add the online payment charge to the postage amount. You may want to include in this section a statement like this:

'If you would like to pay by eBay Payments/Pay Pal (www.paypal.co.uk), then please add 3% to the total cost. If you would like to pay by Bill Point (www.billpoint.com), please add 25p for goods £10 and under. For goods between £10 and £350 please add 25p and 3.30% of the total cost.

I can send an invoice with these methods of payment calculated, if it is easier for you...'

Finally select the areas you are willing to ship to and if you are willing to accept escrow.

You will now have a chance to review your listing and make any changes before submission. eBay also lists the fees associated with the listing at this stage.

After selecting the *Submit Listing* button your listing is accepted into the eBay system and will appear in the selected category usually within 30 minutes.

Now you can sit back and wait for the bids to start. There are a number of useful hints and tips for the auction listing period and the auction completion period, but I will leave those until next time.

## Part 3

# **Winning Games With Logic**

This time I wish to ask some fundamental questions and attempt to answer them. Questions such as:

If there is little dust currently being picked up, move relatively fast in a random direction.

• Why is 7 \* 6?

Else, if there is a lot of dust being picked up move slowly.

• What are emotions for and should

Barry Aulton considers how robots win games and asks if their actions can be said to show evidence of intelligence or consciousness.

machines have them?

- Can robots be:
  - A) Intelligent?
  - B) Conscious?

There have also been some less successful ones such as the robot sandwich maker.

In order to attempt to answer such questions I will back track a little and look at the rocky history of Artificial Intelligence itself. You may feel AI is very sophisticated these days. We now have robot lawnmowers, vacuum cleaners, robot surgery and dogs with emotions (more of which later). The robot vacuum cleaner simply has a sensor which can measure the amount of dust it is currently picking up. It then obeys the simple algorithm: I suppose I should make some attempt at defining AI here, not that any two people agree on the subject. Anyway here goes:

Artificial Intelligence is a process by which a device is made able to perform tasks which, when they are performed by humans, are said to require some thought.

There are some problems with this. The first is in attempting to combine the two words. Usually, as soon as a machine can do some task, that task is declared not to have needed intelligence to be performed in the first place! There are others. What exactly is intelligence? Some argue that there is no such thing, only the consequencies of behaviour can be deemed intelligent and that in turn has to be judged in relation to some criterion of intelligence. For Example. if you are a rabbit, having fallen into a river, intelligent behaviour would involve avoiding drowning. The criterion here being that intelligent rabbits live longer.

The ability to learn is also believed to be fundamental for intelligence. Many algorithms have been developed to simulate learning. The 'optimisation by distributed ants algorithm' *(coming soon)* being one. In principle the idea is just to do something more often if it is believed to be successful and less often otherwise. For example, a driver may take a short cut less often if sometimes (s)he hits heavy traffic.

There is a problem attempting to automate such a reward and punishment scheme. It's called the Credit Assignment Problem. Drivers encountering heavy traffic one week can infer that there will be heavy traffic the next week.

In general, however, we do not know what action was really responsible for success or failure. Imagine you are a tribal chief and your witchdoctor performs a rain dance to combat a drought. Over to Richard Dawkins — Unweaving The Rainbow.

'Occasionally, rains do chance to follow upon a rain dance (etc.). These rare lucky strikes lodge in the memory. When the rain dance, say, is not followed by rain, it is assumed that some detail went wrong in the ceremony, or that the gods are angry for some reason. It is always easy enough to find a sufficiently plausible excuse.'

Have you ever wondered why some ancient civilisations in times of crisis (such as. soil that had been over cultivated) developed such elaborate (and often bloodthirsty) rituals? The psychologist B F Skinner also set up his apparatus (now called The Skinner Box) to 'reward' a pigeon from time to time no matter what the bird did. All the birds had to do was sit back and wait for the reward. However in six cases out of eight the birds built up what Skinner called 'Superstitious Behaviour' (such as. resembling a bizarre courtship dance) as though they were learning a rewarded habit. Also, these habits drifted with time and tended to become more elaborate. (Incidentally, pigeons are quicker at recognising objects that have been rotated relative to each other.) Of course, humans are too intelligent to entertain such ridiculous beliefs!

The classical argument for AI goes something like: our mind operates on discrete entities in our world, that is, have notion of we some representation of individual objects, concepts, and emotions. For example a monkey may manipulate concepts of bananas - boxes - aboveness, in order to get at fruit placed by an observer. This leads to a knowledgebased approach, such as in playing chess or making a medical diagnosis.

The general form is roughly:

They claim once evolution had symbols things got going, while accusing others who disagree of romantically hoping for magic from nothing. Problems are dealt with sequentially, usually without time constraints. Originally tasks like playing chess well or theorem proving in mathematics were cosidered to require intelligence and hence computer programs were written to attempt to reproduce that initelligence. Traditional applications of AI have thus been:

#### • Games

Computers that play chess (and win!) use AI techniques. The first idea is to create a tree that branches out into all the possible moves that the two players can make. However, as the game develops, the number of branches of a chess tree becomes too large. The next step is to assign values to moves — a high value to a move that takes the other queen, a somewhat lower value to a move that opens your king to mate in two moves. Thus, whole sets of branches

USER -> user makes a -> algorithm ->	> symbolic ->	USER
symbolic	description	INTERPRETATION
representation	of solution	

can be eliminated because of the low value calculated. The final step is to create strategies, plans, counterplans and all the other things that humans do. The reasoning technique explained earlier attempts to do this.

It's boring definition time again! A heuristic (read 'fudge', such as choosing moves that restrict an opponent's options) is anything that provides guidance in decision making. For example we tend to search for a customer checkout with the shortest queue, when we want to be served quickly. Tried that! The person in front had bought a vegetable(?) that no one could identify. Took ages, didn't look edible anyway!

#### • Theorem Proving

Human reasoning being: humans are intelligent and can even prove theorems. Hence if we can write a program that does that, we have reproduced intelligence.

Others, however, have argued that intelligence isn't about following rules. R A Brooks (*See Ref 1 at end of article*) entitled one of his seminal articles 'Elephants Don't Play Chess' (An English language application of such techniques is a spelling checker that made sure you used 'your/you're' and 'effect/affect' in the right places.)

#### • Predicate Calculus

This is applying Boolean Logic to ideas instead of what BL usually is applied to. For example, imagine the diagnostic procedures doctors go through to determine a patient's illness. These Rules are hooked up with programs and called Expert Systems.There are useful expert systems around, however. Among the famous ones are *Mycin* (a medical diagnostic expert system), and *Prospector*, a mineral deposits locator.

Unfortunately they found a big snag! Common sense reasoning, that humans do easily, proved extremely difficult problems for such systems. One example is the visual recognition of objects. For example, if 'Asama Bin Liner' were to shave and change his hat a computer program would probably not recognise him!

It was once thought that the mind works like a giant monolithic reasoning (expert) system, with thousands of rules, but many have challenged this. They suggest a more parallel architecture for the mind, with many processes acting in parallel, such as, an animal needs food, water and to avoid predators and so on. For example a moth cannot out-fly a bat. It thus employs an often successful random evasive action when the bat comes within two or three metres of it. The moth's ears are specifically tuned to the bat's echo location and have no other function. Its bat-evasion sytem is autonomous, acting in parallel with other systems.

The New AI argument goes like:

a) Elephants don't play chess.

b) The monkey must use different concepts to decide if the fruit was rotton. The use of heuristics (see above) makes classical AI highly questionable.

c) They point o ut that 'symbol based' mobile robots haven't performed well. This is because symbolic representation is often mismatched to the robots actual sensors and actuators. d) They declare the reason it took 1.5 billion years for photosynthetic plants to evolve into the first fish and vertebrates was because the ability to move around in a dynamic environment and reproduce was the hard part.

e) They accuse the classicists of being willing to tell their systems anything, hoping to tease out the shallowest of inferences. (I once read a thesis that concluded that most drivers speed up after encountering traffic lights!)

f) There is only intelligent behaviour and that is simply coming up with the right answer no matter how the decision was made.

However. there is all no singing/dancing algorithm, port the code, twiddle the input parameters and hey presto, instant intelligence, rather a stamp collection of ideas and techniques. Intelligent behaviour then stems from the costs and benefits that accrue to the different aspects of behaviours with no vast top down planning. (Intelligent behaviour would result in longer life due to the animal keeping things such as food and water levels within bounds).



