

Gerald's Column *by Gerald Fitton*

This month my column starts with a few requests for help; I continue by describing a serious bug in Fireworkz which PipeDream doesn't have. After risking a couple comments contrasting the way in which Psion and Acorn currently market their products, it is with a measure of fear for the consequences of speaking out that I analyse Colton Software's future prospects. Just for fun I include a brief introduction to a numerical problem best solved using recursion – but leave you to solve it – and complete my column with an offer from Australia.

The Printer Port SCSI Interface

Barry Allen writes to ask: "Do you have any thoughts on getting an EPSON GT 6500 scanner working using the Printer port SCSI interface from Atomwide? With the interface plugged into my A4 and a SyQuest removable attached and terminated everything works perfectly. With the SyQuest and the scanner on the bus, the scanner terminated this time, the SyQuest works perfectly but typing *devices only finds the SyQuest. With only the scanner on the bus terminated, typing *devices only finds the PrinterPort SCSI. All the devices have different device numbers."

If you can help then please write to me (I've got an A4 and a SCSI SyQuest so I might buy a parallel port SCSI interface) and directly to:

Barry Allen, 1 Deanbank Avenue, Manchester, M19 2EZ

Epson Printer Problem

Mike Beardshaw writes: "After using an Epson LX86 with no problems, I recently bought an Epson Stylus 800+ ink jet printer, connected it to my RISC OS 2 Archimedes and soon came across a problem. When the amount of text or Graphics sent to the printer filled its buffer, 32K in normal mode, the printer sends the signal 'Stop sending' as usual. However, when the printer emptied its buffer (by printing), the Archimedes would not send anymore text to the printer.

"The Computer shop tested the printer and could not fault it, however they did test it on an IBM and with usual IBM blindness to any other computer they didn't want to know! Acorn's help line said it was a well known problem and really tough luck pal! Epson's helpline said it should work and were puzzled but did confess that Acorn had had problems in the past, and if I got anywhere please let them know."

After much testing and hair pulling later, Mike reports that "I have in fact solved the problem, without any modification to the printer, or to the Computer or it's Configuration. The printer lead connections have remained the same also."

Currently Epson are doing some tests, and so although Mike's solution works very well for him, it is possible that Epson may have produced another method of overcoming the problem. If anyone wants to know Mike's solution (he hasn't told me what it is), please get in touch with him at the address or 'phone number below.

Mr M Beardshaw 30 Penshurst Avenue Hessle East Yorkshire HU13 9EL, Telephone: 0585 632391

For my part I wonder if this is related to a fact I've reported before, namely that some recently produced printers will work only with a bi-directional parallel port (ie data flow in both directions to and from the printer). The printer ports of IBM type PCs have been bi-directional for some years now but Acorn introduced the bi-directional printer port with A 5000 and A4. Earlier Archimedes, including my A 540, have a uni-directional port and Acorn's printer drivers will not drive some of the more modern printers.

WordWise to PipeDream

Peter Clarke asks for help with such conversions. He says:

“I think I remember reading that you used to use WW+. I transferred some 40 heavily formatted WW+ files containing my table tennis club's history from my old BBC computer; each file includes a table. I can probably remove the embedded codes in !Edit, perhaps after identifying their hex codes with *Dump, but if there are ways of directly replacing those codes with PipeDream 4 highlights (or Fireworkz styles and tables) it could save some time.”

