IAPetus

Quarterly Bulletin For the Institution of Analysts & Programmers

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IAP Conference

Alex Robertson CmpnlAP,AFIMA,MBCS,MABAC,AIMgt

The organisation of the conference is proceeding apace. If you are not aware of it, the Institution is holding its second conference on the 22nd October, 1993 at the City University in London.

A varied programme is planned for delegates. Our first keynote speaker is Darrel Ince, Professor of Computing at the Open University, with a paper provisionally entitled "Who Needs Quality". We are also expecting one of our earliest Eastern bloc members, Dr. Igor Shagaev, from the Advanced Technology Lab in Moscow. He is planning on presenting a paper entitled "The Economic Model of Fault Tolerant System Design and Development".

We have also approached a well known technical journalist with a view to him speaking about the future directions of microcomputing. Various of our members have offered to speak with titles ranging from "Why C should be killed!" through "Thank you for my lovely Software" to "Designing with an eye to safety" and "SCC – a tool for software reuse". I shall shortly be writing to those members whose papers are selected to formally invite them to speak at the conference.

You should be receiving a card with this issue, inviting you to register for the conference – if you haven't got one, or if you are reading someone else's copy, and you want to register, please ring the Institution's offices on 081 567 2118.

Upgrading – a postscript

Two points have arisen as a result of the note about upgrading printed in the last IAPetus.

While the Institution's admission procedures have been stiffened up for new applicants, so far these changes have not been applied to existing members requesting upgrading. It does not seem appropriate that an Associate Member who has been known to the Institution for two years or more, should require sponsorship, possibly from an outsider, before he can become a Member. The situation regarding upgrading to Fellow is rather different: it is likely that at some stage the Council will ask Members to support applications for upgrading with more detailed statements than are required under the present rules.

In general members are expected to serve two years before applying for an upgrade. But there have always been exceptions to this rule, for example where a members passes an examination that makes him eligible for a higher grade. In recent years the Council has tended to take the view that, unless there is some overriding reason against it, a member who requests it, and is adequately qualified, should be upgraded without delay.

Inside this issue

I hope that you are ALL coming to the Conference. Last year it was 1% of the membership, so let's do a bit better this time, huh? Some people came specially from Malta... and guess what, they are coming again this year!

As incentive, I can now reveal that the "well known journalist" Alex refers to is Jon Honeyball, a leading expert in Windows and owner of an even larger home computer system than the Robertson one!

Please fill in the virus survey. It's important to find out the real picture, not the one presented by the media (most of whom wouldn't know the difference between a mouse and a virus until it bit them, if then!). Even if you have never encountered one, let us know.

Keep the contributions coming in – a good mixed bag this time, from APR explained to who should write the manual. But what will be in the next issue? Get writing... and it could be YOU!

Computers are wonderful... I've lost my voice [Oh goodie – Alex Robertson] and have just written more words here than I've spoken in 2 days!

Look forward to hearing from you soon,

Megan C. Robertson

IAP Ltd

by The Director General

1st June 1993 marked a watershed in the fortunes of the IAP. Not only was it the start of a new financial year, but it was the day on which the old, privately owned, Institution turned into a company, owned and guaranteed by all its members.

In the immediate future this will make little difference to the conduct of day to day affairs. My staff and I will continue our duties as before, albeit for a different employer. The benefits of the change will, we hope, be felt in the medium and long term.

> ***"The Institution has now grown to a point where fresh ideas and more intellectual talent are needed if we are to take full advantage of the opportunities before us"***

Until now the Institution has been controlled by an unchanging group of people. This kind of management has its advantages. But due to the success of recent policies the Institution has now grown to a point where fresh ideas and more intellectual talent are needed if we are to take full advantage of the opportunities before us.

In the future control will be vested in a Council of fifteen people, five of whom will be elected or re-elected by a ballot of Institution members every year. The Council will elect a Chairman who will become the President of the Institution.

All this cannot happen immediately. Transitional arrangements are necessary to ensure a smooth hand over. In the immediate future a few of our senior members are forming a provisional Council with support and guidance from representatives of the Institution's part owners.