Ideas based on animal behaviour have been put into practice in robots, (*Ref 1*), computer games (*Ref 2*) and many artificial life simulations. *Fig 1* (*above*) shows one such architecture. There is always the snag of jargon and AI has a lot. How do you abstract from the particular to the general? I will start with the main components of a computer game and not try to

#### FIG 2

Building 'Personality' Into an Object .



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define anything at this stage. Usually a computer game is built round a graphics engine. This is not a good way of thinking of a game. Questions like what is the purpose of the game? How do you win, and so on (see part 1) should be addressed first.

In Fig 1 the mechanics of the particular game, including the graphics and sound engine is lumped into a box labelled 'game control'. The main idea of encapsulation, that is keeping things separate, is the watchword here (as elsewhere). In order to test the tactics of a game other graphics engines may need to be slotted in, and vice versa. Even seemingly trivial interactions between such as. the graphics engine and the game itself can cause tremendous problems. Hence Steve Grand (Ref 2) used an object oriented approach. All objects such as computer controlled characters, static objects and so on are allowed to interact only by sending messages to each other. For example an object 'door' may have a 'state' open and other states closed and locked and may respond only to messages: unlock, open, close, lock (and perhaps blow up). We would thus

have an object 'door' that would respond only to any change according to its state.

Fig 2 (opposite) illustrates the idea of state. A state machine can be thought of as a small program with a few lines of code and very limited memory. You may have many such in a game. Again the idea is to partition the game if possible into separate parts (states). I have also drawn a box labelled Tactical Decision Maker. Here we can encapsulate any AI techniques so they to can be slotted in and out. I shall give some suggestions as to what can be put here based on robotics Alife e.t.c. in further articles, depending on the type of game. (Part 1 illustrated a reasoning technique that could be placed their, suitable for turn based games.) Where are we? I have presented some of the ideas from AI, Alife and robotics, that can be effectively used in computer games. I will outline such methods and recommend uses for them while attempting to answer the questions asked above, (such as. what is life, the universe and 42?) Hence the robot dog, the distributed ant optimisation and so on — the madder the better.

## References

These books are all for the general reader.

1) Robot, the future of Flesh and Machines. Rodney A Brooks (2002) ISNB 0-713-995-01722

2) Creation — Life and how to make it Steve Grand (inventor of the computer game Creatures) ISBN 0-75381-277-0

3) In The Mind of a Machine
(The breakthrough in Artificial Intelligence)
Kevin Warwick 1998
ISBN 0-09-970301-7

4) Impossible Minds - My Neurons My Conciousness
Igor Aleksander 1996
ISBN 1-86094-0307

5) Unweaving the Rainbow Richard Dawkins 1998 ISBN 0-713-99214-X

## Only 30 ideas in the world?

In the early 90s I went to an Acorn meeting in North London and there I met a man who had been a headmaster in Africa. He was interested in using computers as a teaching tool, that is, computer knowledge was not the subject he wanted to teach, he wanted to teach other subjects using computers as a tool.

He said that when he analysed it there are only 30 ideas in the world which you have to teach and these 30 ideas crop up again and again in different forms in different fields.

I wish I had taken more notice of what he said but at the time my mind was on other things. It might be quite important. Important ideas do come out of practical needs. For example Pythagoras's theorem came from the needs of land measurement. I have been unable to trace the teacher. Can you help?

Michael Bell

If you have any ideas on the subject send them in to Eureka.

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# **Site Seeing: Family History**

**B**y popular request, this edition's focus for Siteseer is genealogy. Over the past few years, in any spare moment that I've had, I've been attempting to research my family history. Genealogy seems to have

A good starting point if your family is based in the UK is the GENUKI home page at www.genuki.org.uk. Here is a vast amount of support and information for family historians. Other good places to look are the

Interested in discovering more about your ancestors? Sue Clamp describes some of the fascinating websites she has visited searching for her family history.

become a popular quest for many people which has been made considerably easier by the Internet. Web sites packed with resources, newsgroups and mailing lists abound, to help people find and learn more about their roots. Family Records Centre and the Public Record Office.

Of course, the web sites are a poor substitute to a visit to these institutions, but they do offer a lot of help to those who are unable to make

<u>Guidance for</u> First-Time Users <u>of These Pages</u>



<u>Guidance for</u> <u>Potential Contributors</u> <u>to These Pages</u>

Enter this large collection of genealogical information pages for England, Ireland, Scotland, Wales, the Channel Islands, and the Isle of Man.

The GENUKI site for UK and Ireland genealogy



#### The Public Record Office

the trip. The familyrecords.gov.uk site is provided by a consortium of partners consisting of various records centres, museums and register offices from around the UK. The Family Records Centre itself can be accessed at www.familyrecords.gov.uk/fr. The site gives details of opening times and location of the Centre, as well as some useful fact sheets, in *pdf* format which can be downloaded, covering various topics relevant to family history research. They also have an online quarterly newsletter of interest to family historians called *The Family Record*.

The Public Records Office site www.pro.gov.uk is a very exciting site to visit for those not dependent on RISC OS browsers. They have, after some prolonged teething troubles, made the 1901 census available online. However, on the site in the

FamtlyRecords.go	ov. uk r family records	Rent	A A		
Home Topics Partners	Guides Links	Help	Contact Info	Search: type here	GO
Home         Topics         Partners           A2A         British Library - India         Office Records           Office Records         Commonwealth War         Graves Commission           Family         Records Centre         General Register Office for           General Register Office         General Register Office for           Scotland         Imperial War Museum         Llvfrgell Genedlaethol           Cymru/National Library         Wales         National Archives of           Scotland         Public Record Office         Public Record Office of           Public Record Office of         Northern Ireland         Scottish Archive Network	Guides Links Partners: Family Re The Family Records by the General Regi Public Record Offic The FRC brings tog important sources for and wates a indexes of and Wales a Census ret from 1841 Access to internet On the FRC website leaflets to download information and the Record" and more.	Help cords Cei ster Offic e (PRO). ether som or family births ma d Wales legal ado since 192 urns for 1 to 1891 of the 1901 e you will , up to d FRC new	<u>Contact Info</u> ntre (FRC) is run jointly ce (GRO) and the me of the most history including: arriages and deaths in since 1837 options in England 27 England and Wales on microfilm. census via the 1 find <u>research</u> ate visitor <u>vsletter</u> , the "Family opening hours.	Search: type here Contact Details Family Records Centre I Myddelton Street Islington ECIR 1UW BMD certs: 0870 243 7788 Telephone: 020 8392 5300 Email Certificate enquiries: certificate enquiries: certificate.services@ons.cov.uk Other enquiries:enquiry@pro.g Website www.familyrecords.gov.uk/fre News & Events Paul Crooks will be giving a reading from his new book 'Ancestors' more The book is available from the PRO bookshop. For the latest news on the 190 census website see the PRO	GO Funnity Records Centre Sov.uk

For information on using the 1901 census at the FRC see the FRC census research web pages.

#### Information on the Family Records page about their partner sites

section describing which browsers the site has been optimised for, Oregano is listed and the site states:

"Users may have some difficulties as the version of HTML supported by these browsers is 3.2, whereas this website uses version 4.01".

The site also uses Java version 1.1 and Javascript 1.2. I have been unable to view pages properly using Oregano and had to resort to using Internet Explorer on my laptop. To download records from the census you open an account session which lasts for a period of 48 hours at a minimum charge per session of £5, which will enable you to purchase several documents.

The rest of the PRO site is rather more accessible. They are currently

working on providing access via the Internet to digital copies of documents held at the PRO and the Family Records Centre.

For example, PRO-Online provides access to probate wills from 1670-1858 (some years are incomplete) at a cost of £3 per will.

The PRO web site also houses many historic documents for those who are looking beyond their family history, including a substantial education section.

Familia (www.familia.org.uk) is another useful site, being a guide to genealogical resources in public libraries in the UK. This is a wellorganised site that even has a text only version for those who may have a slower connection or would prefer to do without the site's already minimal graphics.

FreeBMD stands for Free Births Deaths and Marriages and is a project which aims to provide free Internet access to the Civil Registration index information for England and Wales. So far the project covers only the years 1837-1902 but is constantly being added to. The database can be found at http://freebmd.rootsweb.com.

Perhaps the biggest online searchable database is provided by the LDS (Church of Jesus Christ of Latter-Day Saints) at www.familysearch.org.