It is such a long time ago that I ported my WordWise files to PipeDream that I've forgotten exactly how I did it! My recollection is that I printed from WordWise to a file and then imported the ASCII file into PipeDream – but I can't remember. If you know how to do what Peter wants then please write directly to:

Peter D Clarke, 24 Redwood Glade, Leighton Buzzard, Beds, LU7 7JT, Tel: 01525 371254

A Serious Bug

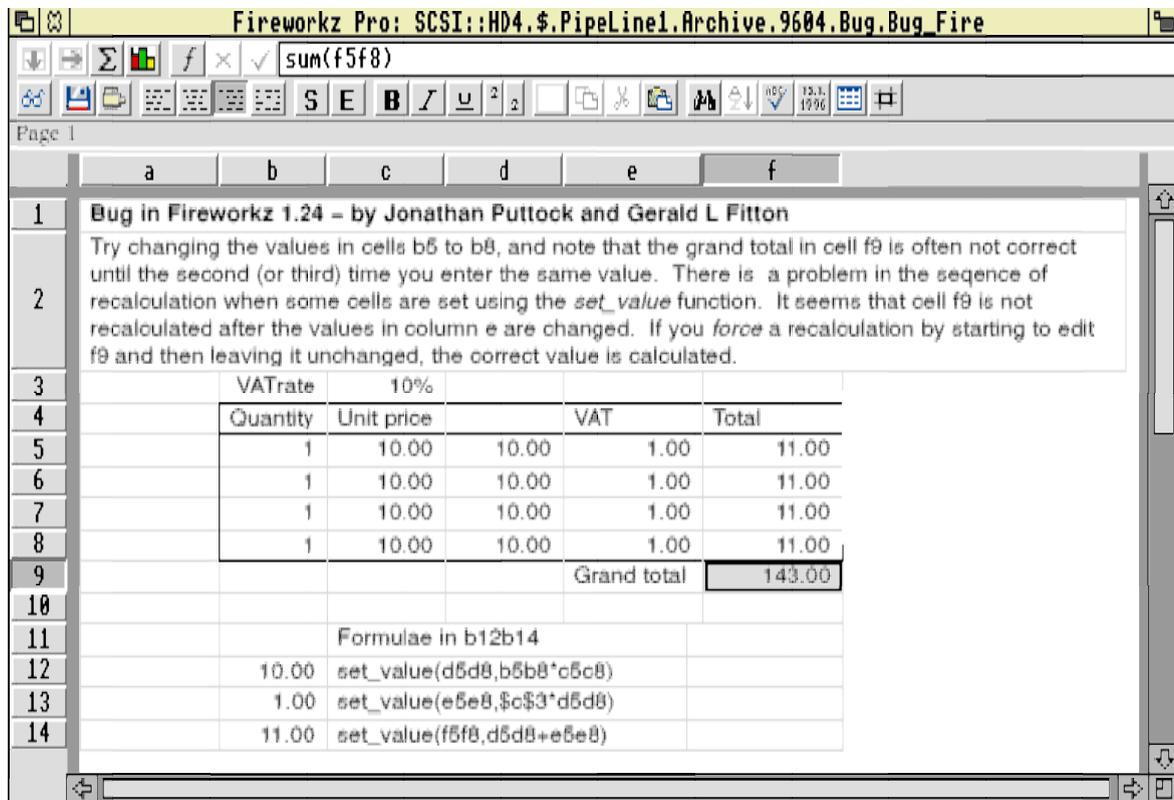
About a year ago now I received the file [Bug] (on the Archive disc) from Jonathan Puttock. He complained that Fireworkz Version 1.07 had a bug in the set_value(.) function. I brought this to the attention of Colton Software who said that they would fix it in the next version! Because they were going to fix it and because I was assured that the new version was not far away I decided that I wouldn't publish Jonathan's bug in Archive. Well, a year later I've got version 1.24 and it's still there!

Jonathan wrote:

“I have found a bug in Fireworkz which is associated with recalculation when set_value(.) is used in a spreadsheet. Since this gives incorrect answers when the program is apparently working perfectly, it is potentially very serious. The problem is illustrated on the accompanying file [Bug].”