Mr. Donald Wallington has agreed to continue as President until the Council asks him to step down. Later this year or early in 1994 the first elections will be held. Members will be invited to nominate themselves or friends. Manifestos will be published in *IAPetus*. One of the provisional Council's first tasks will be to work out the details of the election procedure.

With power comes responsibility. From 1st June members, and that means you, have assumed ultimate legal liability for the Institution's activities. However, this liability is limited: each individual member would, at worst, have to contribute one pound in the event of the company being wound up.

Since the beginning of this year new members of the Institution have been required to give an undertaking that, should disaster strike, they would have their one pound coins ready. Members who joined before 1993 did not sign such an undertaking and will not be asked to do so: the past owners of the Institution will indemnify them against this risk.

Mike Ryan

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Dear IAPetus,

Your editorial in the March edition of *IAPetus* brought to mind a recent experience with what I suppose comes under the heading of "smutware".

As you can see from the address, I live on a small island in the South-West Pacific, about 1000 miles from anywhere. I am a one-man band as far as my company goes and I am analyst, programmer, lan administrator and service engineer all rolled into one. One touch of sanity in this cut-off environment is my modem link via packet-switching with CompuServe. I have had this facility for four years now and the forums are invaluable when I come across problems with hardware or software. (How I wish I had had such access eight years ago when I first started the job – it would have saved me many sleepless nights!)

The CompuServe magazine continually exhorts me to browse in the Electronic Shopping Mall. As my husband's birthday was coming up I thought I'd surprise him with something completely different and ordered a copy of "Strip Poker" for him to play on our home computer. The system of collecting packages is that a notice of arrival is put into the post box and then someone has to go to the Post Office to collect it and pay any duty.

The notice duly arrived in the post box and I handed it to my husband saying that it was his birthday present and all he had to do was collect it from the Post Office as it was valued at less than the amount which would be liable for duty. He went along and was asked to open the package by the officer on duty so that he could satisfy himself that it was indeed a computer game as stated on the label. He opened the package to reveal an artist's impression of a naked female. He explained that it was just a game, but the customs officer was not happy and asked my husband to return in the afternoon to check with his superior.

My husband went back later, saw the senior customs officer and was asked to prove that it was a game. He explained that it was for a computer. They took him into the inner sanctuary where he had a choice of several machines of varying antiquity. He chose one with the floppy drive size he needed and loaded the game. A fully clothed female appeared on the screen. All the customs officers gathered round – this was the best thing they'd seen in months! Then came the difficult part. My husband hadn't played poker for years and had only a hazy recollection of the rules of the game. He asked if any of the others knew the game, but nobody did. He played for nearly an hour whilst all the customs guys offered advice. At the end of this time my husband said that he was down to his socks whilst the infuriating female on the screen remained fully clothed.

He was by this time becoming totally frustrated with the whole thing and told customs that they could either keep the game or return it to America. At this they decided that it was probably harmless and said he could take it home. He eventually managed to strip Susie later that evening, but it was all rather an anticlimax after the hassles of the day!

I must confess I have never ordered any more "smutware" and my husband downright refuses to go collect any more parcels as he is sure he is a marked man!

Yours sincerely,

Sue Phelps CmpnIAP
Vanuatu, S W Pacific

Education for a Career in Computing

Your chance to tell the colleges what they are doing wrong

The Higher Education Funding Council for England (HEFCE) is responsible for the assessment of the quality of education in all higher education institutions in England. As part of its 1994-95 programme the HEFCE plans to tackle what it calls "Computer Studies/Science".

The Council relies on part-time specialist assessors to help it carry out this work. In the past some 85% of assessors have come from the higher education institutions themselves. However, the Council realises that the exercise will only be credible if more of the assessors come from outside industry. Thus the Institution has received a letter from Dr. Alun Thomas of HEFCE, asking whether any of our more senior members would be interested to assist in this capacity. Judging by the rather muddled view of IT set out in their initial documentation, HEFCE badly needs our help.