The records are from all over the world and are mostly about people who lived before 1920. The site also gives good guidance on how to research your family history.

A superb page of more than 179,000 genealogy links on the Internet can be found at www.cyndislist.com. Most of these are categorised but there is also a search facility on the site.

Even if, like me, your family does not originate in the UK, there are plenty of resources on the Internet to help and I would imagine that most of these are listed on this site.

I don't suppose I ought to be writing an article about genealogy web sites without mentioning The Society of Genealogists site at www.sog.org.uk and the English Origins site at www.englishorigins.com/welcome.aspx, which provides indexes to marriages,



Services provided by the Church of Jesus Christ of Latter-Day Saints

wills, witness depositions and apprentice records. The online database contains over six million names covering 1568-1850

I have to end this article with my favourite — the one I have found most helpful for my own research. I realise that maybe only a handful of Eureka readers may be researching Jewish roots but, for them and me, the best starting point has to be the JewishGen site at www.jewishgen.org/index.html.

The site has a huge number of searchable databases, resources and research tools. It also hosts various mailing lists (Special Interest Groups) and a newsgroup.

Without the help of this site and the people I've contacted through JewishGen, I would have made far less progress than I have.

## **ARM** Arena

Taking a look at the last Eureka magazine, even more than the features of the new Iyonix (which are a great enhancement on the Risc PC) I was impressed at the length of David Ruck's

updates to the realtime battle graphical strategy game TEK, which many people found unstable, though enjoyable, on certain RISC OS machines.

Andrew Weston looks at the future of all those old favourite 26bit games as the RISC OS scene moves into the world of 32bit software designed for the lyonix.

review! However now that the Iyonix has been on sale for several months, the interest appears to be steadily growing in the RISC OS community and this interest in compatibility and the aforementioned feature list spills over into the gaming arena. This is reflected in a couple of news items this month but owners of 26bit machines, that is non-Iyonix owners, will be pleased to know there have been plenty of updates and developments of interest to them and done for the most part by RISC OS games fans for other RISC OS games fans.

#### Further TEKnology

Jan Klose from Artex has made several welcome announcements over the past few months regarding A new so-called Pyro update has been released since the last column and has itself been enhanced to provide further features and further stability.

Also the Viewfinder graphics expansion card for Risc PC computers, available from CJE Micros, is reported to now work well with TEK, avoiding the need to deactivate it before playing the game.

Readers may have read the list of enhancements provided by the Pyro 2 update on the internet but they include more intelligent movements of enemy forces and wayfinding of player units when directed somewhere and graphical enhancements such as better weapons effects.

#### 32bit conversions

Several people have asked RComp Interactive, publishers of numerous conversions such as Doom, Descent and Ouake, whether 32bit versions of these highly popular games will be made available. RComp have replied that although most RISC OS users these days seem to be users of more serious applications and even in the PC-software scene more people are moving towards video game-consoles for leisure purposes, they hope to release versions of Descent1 and 2 and Quake for the Iyonix. Indeed David McEwen, author of RISC OS Descent 1 and 2 conversions for 26bit RISC OS machines, has been working on making the two Descents 32bit compatible and also including some features which were not in the original conversions, thereby taking advantage of the greater capabilities of the Iyonix.

Some people on the newsgroups and web forums have raised the question of whether Quake 2 is a possibility. The consensus seems to be that it is certainly feasible, given the unprecedented (in RISC OS terms) power of the Iyonix, but given the low demand for RISC OS games relative to serious applications there doesn't seem a great incentive for RComp to embark on a conversion. However, it's certainly a fact that many RISC OS programmers are motivated by the prospect of merely seeing software work on RISC OS so we shall see.

I for one certainly think we will eventually see some popular conversions although with a quite lengthy delay behind the original release. This being the case since the days of the BBC Micro, perhaps many RISC OS gamers are quite used to this!

#### **Bearer of more Doom**

Andreas Dehmel recently announced an update of his Doom-it-yourself, which is basically the source code for a Linux (alternative operating system) version of Doom adapted for compiling (making into runable code) on RISC OS machines. The idea is that the player has a C compiler and compiles the source code himself to make the game playable. On Andreas's site you will find links to the relevant software needed. My advice is that this is probably most suited to those with some knowledge of compiling C sources as Andreas



can't offer this kind of technical support, only ensure that the source that he has made RISC OS compatible works. However to those a bit more technically minded in this area, this version of Doom offers several distinguishing features over the commercial version from RComp Interactive, not least that it is free!

One important update is that provided the user has a compiler capable of producing 32 bit code, Andreas states that the game is now 32bit compatible. If anybody is able to confirm that they can run Doom DIY on the Iyonix then please let me know.

#### Patches and further compatibility

Long time developer of patches to ensure continuing compatibility of Acorn/RISC OS games, Theo Boogaert has added a handful of new patches to games of old (several, but not all, of which are 4th Dimension titles) which bring compatibility to RISC OS 4 and StrongARM machines. They haven't been tested on RISC OS 3.7, however, although Theo is eager to hear from anybody with RISC OS 3.7 who cannot use the patches successfully. The games are: Buggy (Boogie Buggy), Dungeon, GBA, Quazer, Warlocks, X-Fire and Olympics People without these games may be interested to look at the 4th Dimension website where some of these titles are still available and full compatibility information is given.

#### Elite site and emulator news

Among the numerous Elite sites on the web, including Acorn-specific ones, is Mark Rowan's Elite site which has recently been updated. It's worth mentioning as it's an interesting and extensive resource on the famous game and has pages including Archimedes Elite (ArcElite) cheats available to download, hints and tips, unusual ArcElite features and plenty of screenshots to illustrate them.

Also there's a comparison of Elite-A (the re-written and enhanced BBC Micro version) to the original which is available to download for emulator owners. On the emulator front Michael Foot has further improved the BBC Micro/Master emulator Beebit to make it more stable. This freeware emulator is capable of handling disc images available from the web but will not handle certain formats alone, although links to conversion software, such as BBCfiles which can convert to Beebit's format, are provided on Michael's site.

Michael has also converted several early BBC games to run natively on RISC OS, such as Chuckie Egg and Daredevil Dennis. To this he now adds Cybertron Mission from Micropower also available from his website, An achievement indeed!

#### Pairs

Another RISC OS version of a card game has been released as freeware (following on from the shareware Ving-et-un from Brain Games last month) and this is a card-matching game called *Pairs* written by Steve Fryatt. It is possible to attach sound effects to each card when revealed from the pack, which Steve notes may make the game useful in an educational environment. Pairs also works on all RISC OS versions from 3.1 to RISC OS 5 (on the Iyonix) and is available from the website given at the end.

#### Games tools

A few years ago, a library of routines called *Popcorn* was released, designed to assist programmers in C create games and a series written in Acorn User describing how to use them to create two-dimensional games. This is now available from Rik Griffin's website, given at the end, along with a tutorial he's written showing how to use the basic features.

Popcorn is a C alternative to the GameSuite written by Andy Southgate some time before which is available now from a new website dedicated to the GameSuite and a game, Asylum, by the same author.

Various people have collaborated to create this new site and have written a level designer for Asylum to go with it. Both Popcorn and GameSuite offer quie extensive help to programmers who might for example want to focus on gameplay and non-core areas when writing a game and use preexisting routines to do lot and manage sprites and sound etc.

#### **Rounding off**

There seems to have been plenty of updates and developments since the last column and although most of these would interest owners of preIyonix machines, it's probably important to note that there is interest in bringing new games and making old games compatible (if necessary) to this new machine.

So while the main concern will be on new non-leisure software, it seems that games certainly haven't been forgotten!

See you next time.

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Pairs www.stevefryatt.org.uk/software/games Mark Rowan's Elite site
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ww.stevefryatt.org.uk/software/games
Aark Rowan's Elite site
Aark Rowan's Elite site
/ww.tamias.co.uk/elite/
Beebit
omepages.paradise.net.nz/mjfoot
Popcorn
omepage.ntlworld.com/rik.griffin
Asylum/GameSuite
sylum.acornarcade.com

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## Is It Worth Going Digital?

If you enjoy taking photographs and can afford a new camera the answer to whether it is worth going digital is a decisive "Yes". Digital photography has outstanding advantages over the traditional film based picture taking.

them at full screen on your computer and decide which are worth printing.

After that comes the biggest advantage of all. You can improve the picture in ways you could only dream

Peter Jennings, a Fellow of the Royal Photographic Society, introduces this special section on digital photography for enthusiasts and potential newcomers.