In case the screen shot (below) is unclear let me explain what goes wrong. The Fireworkz function set_value(to,from) pushes a value from the slot 'from' to the slot 'to'. It also works with arrays and calculations. An example is the slot b12 which contains the formula set_value(d5d8,b5b8*c5c8). Three such set_value(.) functions are used in b12b14 to arrive at the 'total with VAT' in column f. These totals are summed into the grand total which

you'll find in slot f9. I am sure that, however non numerate you are, you'll see that the value in f9 can't be right! If you have the Archive disc you'll be able to confirm the bug exists. If you don't have it then you'll just have to believe me when I say that there is nothing wrong with the design of the spreadsheet. What has happened is that the spreadsheet has made a miscalculation! What is even more worrying to me is that Fireworkz sends no error message!



I agree with Jonathan that this is serious and I have had many other complaints about *set_value(,)* not working properly and giving no error message. My own research into the occasions when this problem arises is that to experience the unreported error you must use *set_value(,)* in such a way that the 'from' in one *set_value(,)* has been derived from the 'to' in another and that the 'depth' of this 'from' 'to' sequence is at least three.

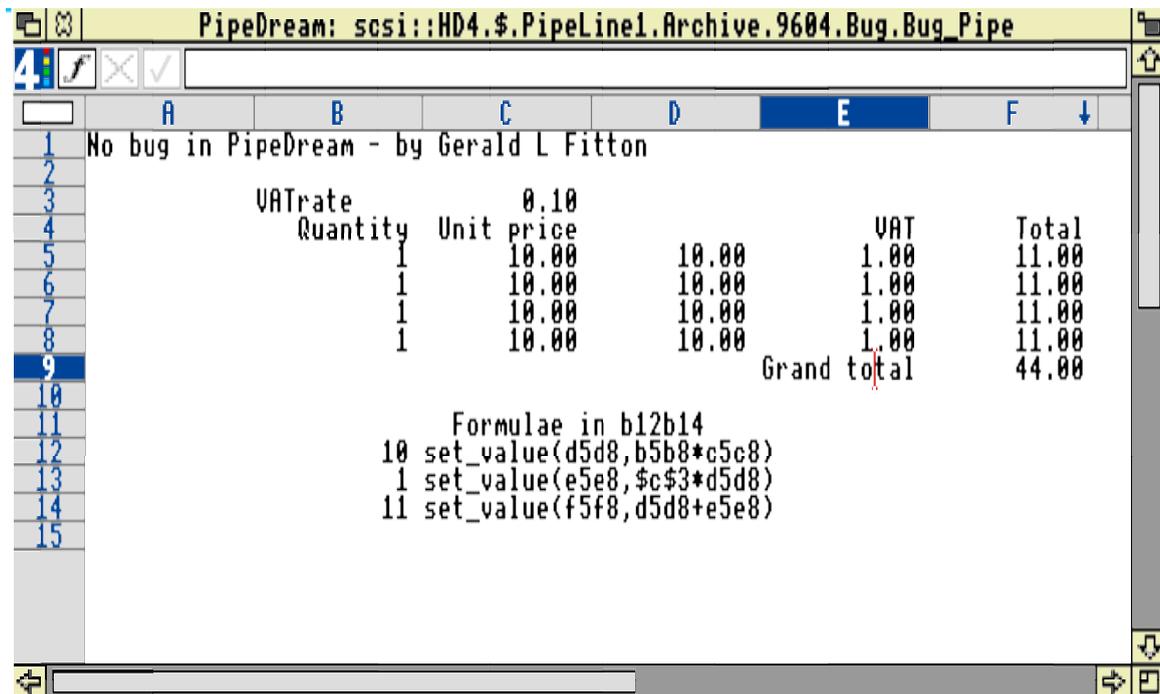
Some time last year I wrote that I wouldn't trust Fireworkz with anything important because of this particular bug. Mark Colton telephoned me and expressed his annoyance that I'd openly criticised Fireworkz this way—he assured me that this bug would be fixed. Consequently I toned down my criticism and, as an alternative, I gave positive advice about using cross checks in all calculations. An example of such articles is in the directory ErrorChk on the Archive disc together with a [ReadMe] file explaining how to use the error check custom function contained therein.