So what are they? First of all, once you have bought the camera and a memory card, where the pictures are stored as they are taken, you can shoot away without worrying about the cost, even if you are not sure that you are going to get a usable picture. The memory cards are reusable so it costs nothing to make as many exposures as you wish.

Then, too, you can view the picture in the camera immediately you have taken it. That gives you the chance to delete the picture if it's not want you want or take another if you think you can do better. You can then make a final choice at leisure when you view about when you were working with film. The exposure's not quite right; the picture's too dark or too light either all over or on the most important part of it — such as the face of the person you are photographing? No problem! There is software that you can use to correct it.

There's something or someone in the picture which spoils it? Still no problem. You can just remove the offending object or person.

You don't have to be an expert. With a little trial and certainly a few errors — which can immediately be undone — you will be doing major retouching



A typical digital camera in the £500 price range giving good pictures which can be printed at A4 or larger sizes.

which previously only highly skilled professionals could attempt.

That all sounds very good but the first question you have may well be: "What's it all going to cost?"

First the camera, and the price of this will depend (as with conventional cameras) on the standard of pictures you require. A camera for holiday snapshots which are not going to be printed bigger than about postcard size or one just needed to put pictures on a website will start at about £150 although there are 'fun' cameras from about £30 upwards if you are even less demanding.

The serious photographer who wants A4 size prints and perhaps the occasional A3 will need to pay about

£500 or more. (You may see digital cameras priced at several thousand pounds but these can safely be ignored unless you are a wealthy professional, in which case you will not be needing my advice!)

The quality you can expect from digital cameras is measured by the size in *megapixels* of the images they can produced. This refers to millions of pixels, the minute (usually too small to see individually) dots of colour which form the picture, rather like the *grain* of a film.

The fun cameras will offer something like 0.3 or 1.3 megapixels, those of website quality will be two or three megapixels

If you want good quality, sharp, A4 prints you need cameras offering four, five or six megapixels.

The cheapest of those you see may, confusingly, show two figures in their specification, such as: 3.1 million effective pixels, 6.03 million recorded pixels. The higher figure includes *interpolated* pixels which have been added by the camera based on the colour of the pixels surrounding them. This has caused a lot of controversy over whether the quality equals that of the far more expensive cameras which achieves the output without interpolation.

All I can say on that is that I use a camera with the two figures quoted above and I am very happy with the results. I print everything A4 size, including pictures that have been drastically cropped, and could certainly get A3s from most of them. I am very quality conscious and all my pre-digital photography was done with large format cameras producing 9x6cm transparencies and negative and I did not buy a digital camera until I could get a quality which satisfied me at an affordable cost.

Prices for the same camera can vary by several hundred pounds so look around before buying. All digital hardware and consumables are much cheaper on the internet than in the shops.

You will almost certainly want to buy a bigger memory card than the minimum size one that usually comes with the camera. (There is more information on these in the following article by Toby Smith). Again, shop around and buy the biggest capacity you can afford. Capacity is constantly rising and prices have been falling steadily. A 64MB card which cost a whopping £110 two or three years ago (when it was the maximum size available) can now be found priced at about £15.

It is very likely that you already have a collection of slides and prints taken with a film-using camera. These can be given new life and new looks by having them put onto a CD at a photo processing shop or with the additional purchase of a scanner to convert them into digital images yourself.

Scanners can be for film or prints and some, at a higher price, can handle both.

You can also get your digital images printed at a photo shop but it is more fun to do it yourself, especially if you have the software to enable you to work on the pictures improve them first. You will almost certainly want an inkjet colour printer and should look for one which offers photo quality. Prices range from about £60 but the better ones cost from about £120 to £300 or more. They can vary widely in how long they take to make a print but dearer does not always mean faster. Laser colour printers are also available but are considerably dearer.

Most inkjet printers use two print cartridges, one containing a range of colours, the other black. There are various quality papers so make sure that you get *photo quality* and, for best result, get a superior grade. The papers vary in thickness and surface (including glossy, matt and other finishes).

For best results use the ink and paper made by the printer's manufacturer at least at the start. You can then experiment with cheaper brands, if you wish, once you are familiar with the quality your printer can produce.

If you are a real enthusiast and find yourself making really large numbers of prints you could consider moving up to a system using larger containers

### Digital photography special .

of individual colour inks. The inital outlay for this would be high but it would bring down the running costs of the printing if the quantity justified it.

Finally, another question you may have is whether this is the right time to buy. The digital photography industry is thriving and there will always be something new and interesting coming shortly (just like the RISC OS market at the time of writing!). This brings down the price of existing models so, unless you must have the latest, you can usually find the best value among cameras that have been on sale for a year or two and which should have all the essential features you need.

There is an article (*What's Coming?*) later in this special section which considers if there is anything which makes it worth delaying a purchase but many of the innovations are in accessories which you can decide on adding after you have bought your camera.

We hope the articles in this special feature will help you to decide.

For those with a little more to spend...



If you really want plenty of memory in your camera you can't do better than these German-made Compact Flash cards.

The good news is that there has just been a price reduction. You can now get the biggest, 3GB card, for only \$1,999, instead of the previous \$2,499.

You may prefer to wait for a 6GB card, coming soon, at \$7,499.

# **Digital Camera Connections**

This article is a brief run through of the connection methods available for getting your photos onto your computer.

#### Serial

Once the mainstay of camera connections, serial port cameras are

the power for the transfers came from the camera, downloading the images can also consume a lot of battery power from your camera.

Serial cameras usually require camera-specific drivers to download the images, so you will need specific

Toby Smith explains a feature of digital photography which newcomers find unfamiliar: the storage cards which replace film and how they connect to the computer.

becoming increasingly hard to find these days. Second hand models may be serial connection, but new ones certainly won't be. Serial connection was reliable (in that all computers could be guaranteed to have one) but slow at downloading the images, considering the maximum speeds of serial.

Camera serial cables are also often tied to the camera manufacturer while the computer end is a standard plug, many different connectors were used on the cameras, as well as varying wiring. Additionally, as all software capable of talking to that camera on your computer.

### USB

USB (Universal Serial Bus) is the current favourite method for connecting to digital cameras, available on the majority of models. USB has been available for many years in the PC world, but is only recently becoming available on RISC OS machines. USB is being featured on all the new machines (Iyonix, Omega, RiscStation Portable). USB upgrade cards are also available for existing machines from both Castle

### Digital photography special .

and Simtec (and assorted resellers). Unfortunately, the two manufacturers have different programming stacks for software talking to the cards, so any software will for the moment be specific to either card system. Photodesk are, apparently, putting some development effort into producing a system capable of using either card across a wide range of cameras.

USB defines a standard set of connectors. Suitable computers will have a number of the rectangular connectors and the cameras will use one of the two small square-ish USB connectors depending on size. USB leads are universal, so as long as the connector will fit the hole on your camera, the cabling at least should work.

Again, cameras from different manufacturers implement things in different ways, so you'll need to check that your camera connection software works with the model you're after. In this case it's probably worth buying the camera, software and USB card as a bundle from the same dealer. While this might cost a little more



Memory storage (from top): the most common Compact Flash and SmartMedia and the latest xD-Picture Card which is actually half the dimensions of the others.

### Digital photography special

than the discount price for the camera, at least you'll know that the combination will work.

### Compact Flash & SmartMedia

Compact Flash and SmartMedia memory cards are similar, but incompatible, storage methods used internally by digital cameras. The cards themselves can be removed and connected to readers on your computer, much like a floppy disc (but physically smaller and much higher capacity). Both cards are round about three-quarters the size of a credit card, with SmartMedia being credit card width and Compact Flash about four times thicker.

They are the most common memory cards but there are others, depending on the camera you have. These include IBM Microdrive, Memory Stick, Secure Digital, and Multimedia Cards, all made in a range of capacities.

### xD cards

The largest capacity cards available at present are IBM Microdrive which can hold up to one gigabyte. But a new Compact Flash card with that capacity has just been announced and Fujifilm and Olympus have now begun to market their new xD Cards, half the size of Compact Flash and Smartmedia and at similar prices, but with a potential memory capacity of 8GB. Adaptors are being made to fit them into existing cameras' Compact Flash slots.

Surftec provide RISC OS readers that will connect to the bi-directional parallel port of any machine later than an A5000. You remove your card from the camera and plug into the reader. The reader comes bundled with software to read the images off the SmartMedia or Compact Flash as if it were another disc in your computer and onto your hard drive (or wherever).

Many modern cameras come with Compact Flash or SmartMedia as their storage format and a USB connection as well, allowing you a fairly wide choice of compatible cameras.

This provides the most flexible method of connection, as the images will be available from the memory card as a series of JPEG images and all Compact Flash and SmartMedia cards should work in the Surftec reader, regardless of the original camera. Data transfer is slower than USB but still faster than serial and, as the card has been removed from the camera, all power comes from the computer, so it doesn't run down your camera batteries.

### Other methods

There was an original range of cameras that wrote directly onto a PC formatted floppy disc but any remaining models will have been surpassed on the camera front and the necessary physical size made them rather clunky.

Many PC suppliers sell portable USB hard drives that can be connected to a digital camera directly and will pull all the images from the camera onto the hard drive. After that you should be able to connect the USB hard drive to a USB enabled machine through the more closely followed standards for USB storage devices.

Even if you don't have a digital camera, any photo processing company will be able to put your film onto Kodak PhotoCD, which can be read on either PC or Acorn as a series of JPEG images. These will be lower resolution than a modern digital camera can manage and quality will depend on the original camera used.

To conclude, the methods of transferring data from a digital camera are many and varied. Serial, while once the norm and easily supported on RISC OS, is now hard to get hold of. Compact Flash and SmartMedia readers provide the most flexible method of getting data from suitably equipped cameras, with the least outlay on extra hardware. Larger, gigabyte capacity, cards are now appearing.

USB looks like the next move providing connectivity to the widest range of cameras but support is still in its infancy on our platform. Our best tip is to talk to the appropriate software dealers and check out that your desired combination will all work before wasting any money. The advantage of our market is the plethora of help and knowledgeable advice you can get from the dealers. Make use of it!

## What Computer Do I Need?

#### Question:

I am using an A3000, but it is having problems; also my monitor has died. So I am looking to buy a new computer. I don't need the latest or fastest (I have retired and the I would also like a CD-ROM drive.

RISC OS/Acorn dealers are missing from Cornwall, where I live, and all the different dealers I have contacted via email just offer their own pet

Need a new computer for your digital photography? This is how the Club's Technical Help Service answered a query from a member who did.

computer will be for my own use and pleasure).

What I would like to do is to use it with a Digiflash Compact Card Reader (I have purchased one from Surftec) to be connected via the parallel port. I do not want to go down the USB road.

What I need to know is which computer I require. StrongGuard, Kinetic R7500+ or what? What size of RAM 56,128MB ? Do I need VRAM? What size of Hard Disc? What type of Monitor? machines (new or second-hand) without giving any real advice and explaining what is needed.

### Lorna Jenne

#### Answer:

Either a StrongARM Risc PC, Kinetic Risc PC or RiscStation RS7500 will be able to read pictures from the camera. Which one to get will depend on what you want to do with the pictures once they are on the computer.

The RiscStation is a modern reasonably priced machine with a fast hard disc but does not have a very fast

### Digital photography special -

processor, which may be a factor if you want to do intensive graphical operations such as image retouching, especially if using resolution high screen modes, such as 1024x768 in 32 thousand colours. It would be fine for just viewing and storing such pictures. www.riscstation.co.u k/html/home.html

The StrongARM andKinetic Risc PCshavefasterprocessors and the

Kinetic has faster memory too, making it much better for graphics manipulation. It is able to use screen resolutions such as 1024x768 in 32 thousand colours without slowing down. These machines have more options for expandability, with additional cards and interfaces.

www.castle.uk.co/castle/front.htm



The Risc PC is still worth considering and is becoming available at even more bargain prices now that the later RISC OS machines are on sale

The advantage of the Risc PC machines is that they can be upgraded with a ViewFinder graphics card to allow up to screen of 2048x1536 in 16 million colours which means they can display the high resolution pictures from 3 megapixel cameras without scaling the image down.

www.windfall.nl/

### New RISC OS computers

Two new, much more powerful, RISC OS computers, Iyonix and Omega, have just been launched, which you might consider, although at first the amount of software available for the Iyonix is less than for the other machines.

### www.iyonix.com/

### www.microdigital.co.uk

These later computers might lead to a reduction in the price of other new machines and there is likely to be a large number of Risc PC computers coming on to the second hand market soon.

Regarding RAM, 64MB will be fine for viewing pictures and running most applications but 128MB would useful if you intend to image manipulate large pictures.

VRAM is needed on the StrongARM and Kinetic Risc PC and you should go for 2MB. The RS7500 does not use VRAM, as it shares with the main RAM in the machine. If you have a ViewFinder 1MB is enough. A 10GB or over hard disc will be plenty for all your programs and many thousands of pictures. RISC OS software is much smaller than that for PCs so typical sized PC discs are vast on a RISC OS computer.

Buy the best monitor you can afford. A 17" monitor is the standard these days typically used at 1280x1024. A 19" now costs only a small premium and will comfortably do 1600x1200. A 22" is for professional graphics use of up to 2048x1536.

You might also want to consider an LCD monitor. Although more expensive, they are take up a lot less space and produce a very clear display.

### www.explan.co.uk/

You should ensure that a CD-ROM drive is supplied with the machine to prevent any compatibility problems that can occur.

Don't worry about getting the fastest speed, any drive of 24x will be more than sufficient.

## **Taking A Pleasing Picture**

Not many years ago, the main difficulty in taking photos was learning how to use the camera. Originally, nothing was automatic and it was necessary to set focus, aperture

good scenic picture but everyone has been shown photos of views which the person who took the picture has enthused about but which don't capture the attraction for anyone else.

With a digital camera to look after the technical side it's now easy to take good pictures. Peter Jennings suggests some simple rules which film users can also follow.

and shutter speed and to understand the relationship between them. Now they can all be left to the camera to set by itself and you can just concentrate on getting a good picture. So why doesn't everyone with a new camera always get pictures that please them?

It may seem a very obvious thing to say but before you can take the perfect picture you need to see it. So what's the problem? There's this stunning scenery at your holiday resort so all you need to do is point the camera at it and press the button and there's your stunning picture.

Well, perhaps. The good scenery needs to be there before you can get a

So, before you put your camera up to your eye, stop and look at the scene and identify just what is so good about it. Mentally add a picture frame on different areas and compare them and then *compose* your picture.

Basically, apart from portraits and close ups, a good picture needs a foreground and a background, either of which could be the most important part of the subject. The foreground could be a person or an interesting object or building. Place them in relation to the scenery (we'll discuss the positioning later), focus on them and allow the background to appear less sharp. If you have a camera which lets you to adjust the aperture



Don't have the main subject centred. Position it a third of the way from the edge and facing into the larger area of the picture

open it to a lower numbered f stop, to reduce the sharpness of background objects, or close it to a higher numbered f stop if the background is equally important.

If the distant area is the most attractive part of the scene, such as a range of snow-capped mountains, look for something to be placed in the foreground and, if possible, angle the picture so that the foreground object is to one side rather than in the centre where it can distract from the main subject.

There are some simple rules you can follow and one of them that can improve your pictures enormously, and is probably the most effective, is the *rule of thirds*. Just mentally divide the picture into thirds, horizontally and vertically. So, for example, position the camera so that the sky fills the top third of the picture, or even the top two thirds if it is to Digital photography special



Shadows make a natural frame for the jogger and her dog

dominate. The strongest points will be where two of the imaginary lines intersect so position the main foreground subject a third of the way into the picture to give it importance.

You can't move fixed objects, such as trees or buildings, around but it's usually possible to change your position or even the angle you are facing to arrange the components of the picture you are composing. If your foreground subject is a person, or even an animal, have them facing into the picture rather than towards the edge.

If you are taking close-ups the background can be even more important and usually the plainer the better to avoid distracting shapes.

Other strong arrangements are where the foreground subject frames the background, such as through an



The diagonally placed statues lead the eye towards the building

archway or even within a shaded area, or where two or more objects line up diagonally to draw the eye to any important feature beyond them.

If you are taking photos in low light you'll get a much more atmospheric effect if you can get them without using flash. An automatic camera will look after the exposure but the main problem will be blurring caused by camera shake due to the longer shutter opening necessary. The best way to avoid this is to use a tripod but this is usually too cumbersome to carry around. An extendable monopod is a good alternative but for most occasions, when you don't want to be encumbered with anything more than the camera, look for an existing means of support, such as a wall or tree and hold the camera firmly on or against it. A folded scarf or rolled up glove or handkerchief can be used to cushion it, if necessary. If you're somewhere that flash is allowed you Digital photography special -



can always use it for an additional backup shot to make sure of getting something.