Although many found my cross checks articles interesting it was only a few who went to the trouble of including such cross checks in their Fireworkz spreadsheets. Those who did not include cross checks as a matter of routine found this *set_value(,)* bug manifesting itself all too often – or worse still, they didn't find it until it caused a disaster such as sending out an incorrect invoice. One of my correspondents got into an argument with the tax Man! Letters of puzzlement, amazement and complaint continued to arrive to this day.

The Advantages of Using a Mature Package

Have a look at the screen shot below. PipeDream does not have this bug! The grand total in slot F9 shows the correct value of 44.

Often I am asked to compare one package with another. Usually my correspondent wants to know which package to buy. Of course I tailor my advice to the requirements of the writer as far as I am aware of them but here are a couple of my now famous rules. One is "Don't buy a new piece of hardware or a software package just to keep up to date – if you don't need the facilities of a more expensive package then stick with the cheaper one with less facilities!" To that rule I often add (but sotto voce) "If you have the choice between an older and a newer package then choose the older because it probably has less bugs!".



The screenshot shows a window titled "PipeDream: scsi::HD4.\$PipeLine1.Archive.9604.Bug.Bug_Pipe". The spreadsheet has columns A through F and rows 1 through 15. The content is as follows:

	A	B	C	D	E	F
1	No bug in PipeDream - by Gerald L Fitton					
2						
3		VATrate	0.10			
4		Quantity	Unit price		VAT	Total
5		1	10.00	10.00	1.00	11.00
6		1	10.00	10.00	1.00	11.00
7		1	10.00	10.00	1.00	11.00
8		1	10.00	10.00	1.00	11.00
9					Grand total	44.00
10						
11			Formulae in b12b14			
12			10 set_value(d5d8,b5b8*c5c8)			
13			1 set_value(e5e8,\$c\$3*d5d8)			
14			11 set_value(f5f8,d5d8+e5e8)			
15						

Regular readers will know that for many of the real jobs I do (as opposed to playing with the software) I prefer PipeDream to Fireworkz. The fact that PipeDream is old troubles me not at all! Let me refer you to the mathematical formulation of a well known proverb which states that the correlation coefficient between the quality of a wine and the age of the bottle from which it is poured is positive and not negative! (viz "Many a good wine is poured from an old bottle!") There is no doubt that PipeDream 4 may show its age in some respects such as "Where is the edge of the page?", varying fonts (Styles) and line heights but, when it comes to doing sums in background without error, displaying and fine tuning charts, creating and executing command files, character based (quick) printing and keyboard short cuts, it is the PipeDream wine that has the fine bouquet and no bitter after taste.

One of the reasons why I have not yet bought a Risc PC is that PipeDream doesn't work as well on it as it does on earlier machines. Today I finally decided not to buy a Risc PC and bought one of Paul's reduced price A4 lap top machines instead. The A4 will not replace my primary machine, an A540; I shall pension off my aging A440 – it is an original A440

and not one of the later A440/ models.

The Pocket Book Column

Many of you have written to say that you're pleased I mentioned Audrey Laski's Pocket Book Column in glowing terms. You agree with me that Audrey's column deserves praise. Indeed, long before I bought a Pocket Book it was one of my regular reads! Even if you don't have a Pocket Book I recommend her column to you not only for the wide variety of interesting technical content but for the winsome way in which Audrey writes. In Vol 9.6 (last month's) she comments that she uses Cards for recording expenditure rather than the spreadsheet Abacus and confesses to being an "Abacus duffer" leaving me with two spreadsheet areas to cover in the near future namely Gerald's Address Book and Audrey's Expenditures! I shall do so soon but not in this issue.

Already I have received letters (with disc files) asking how to use the Pocket Book's spreadsheet to deal with a variety of problems. The ones I've had have been relatively straightforward so my response has been almost by return. I am pleased to have Audrey's permission to say "Keep them coming".