Don't be afraid to experiment. Taking the picture costs you nothing and it is so easy to view and delete it if it's not right. Just look for the picture, shoot it then view it. And take as many more shots as you need to get the best picture possible.

Don't worry if none of the shots are perfect —they seldom are. You have

The attractive view of St Albans Abbey and Verulamium lake (above) became this pleasing picture when the intrusive ice cream van (right) was cloned out.

the supreme advantage of being able to correct faults when you get them home and view the pictures on your computer. Software, such as Photodesk, allows you to correct technical faults including over or under exposure (less common with automatic cameras unless the light

### Digital photography special



conditions make for some extreme contrasts) and can even improve sharpness. Best of all, that irritating person or object that spoils the picture, such as the ice cream van which arrived just as I was about to photograph St Albans Abbey (*above*) can be *cloned* out with a bit of practice.

You may not take the perfect picture every time but, with digital imaging, you can certainly improve your end results with most of them and make pictures which really please you. When you have finally got them, how can you best display your achievements? If you have a website you can open your own gallery. Make copies of your pictures at 90dpi (dots per inch) definition, which is the most that a monitor can show, and add a title and a brief caption to each.

For best quality prints, set the definition to 300dpi and use ink and paper supplied by the manufacturer of your printer or which you know will give similar results with it.

You may want to frame some of your best work but, be warned, most inks will fade and discolour in the light. Covering with glass and keeping them out of direct sunlight will help and you can filter out some harmful rays with fixative sprays obtainable in various finishes (such as glossy or matt) to match the paper you have used. The rest of your collection should be kept in closed boxes or, better, in albums with clear plastic pockets manufactured free of harmful chemicals specially to house photographs. A good picture is worth keeping in good condition.

## What's Coming

Digital photography is evolving fast. There is a constant stream of new cameras which, like computers, are being regularly updated and improved with prices falling all the time. technical advances this year. It has *two* sets of photodiodes. The primary one has normal light sensors while the secondary has a low sensitity, just enough to record the bright areas in particular the sky —which would

Some of the exciting new developments becoming available now or in the near future to make digital photography easier, better and cheaper.

Already this year there have been a number of new cameras in the four to six megapixel range coming onto the market at around £500, producing results which should satisfy the more quality conscious photographer.

For those who already have a professional quality medium format film-using camera and can afford to pay more (a lot more!) there's a digital back with a new 20.8 megapixel Super CCD (which records the pictures in the camera) coming from Fujifilm.

Fujifilm's new 4th Generation Super CCD (at right) is one of the big normally be overexposed. The two layers combined will then fill in the overexposed area with all the detail captured by the less sensitive photocells.

For those of us who already have a digital camera the main interest will probably be in the big advancements in memory cards. Gigabyte sizes,

Schematic of Super CCD SR



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until now restricted, except for the very wealthy, to the 1GB IBM Microdrive (prone to crashing!), are about to become common with a 1GB Compact Flash already announced and the new xD cards having a potential capacity of 8GB.

More exciting is the Small Form-Factor Optical disc (SFFO) a new coin-sized (30mm) memory card with the capacity of a DVD which Philips could be putting on the market later this year.

Another new memory system, called Ferro-Electric RAM (FeRAM), is being developed by Japanese and German companies although this is unlikely to appear until 2005 and full details of it are awaited.

It's an interesting future for digital photography with not long to wait for many of the advancements already announced.

If you already have a digital camera which satisfies your needs you will probably not be too anxious to change it yet but may be content to wait for the next products to arrive and inevitably drop in price before deciding whether you want, and can afford, to upgrade.

However, if you are now planning to get into digital photography for the first time is there anything you should wait for? In that situation, I think I might delay buying a camera until I could consider those with the new Super CCD which has the extra photocells to expose the sky correctly. For me it would probably save quite a bit of time now spent adjusting the sky with software although I don't think that everyone will consider this an essential feature.

The new memory cards are of more general interest so, unless there is one particular type that you are keen on in which case you need to check that the camera you are thinking of buying can accept it — you can get the camera now and defer buying extra cards until you need them for some special occasion, such as a holiday, knowing that they are getting bigger (capacity) and cheaper all the time.

Happy picture making.

# **Updated Versions**

New versions of all the ARM Club's free applications, compatible with 26 bit and 32 bit RISC OS operating systems, are now available for download.

All programs have been fully tested on Castle's new Iyonix.

## **Desktop Utilities**

**!WorkSpace** — Provides six desktop workspaces to prevent cluttered screen.

**!ComndCtrl** — Desktop front end to \*commands for drag and drop launching.

**!GraphTask** — Run graphical programs in a taskwindow, with MODE 7 support.

**!FreeMap** — Graphical display of free space on a disc.

**!Gamma** — Brightness/Contrast/Gamma control of the screen in any mode.

**!Mirror** — Draw one half of an object and see its reflection in real time.

**!PinPlay** — Play up to nine Replay movies on the pinboard.

### **System Monitoring**

**!APPstat** — Timing and call count statistics on running applications.

**!SWIstat** — Monitors SWI call activity on entire machine or selected tasks.

**!SERVstat** — Monitors Module Service call activity.

**!VECstat** — Monitors calls to system vectors with reason code display.

**!CPUload** — Accurate CPU usage graphical monitor.

# **Of Free Software**

## **Code Analysis**

**!ARMalyser** — Analyse all RISC OS executable and object formats for 26 bit only instructions. Produce disassembly or assembly output in text, HTML, XML, Impression, EasiWriter formats.

### Miscellaneous

**!Countdown** — Solves Channel 4's Countdown words and numbers puzzles.

**!SPRtools** — Bitmap format conversion and image processing tools

### Modules

ADFSeject — Dismounts a floppy by clicking on the drive icon with adust.
CDFSeject — Ejects the CD by clicking on the CDFS icon with the adjust.
SCSleject — Dismounts and ejects a removable SCSI disc using adjust click.
ZIPeject — Dismounts and ejects a ZIP disc using adjust click.
TimerMod — Provides SWIs and \*commands for timing to microsecond accuracy.
WindOpen — Manipulates windows using \*command's in obey files.

They can all be downloaded from the Club's website

# **RISC OS Rhymes**

Another literary work from Alan Wickham's unbelievably poetic computer

ALBERT and the PSION

Now, maybe you've heard of computers,

That lately have spread far and wide, Have given rise to many frustrations And cut down many a man's pride.

Now it happened this way that one morning,

On his way to a-post of some mail,

That young Albert passed by a business,

That offered computers for sale.

He had once worked with computers. He had started with punched paper tape.

But what he saw there in the window, Made him just stand there and gape.

For just sitting there in the window, Completing the end of a line, Surrounded by diverse computers, Was a Psion of latest design. Albert had heard all about Psions, As to how they were dinky and twee, How they just slipped into the pocket And were useful to reckon your fee.

This machine was truly a marvel, Intended to give great delight, And having many interesting features,

That could keep you going all night.

Its screen indeed was a wonder, Although it was just black and white, With sly use of liquid crystals, And some kind of electronic light.

Its keyboard was something to ponder.

Not a bit like the Psions of yore. But larger in all its dimensions And it slid in and out like a drawer.

Every day for a week he would go there

And gaze at the wondrous machine. Which in reply would wink its cursor. If you kind of know what I mean. Young Albert considered his income, His bank balance wasn't too clear. He even considered the lottery. It was then that he had the idea.

If he could secure the Psion, He could work out the lottery's sums. And compute the right combination To give him the best winning nums.

With millions of pounds in his pocket, The cost of the Psion would be; Mere trivia, dismissed with a docket In fact he could have two or three.

Young Albert then went to his banker, Convinced him to lend him some cash.

Enough to buy just one Psion --He didn't want to be rash.

Off then to the com-put-er dealer, For the thing that would bring him much gain.

Put his hard cash on the counter, In exchange for the electronic brain.

He read all the handbooks and 'Read Me's',

He read all the programming drill.

But he got nowhere with his project; His mathematical knowledge was nil. So albert went along to the night school.

He studied so hard and so long. He learnt all the master equations; Could not afford to get his sums wrong.

He applied all his new-fangled knowledge,

To analyse the lottery's luck.