Rather like Audrey I have taken to using my Pocket Book in bed (to prepare spreadsheets for the following day's lessons at college) and, like Audrey, the other side of my bed is occupied by my helpmate, Jill, who makes highly intellectual comments about the spreadsheets I prepare but gets particularly interested in the Pocket Book when she wants me to check a synonym or spelling for her crossword puzzle. Because the Pocket Book is multi tasking she can use Spell without damaging my spreadsheet in any way!

Acorn's Marketing

Which? is a magazine. It often gets things wrong but most people when asked would reckon that Which? champions consumers' rights and exposes weaknesses in consumer products. Their word goes a long way! Alan Williams has sent me a photo copy of part of their 'tests' on computers in which, to quote Alan "I was puzzled to see the Acorn Risc PC rated the slowest! . . . This article must have done no end of damage to Acorn's marketing."

Alan explains why he has written to me. It is partly because I've been writing about marketing in Archive but he also flatters me by saying ". . . but also because you write so clearly!" I may be able to write clearly but, regrettably, my letters to Acorn only rarely receive an answer!

Those of us who use both Acorn and other types of machine know that the Acorn is faster. The mistake that Which? have made is to look only at the processor clock speed which, at 40 MHz (in the model they chose), does have a smaller number of ticks per second than a Pentium running at 90 Mhz. One of the many things of which Which? take no account is how much work is done each time the the clock ticks – another is the superior Acorn architecture.

In the normal course of events I would not bother commenting on such an article. I certainly would not try to educate the author of the Which? article about Dhrystones and the like – I would leave that to someone else such as the Acorn Marketing Department. I

mention the Which? article only because I see the date of the article is October 1995 and because Alan says "Why hasn't Which? been challenged?" The implication is that not only have I not bothered to reply but that Acorn have not bothered either!

I believe that under their new management this apathetic attitude will soon change.

Psion's Marketing

Psion's name and product are popping up in the media all over the place. Apparently Psion are selling to the Russians. They are hooked into publicity about the digital portable phone network's Short Message Service (SMS); you can link a Psion to a digital portable phone and send (and receive) messages or even files over the portable phone! They get free publicity because pictures of 'Famous People' using a Psion appear (together with back up articles) in newspapers and magazines. I see other examples too numerous to mention.

About four weeks ago I wrote to both Psion and Acorn advising them of my Archive column (sending them a copy of one particular page) and asking for information which it might be useful to publish. Psion replied by return; I am on their mailing list and will receive lots of literature. I have yet to hear from Acorn – but I expect to do so eventually!

Portable Spreadsheets

As I have said in previous issues of Archive, in schools, at college, in business, in engineering and scientific establishments the use of spreadsheets is showing a surprisingly high rate of growth. It used to be said that the word processor was the biggest single use of the personal computers but WP usage, whilst still holding its own, is being caught up by the spreadsheet. In contrast, or perhaps because they are inversely correlated, the use of the electronic calculator is declining.

For some time now Sharp have had on the market a lightweight semi portable (but not battery operated) combined word processor and printer. The development I want to bring to your attention is that now they are including a Lotus clone spreadsheet as part of their £400 Font Writer machine. The company from whom I obtain my office supplies is advertising a similar machine, a Brother LW700i, for £300 + VAT. Both have full size keyboards and fold down liquid crystal monochrome screens. These machine (and others which are similar) are rivals to the Psion. I mention these rival and non Acorn machines because I have been asked in correspondence direct questions the answer to which is "If you must have a full size keyboard (because of the amount of typing), if you need a spreadsheet, if you can't afford a lap top and need to be able to print then you need a portable such as . . ." and I include a photocopy of the Font Writer or Brother.

Acorn's awareness of the market has improved so much recently that I'm sure that they must be considering a downgraded (and reduced price) version of the A4 with software in ROM and a specification similar to the Sharp Font Writer and Brother LW700i. I hope that they will include a spreadsheet which is more like PipeDream 4 than the Lotus clones of the Sharp and Brother. I hope that Acorn approaches Colton Software (ot that Colton Software approach Acorn) and that we don't get offered a spreadsheet with all the limitations of Lotus.

Let me go on record as saying that I think Colton Software are making a serious mistake in not marketing PipeDream 4 for these portable machines. Sometimes I wonder just how much Protechnic would sell PipeDream for? If so then just how much it would cost for the code to be 'tweaked' to make it more compatible with the Risc PC? A gamble for the entrepreneur who buys PipeDream is that it might be financially possible to develop it for use on the up and coming portable spreadsheets!

Fireworkz and Fireworkz Pro

I have hesitated for many months about writing about this next topic. It is only because I have been besieged by so many requests that I have decided that the time has come to be brave and get on with it.

Let's start with something simple and straightforward, information about the latest version. The versions which I have of both Fireworkz and Fireworkz Pro are labelled Version 1.24/01 dated 17th Jan 1996. I have been told that 1.24/02 exists and a few have been distributed but I don't have a copy.

It is becoming more and more difficult to pin down Colton Software about their upgrade policy; indeed, over the last few months, their policy (as expressed to me) has gradually changed. I believe that these changes in policy are not the outward manifestation of any long term consciously thought through pro-active strategy but that they are the varying reactions of their new masters, Protechnic, to information received through the monthly Sales revenues and Costs of running Colton Software! It is my guess that, at the moment, costs exceed revenues and, rather than investing in operations which might increase revenues, Protechnic have embarked on a series of cost cutting operations. For example, you may have noticed that the number of advertisements has gradually waned (I think there aren't any running at the moment) and that their appearance at Shows is being curtailed. Back in October 1996 Colton Software openly expressed their intention of running a mail shot to everyone who had ever bought PipeDream or Fireworkz advising them of the various options they had for upgrading. That mail shot has not happened.

Under these circumstances you will appreciate that the information I have from Colton Software is fluid and liable to change! Nevertheless, let me tell you what I can about the upgrade policy. So far as I can determine there will be no more upgrades of Wordz and Resultz after Version 1.07 and no more upgrades to Recordz after Version 1.23! It would seem to me that, when stocks of manuals, brochures, discs, etc, run out, there will be no more sales of Wordz, Resultz and Recordz, indeed, no more Wordz, Resultz or Recordz except for second hand copies! I do not mourn the passing of Wordz, Resultz and Recordz as entities separate from Fireworkz. I always felt that selling Fireworkz piecemeal served only to dilute the marketing effort and increase disproportionately the expenditure on programming and administration. I believe that abandoning them can only focus attention on the major products, Fireworkz Pro and non Pro.

The situation with regard to Fireworkz and Fireworkz Pro is different and more difficult to rationalise. Let me digress slightly. On the 1st December 1995 Colton Software confirmed to me (for publication) that further development of Fireworkz Pro for Windows (ie for the PC) had been abandoned. This is still the case. However, Fireworkz for Windows (ie the non Pro version – without the Recordz database) is still being progressed in parallel with the RISC OS variant of Fireworkz (ie the version without the Recordz

database). Those of you who have Fireworkz Pro, even the latest 1.24 version, will know that the Recordz (database) section of it still suffers from many problems. In combination these facts make the future of the Pro variant of Fireworkz (for the Archimedes) more tenuous than the future of the non Pro variant.

Those of you who notice these things have noticed (and commented to me) how few applications of the Fireworkz Pro database I have included in Archive. This has not been accidental. Until the future of Fireworkz Pro becomes clearer such applications will appear only rarely – if at all. Nevertheless, I do thank those of you who have sent in such applications for inclusion in Archive—I have found them interesting but I don't want to use them at the moment.