Even wrote a number of programs, But every one came unstuck.

He applied the 'means', 'medians' and 'sigmas',

Also the 'semi quartile range'.

He squared up to the 'standard deviation',

And other things just as strange.

He tried hex, binary and octal, (Indeed 'Reverse Polish' as well.) He tried recursive procedures, Even taught the computer to spell.

But no matter what he did with his Psion,

Or its programs, no matter how long, No matter how he worked the equations,

His lottery numbers were wrong.

Young Albert then consulted the experts,

Diverse statisticians and all.

Their answers did not make him happy,

In fact they just made him pall.

It seems what he had neglected Was the randomness in the lottery's balls.

They weren't meant to be 'mathematical';

A ball just falls where it falls.

With just a pencil and paper, Or, at most, a second-hand PET. He could have worked out just how often

He would win. Not often you bet.

One in eighteen thousand on average For a tenner is not very sound. To cover the cost of *one* Psion Four correct balls must be found.

Even that might not guarantee it, Though one might expect it to do. Two hundred and twelve thousand To one is the chance if one knew.

If Albert were truly devoted, And invested a tenner a week, On average during next five millennia,

He would then win enough, so to speak.

But Albert, like others, is mortal, And can't wait that long for his win. As much as he loved his Psion, In the end he had to give in.

He put the thing up for auction, Hoping that it would bring in Enough to pay off the banker, Though he thought it rather a sin.

Now Albert was rather lucky, And the auction brought in such a sum

That paid off the money outstanding, But left Albert unpleasantly numb.

On checking his financial position, And finding his fears all were true, That he was somewhat out of pocket. No wonder he felt rather blue.

Let this be a cautionary tale, For those inclined to the view, That computers can solve all your problems, Yes, and that also means *you*.

Arnold Killroy Byte

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## **Gill's Maternal Journal**

### Who's the daddy?

At my little sister's recent wedding, one of my new brother-in-law's large collection of relatives casually asked Toby if the very sweet little flower girls were ours. Now, admittedly I did share a maths, I'm sure (or use the computer's calculator facility) and that's pretty darn close to six years together.

Now, having a five year old would be pretty speedy work on our part, and

Gill starts thinking about the problems of motherhood and how to cope with babyspods who don't come equipped with a noise-off switch.

hair colour with them, and I was dressed in the exact same colour, due to being matron-of-honour, but still!

Yes, please get all your 'Ooooh, matron!' gags out the way right now, if you still want me to be talking to you by the end of this article. Done? You sure? No, no, it really is hilarious. Every time. Absolutely. Honestly. Finished? Sure? Right then.

The thing is, this pair were five and eight. Now, we got married four and a half years ago next month. We met two years before that. My sister married precisely five days before our fourth anniversary. You can do the I'd consider it not a little rude of us not to bring her to our own wedding, but her eight year old sister joining her would have involved time travel.

Of course, second cousins several times removed of the latest poor fool to marry into my large, and complicated family, couldn't know this, but we were shocked at the question. I mean, us, parents?! It doesn't bear thinking about!

So being an awkward sort, I did think about it. We have always presumed we will be having children, one day. 'One day' is defined as roughly five years, on a rolling basis. It was



roughly five years when we got married, and strangely hasn't got any nearer during the past four-and-a-bit.

Actually, I have made progress towards considering parenthood. Babies are no longer disgusting things that people too stupid to use contraception end up with, but a valid and acceptable lifestyle choice. They can even be cute, sometimes. (Emphasis on *sometimes*.) I'll occasionally hold other people's, so long as neither parent even considers leaving the room. Ideally, there should also be at least one doting grandparent around to pass them promptly on to, but I can often manage ten minutes, before passing the little darlings on to Toby. Well, he ought to get a little practice in not



dropping the things with ones that matter to me less than I hope ours will!

My cousin's two little boys, aged three and two, I even consider rather sweet. They have distinct personalities, and are finally little human beings —no longer screaming and crying machines. One considers himself to be Harry Potter junior, but I blame this on his parent's appalling lack of having introduced him to the delights of Enid Blyton, Arthur Ransome and Jill Tomlinson. I shall have to start buying them appropriate birthday presents, just as soon as they can read. The affection for these two is, I should point out, solely from the distance of stray aunt.

Toby, naturally, is still less than convinced that practising not dropping babies is a necessary sport. He is a spod (not a card-carrying spod —there's only one person I know who still keeps out of date Acorn credit cards. I won't be so cruel as to name and shame. Just shame.) Therefore, as a spod he has a rather severe problem with any device that makes a lot of noise, without having some sort of off switch, even if only to be used in dire emergencies.

Toby, like his colleagues, reacts fast when the UPS goes off, in order to shut it up. But the group of them all know their precise incantations to stop it wailing loudly. My cousin's pair of miniature dynamos have some sort of random programming, that means just because you shut them up last time by handing them to their mother, this time shoving the passing double-handled beaker of 'goose' (juice, I'm told!) into the place the noise comes from, might be more effective.

How erratic —it could almost be Microsoft! And really, how's any geek supposed to come to terms with forcing a liquid substance into the equivalent of the speaker?

Distant aunting has taught me a very important lesson on children —never ask silly questions. Let me indulge the proud aunt side of myself for just a moment —these answers to poor mummy are classics. But this is why you ask the question you want answered. The three year old managed a wonderful response last year. His mother encouraged him before dinner "do you want to sit up?" The answer was honest, but perhaps not what she hoped for: "Not really."

His little brother, when asked "Are you still playing with your toys, or doing something you shouldn't" offered equal honesty: "Doing something I shouldn't." Honesty may or may not be the best policy, but it was certainly the most amusing from where I was standing.

Anyway, to return to the point, other than these freak moments, mostly, we are absolutely fine as we are. I don't think Toby's ready to be a dad. I mean, most parents use baby monitors on their young children. To Toby, a 'baby monitor' means a mere 15 inch screen. I'm not convinced any spod should be allowed to reproduce. Imagine a whole family of faffing spods! Nothing would ever get done, unless someone got bored enough to automate the process on the Linux box.

### **Baby monitoring**

Now, I'm sure there are some spods —maybe even reading this —who have enjoyed the privilege of becoming parents. For some of you, that may have been back in the dark ages when baby monitoring was having a house too small to leave the infant out of crying range. For your sake, and for that of any confused spods considering reproduction, I'll explain baby monitors. They're devices to hear when the little darling cries, sniffles, or does anything other than sleep.

They're a bit like walkie-talkies, except that the baby doesn't need to learn to press the button and say 'Echo-three-five-nine, this is Bravofour-seven-three? Do you receive me? Over," before being able to start bawling and demanding attention from the appointed adult, or preferably a different one, to ensure the ruining of all possible grown-ups' evenings.

I fear that any child of a spod today will be the lucky recipient of baby monitoring with a 24/7 webcam on the cot. This means both the mother and the mother-in-law will be able to e-mail the poor mother constantly with what she's doing wrong. Oh joy.

Thank goodness my mother can't work out much more than switching the computer on -so all I'll have to worry about will be my technologically aware mother-in-law (where did you think Toby got it from?) I'm wondering if I could find a way to loop it, so that the five minutes baby is happy and smiling in is always on? Even if I just fix it for the in-laws' IP addresses? I am, after all, married to the tech support for her! No, she'd probably just worry that baby wasn't getting enough varied stimuli. As if baby's own in-cot Iyonix wouldn't provide lots of things to stimulate the mind! Last Eureka's review seemed to miss out how chewable and dribble-proof the machines are.

So, you can see why I'm scared for any child we have, and why I fear any other spods becoming parents. I think Toby's probably better than many, but let's face it, none of The Arm Club committee will ever be found rushing to the local park to play football with their sons. No. Of course, they will help their little boys to improve their



headers, but those will be solely email ones.

To be fair on Toby, he is a specimen of spod-hood who has managed to find a wife. He is one who is capable of interacting with women (me, both mothers, my two sisters and the girl at the office!) This means his grasp on normality is better than that of many spods. The flip side of this is the increased likelihood of becoming a dad, and having to deal with problems that simply can't be solved in hex.

I mean, let's face it, for most spods, the nearest they'll get to parenthood, (if they hadn't managed it pre-1984, when computers started to become more common) is to hope that their programs create child processes. No, I don't have a clue what that means, but those are the only children in Toby's life so far. I worry that some of you out there will right now be sighing with broodiness at the thought of these delightful little bundles of coding.