The Protechnic masters of Colton Software have a management problem. Let me do my best to explain it to you. There is no doubt in my mind that Protechnic want Colton Software to 'rationalise' their product range selling either Fireworkz non Pro or Fireworkz Pro but not both! At this stage they feel that they can not abandon Fireworkz Pro. Why? One reason is that selling Fireworkz Pro brings in more revenue than selling Fireworkz non Pro! However, as a company familiar with commercial practices in the mainframe (and PC) business they are afraid that this would lead to an outcry for compensation from many purchasers of Pro. In the meantime every sale of Fireworkz Pro (rather than the non Pro variant) increases the size of this potential compensation. Compensation to Fireworkz Pro users is a contingent liability inherited by Protechnic.

The serious management problem they have is whether they should spend what is necessary in order to get the 'bugs' out of the database section of Pro or whether it would be better to ride out the storm of protest which would result from abandoning it. You all know what happens with computer software and programmers. It always seems to be harder (takes longer and cost more) to remove bugs than the programmers realise. I think that initially Protechnic either didn't know of (or they underestimated) the problems which Stuart Swales would have and is still having with the database section. I believe that their realisation that there is no 'quick fix' which will get the Pro section working has been gradual and with it has come a gradual disillusionment with Fireworkz Pro.

Now let me express the views of many of my correspondents rather than rely on my own. Their perception is that the database of Fireworkz Pro is not as integrated as they would like. What is more, by its very nature—it is bolted on—the degree of integration can not be increased. Feedback to me from users of Pro is that they are very disappointed with the database section and not only because of the bugs. Many say that, even if it were working properly, it would not do what they had hoped it would. I don't believe Protechnic are aware of this storm; it is beyond their horizon. In my personal view, this fundamental shortcoming of Pro augurs badly for its future.

It is my personal view that Protechnic would do better to concentrate their efforts on the non Pro version of Fireworkz even though this means that there will be decisions to make which will be hard and (maybe) expensive to implement. My guess is that, sooner or later, as they look for the silver lining beyond the inexorably approaching storm of protest, Protechnic will come to the same conclusion as I have and they will dump the database and with it they will cease to promote the Pro variant of Fireworkz. If abandoning the database section results in focussing more attention on improving the spreadsheet/word processor package then, in my view, this would be a good thing and the sooner the better. By

improvement I mean, for example, that they should include more of the features of PipeDream to which I have referred earlier in this article.

There are markets such as the Acorn Pocket Book and the Sharp Font Writer which could do with an integrated word processor/spreadsheet package of PipeDream 4 quality. 'Focus' is one of the management jargon words which is 'in' at the moment. Would that the expertise of Stuart Swales (of Colton Software) were directed at such growth markets!

Recurrence Relationships

I am running out of space so I must keep this one short. I have been in correspondence with Colin Singleton about his puzzle number 50, an infinite sequence of square roots. In its most general form it is required to find a function which I shall call $f(x)$ such that: $f(x) = \text{sqr}(1+f(x+1))$. Please note that $f(x+1)$ means "evaluate the function f using as its argument $(x+1)$ "; it does not mean "the $(x+1)$ th value of f "; nor does it mean multiply some value of f by $(x+1)$. The function $\text{sqr}()$ is the (aphrodisiac) square root function which featured in my column last month. Those of you who are into recursive functions will recognise that, given a value for x , then $f(x) = \text{sqr}(1+f(x+1))$ can be evaluated recursively if (and only if) you can determine an exit condition for the recursion. Even if you don't know how to use BASIC it is possible that you do know how to evaluate a recursive function using either a PipeDream or Fireworkz custom function (see earlier articles in this column).

Now here's a feature of this problem which interests me; although $f(x+1)$ increases linearly as we progress through the recursion, the recursion is a process which converges (and does so fairly rapidly) because the square root causes a reduction in value faster than the $f(x+1)$ pushes it up. I am not asking you to prove the convergence (though it's not too hard to do so); what I would like you to do is to write a custom function or a procedure in BASIC which evaluates the function recursively. Because the sequence converges you can terminate the recursion after some reasonably large number of recursions – just count them! If you want to be clever then build into your recursive process the check that if you extend the recursion further then the final answer doesn't change significantly.

Colin reckons that, for $x > 0$, the infinite sequence evaluates to $(x+1)$, ie $f(x) = (x+1)$. I agree with him but I add that I reckon that the sequence sums to $(x+1)$ even when x is not a positive integer. Indeed I have proved (analytically and not numerically – but, if I understand Colin correctly then he thinks that my proof is flawed) that the function evaluates to $(x+1)$ for any number, including negative numbers, fractions, irrational numbers (such as the aphrodisiac square root of 2), transcendental numbers such as pi & e and even complex numbers (such as the mystical and imaginary square root of minus 1).

With a recursive procedure which handles the so called Real numbers you should be able to discover (numerically) whether what I say is true for negative numbers and fractions. However, you will have to use the complex function feature of PipeDream or Fireworkz to discover whether $f(z) = (z+1)$ is true when z is a complex number such as $z = (5,-6)$. (I am using the usual convention which, in the example means that the real part of z is 5 and the imaginary part is -6 .) My helpful advice is that the complex function 'square root' in PipeDream and Fireworkz is written as $\text{c_power}(\text{complex_no},0.5)$ where complex_no is typed into a slot as an array such as $\{5,-6\}$ and the second argument, 0.5 is the complex power, $\{0.5,0\}$, to which the complex number is raised (ie the principal square root). If I

am right then when, $z = \{5, -6\}$, the infinite sequence of square roots sums to the complex number $\{6, -6\}$. Can you prove it numerically (with a recursive spreadsheet custom function or recursive BASIC procedure) rather than analytically (as I have)?

I have written to Colin suggesting that he might like to take over this (to me) interesting topic as one of his puzzles but it may be that what is required is spreadsheet expertise and, if so, then I will deal with it in a future article.

Cricket

Over the last few years I have received about a couple of dozen requests for the results of various local and international cricket matches in either PipeDream or Fireworkz format. There have been some requests for an application which will automatically calculate batting and bowling averages from such a database. Well, after much asking we now have a result! If you have an interest in cricket then you can obtain various interesting database files and spreadsheets which analyse performance by contacting:

Ric Finlay, 214 Warwick Street, West Hobart, Tasmania 7000, Australia

IRCs

You will note that Ric's address is in Australia. Please send Ric not only a disc on which to copy the files but also sufficient return postage. If you don't live in Australia then the best way of doing this is to buy from a Post Office what are called International Reply Coupons (IRC for short). To Ric each IRC will be worth only the minimum postage of a letter from Australia so be sure to send him at least two (better send him three) IRCs to cover the extra weight of a disc. Generally the cost of you sending Ric a blank disc is more than the cost to Ric of buying a disc so you might consider sending Ric three IRCs instead of a disc (in addition to the three he needs for the return postage)!

Whilst on the subject of IRCs, we get them sent to us here at Abacus training. Rather too often we receive only one IRC when it costs us the equivalent of three to send a disc half way across the world! One IRC won't cover the return postage of a bag with one disc in it. If you don't live in the UK and want your disc returned then please send us two or three IRCs if you can—of course, if you can't send us return postage for any reason then we'll still send you your disc back but remember that it is at our expense and we don't get paid for writing for Archive! If you live overseas and do want something from us on disc then consider whether you'd rather pay the extra cost of sending us the blank disc or whether three IRCs instead of the blank disc will be cheaper.

Overseas Correspondents

Whilst on the subject of overseas Archive readers I have to say we do try to give as rapid a service as we can. It is Jill, my wife, who keeps reminding me that I must reply promptly to overseas correspondents so you will appreciate that it gave her real pleasure when we received a letter from the antipodes expressing pleasure and surprise at the speed of our response to a difficult problem.

To all of you

Thank you for all your letters. Please write to me (with a disc showing examples if appropriate) at the Abacus training address given at the back of Archive.