### Webcam

So what would it be like to be the child of a serious spod? You could be sure that your father wouldn't miss any of those all important moments of your life —first smile, important sports game, graduation —or if he somehow did, he'd make sure the webcam that was recording it saved every moment for him to watch later.

A spod's child would be documented online from moment one. The recent stereotype of fathers getting out of holding the mother's hand at the birth, due to holding the video camera can go —your true spod will have set up a carefully balanced webcam. They'll probably even have had a pre-natal table of force of all baby's kicks, and frequency of contractions will have a webpage update every 3 seconds.

#### Babyspod.com

The whole of the actual birth will be going out live on www.babyspod.com and all the relatives can joyously share every moment of the lucky mum screaming and pushing.

If they're lucky, a caring spod-cousin, sibling, or member of the ARM Club will be able to save for the new dad that very moment that his wife / partner / significant other / personwho-right-now-hates-him-most-inthe-world holds the spod's hand so tight it breaks. (Argh! How can you code efficiently with only one hand?! Thank goodness the birth website is all already automated!)

From there, pictures can be beamed out non-stop. If this saves the new mum from an immediate visit from her mother-in-law, the constant filming may even be forgiven. Baby's first cough, his or her first being dropped by daddy, and their first glare at the camera can all be recording for posterity (just who is this posterity chap, and why exactly does everyone save so much stuff for him?)

Baby Spod would naturally have an email address of his or her very own,

probably from shortly after conception. Voice recognition software could be set up to read it out to baby in the womb, and translate the ripples of water, kicks and hiccups into baby's courteous replies.

Post-birth, this could be helpful to those hearing the child once it's starting to talk. Currently only a mother ever knows that the noise 'blerk' is the child trying to express it's deep affection for it's wonderful mother.

The recognition software would naturally progress with baby, and realise that it's trying to ask for a drink, in spite of the fact that that silly woman just keeps hugging it, and cooing, "Yes, babyspod does love mummy, and mummy love babyspod too."

Of course, this could lead to many deeply embarrassed relatives, as each takes their turn cuddling lucky baby, only for the software to loudly announce the baby's gurgles as 'Get that hideous old crone away from me. I'm scared those wrinkles are catching! And is a nose job really too expensive?" I'm not entirely sure at what point in child development Piaget lists a toddler learning to type for themselves. MayB bb wll lrn 2 txt 1st, and of course the delights of emoticons :-). Then the little darling will be able to communicate with friends, relatives, and of course stray perverts on the net whenever it likes. Just the thing to warm a parent's heart.

I have to warn you that personally, I'm not convinced that baby's first computer will actually be an ARM machine. I suspect it'll be more solid plastic, chewable, and it'll make a far wider variety of 'ping' noises. But it will have buttons to press, don't you worry about that. Baby's first mobile will look enormous to its by now exhausted parents, who dare not put theirs down, in case they get lodged in baby's throat.

And the state of the parents will be fun. Instead of getting the chance for regular sleep and the odd hour on the internet to upload latest pictures and reply to well-wishing e-mails, daddy will be a nervous wreck. Any cables baby hasn't tasted by age three months will need to be hidden before
six, when baby discovers a great way to make daddy pull all sorts of funny faces, just by pulling hard on the nearest bit of wiring.

### Scream the house down

Mummy, of course, will be sleep deprived and wondering how she ever thought she could combine a career —or possibly, just a life —and a child, given that every time she tries to work, the child must be watching in his or her webcam, and knowing to let Mummy settle down, get the computer booted up and ready to go, and then pause, breath deeply, and this moment is exactly when it's best to scream the house down. The neighbours just think she's battering the poor wee thing.

And when the poor mother tries to ring her own mother for a quick ten minutes sobbing (if only baby will keep enjoying his or her newfound skill of crawling around for that long) she discovers no dial tone. Exactly who taught baby how to remove phone cables?

Will daddy kindly remove her poor darling's fingers from so close to the socket right now, and if he teaches baby anything else like that, he can put his own fully in there, as far as she's concerned.

Yes, it'll be a relief for both parents once the child is old enough to upload it's own webpage updates. At least, that's what you'd have thought. I mean, who was to know that your four year old would be so swiftly accepted as webmaster of www.my-teacher-isa-perv.com and be spamming school officials in a desperate bid to get out of French homework? Who knew that your toddler could successfully conduct a denial of service attack, given they haven't yet managed to say it?

And who could have guessed that the Pentagon's latest hacker wasn't the Norwegian dissident your child claimed, and actually that particular five year old, with their better developed Linux system than the entire of the US Security Forces. And to make the little darling even more smug, they've now discovered this fact.

Thankfully you manage to persuade the authorities it was all just a mistake, and that your pride and joy thought he / she was playing a little joke on a friend.

Ooopsie. It doesn't help that their pre-school sibling keeps coming out with George W. Bush's private passwords, although to be fair, 'President' would have been an easy guess for anyone.

#### **Emailing a virus**

Naturally, all sporting ability has been carefully removed from this child's genes, but at least when they're picked last for the rounders team yet again, they can teach the annoying athletic children a lesson by emailing them a virus created specially to sound like the bully child is busy studying internet porn. If it doesn't get the kid into trouble, it should get them a slap for getting dad all excited and then letting him down.

And when teachers fail to realise that the reason something isn't working is because they didn't plug it in, at least your spod-child will have had enough experience of hiding their giggles from all those times when their grandmother did the same, and have at last learnt to find a tactful way of explaining the problem. Computer lessons will be difficult, because your well brought up child will be eager to answer the questions, but when the teacher asked how you'd add a column of numbers, they were trying to introduce the class to the use of Excel spreadsheets, not encourage a discourse on the differences between programming languages, and a full analysis of which would be best in this given situation.

But at least, in adulthood, your darling offspring will have learnt the virtue of patience —mainly through too many people incorrectly using computers.

They will be able to stand up for themselves. And they'll get a really good job. It'll be something in computers, that even the spod-parent wont understand a word of by then. Ah well, at least it'll mean that when the time comes, they can easily afford to bung both doting parents into a fully flood-wired nursing home.

#### **Cartoons by Howard Read**

There will be more revelations of the spodding life from the pages of Gill's Journal in our next issue.

### Free Computer And Colour Printer

An Acorn A3010 computer with colour screen and colour printer (Canon BJC 600) are offered free, preferably to a school or club (but must be collected). The original discs and manuals plus some games, joysticks and some magazine discs are included. It all works except that the mouse is a bit dodgy and the printer needs inks (and possible heads) so some expense must be expected.

If you are interested ring Andy on 07958 224891 or email andy@agdesign.demon.co.uk.

## Free Magazines

Paul Beverley of Archive Publications is offering three free back issues of *Living With Technology*, the magazine he edits (along with *Archive*). It's all part of a cunning plot to get you hooked on LWT enough to want to subscribe to it! However, there are no strings attached to the offer.

If you feel interested enough to look at (and keep) some free copies just write or email your request to: Archive Publications Nutwood, Middle Road, Great Plumstead, Norwich NR13 5EG paul@archivemag.co.uk

### **Bargain Educational Software**

A large amount of educational software for sale (too large to list). Buyer collects or would consider posting if postage and packing is paid.

Chris Price, Merton Court, 38 Knoll Road, Sidcup, Kent DA14 4QU Tel: 0181 302 4078 chris.mertoncourt@argonet.co.uk





### **Club contacts**

#### Email:

General queries Membership queries Members' technical help Product sales Magazine Software

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# Benefits of membership

The national club for all users of 32 bit Acorn computers and Pocket Books



- The Club's magazine, 'Eureka', written by members, is published and sent free of charge four times a year.
- Free software to accompany articles in Eureka is available on the Club's FTP site or can be sent to members on disc.
- Free Technical Help Service. We will do our best to solve any problems which you may have, by email, letter, telephone or fax.
- Special discounts for Club members from well-known companies.
- Regional open days and shows are regularly organised by the Club. Other events can be arranged on request.
- Special offers at shows and open days.
- Regional contact lists of other members, available on request.
- Opportunities to get involved in the running of the Club itself.
- School and Affiliate Membership available on request.
- Joining pack includes an extra copy of a recent issue of the magazine and software.

Annual membership £15 Europe £19 and rest of the world £21 The ARM Club, Merton Court, 38 Knoll Road, Sidcup, Kent DA14 4QU Email: info@armclub.org.uk Tel: 07010 709849 (Flextel)