It was pointed out to Dr. Thomas that while the Institution does indeed have members whose skill and experience would fit them ideally for the job, these members also tend to be the ones who are already fully occupied with highly paid work. Dr. Thomas replied that HEFCE would be looking for a commitment of only 22 days per year, and while it could not match top consulting rates, in principle assessors would be paid, most probably about £150 per day.

The Institution has to nominate potential assessors by 30th July 1993. Anyone who fancies himself in the role, and has the right experience, should telephone the DG for an initial chat.

The Annual Percent

Maurice Levy FIAP FCEA

The Background

Prior to the Consumer Credit Act 1974 (CCA) rates used were Flat Rate, Nominal Rate, Annual Rate etc., whatever suited the type of borrowing and whatever seemed advantageous to the lender and none of these terms gave any real meaning to the "borrowing rate" as each could be manipulated. There needed to be a Standard Measure and when expressed as an Annual Percentage Rate of Charge comparison of the Credit and Terms between one trader and another becomes easy and immediate.

Most people are familiar with Credit and Interest; not everyone, however, is aware that other items not normally thought of as interest may affect the cost of borrowing. These may be additional charges such as registration, arrangement or acceptance fees, survey fees or maintenance charges, all of which affect the true cost of credit. The effects on the APR of such charges are evident from the following comparisons where the Loan, amortised over one year, is for £1,000 at a Nominal 15% per annum with the Credit Balance of £1083.12 payable by 12 equal monthly instalments.

	With no charges	with £100 paid at payment 1	with £100 paid at payment 12
Monthly repayments	90.26	90.26	90.26
Total interest	83.12	83.12	83.12
Flat rate %	8.31	8.31	8.31
APR %	16.08	41.22	34.54

From the above it can be seen that whilst Repayments, Interest and Flat Rate remain the same the APR is changed dramatically by the £100 paid at First or Last instalments.

One of the requirements of the CCA is that there should be "truth in lending" and regulations made under section 20 of the Act provide that the total charge for credit must include such extra items even though they may not arise under the terms of the credit agreement itself. It therefore became a legal requirement that the APR be used in all advertising and stated clearly on all Loan and Hiring Agreements where the Hire Purchase price or the sum total of the Loan was within certain limits, currently £15,000.

The Problem

In those early days computers were in their infancy, there were no desktops, IBMs or clones and to obtain the APR where the first decimal, by law, must be accurate was near impossible for the average person or business. Because of this certain finance Houses – Bowmaker, Lloyds, Mercantile Credit etc – issued to their main users, big stores, car dealers and the like, portable calculators with the necessary program built in. It should be realised that whilst computers use Base 16 hexadecimal, calculators have to further encode using BCD (binary coded decimal), this converts hex into Decimal 10, something more recognisable and usable by humans. Such a conversion regardless of CPU speed was and still is extremely slow. It could take several minutes to obtain an answer where the payments, over any given period, were in excess of 36. The Office of Fair Trading (OFT) issued tables which by their very nature and number could not possibly cover all the permutations of Loans, Rates and Uses.

Since the solution to the equations requires an accuracy of 12 decimal places in both final and intermediate stages, such solutions by computer were totally machine dependent. Until about 1980 most run-of-the-mill desktops were of the 8-bit variety with single precision arithmetic accurate to only 6 places. It was not until the advent of the pseudo or true 16 bit that a computer solution was generally possible with double precision arithmetic accurate to 16 places becoming standard.

The Present Value Rule

The present value of an amount of money paid in the future is a well known accounting concept and depends on the Amount, the point in time when it will be paid within the Term and the Rate. The present value at a Rate r% of a repayment £A paid n years after the date of the provision of credit is defined as:-

$$\frac{A}{\left(1+\frac{r}{100}\right)^n}$$

In the above formula r will be unknown and must be guessed initially. Subsequent and multiple applications of the present value rule will find r by calculating the present values of each credit repayment and payment of the total credit charge and

age Rate – Revealed

equating these with the amount of the credit advance. The APR is the rate which exactly satisfies the equation truncated to the required number of decimal places.

Whilst the APR may be obtained for Equal Instalment, Single Payment or Period Rate transactions using various other individual methods, the present value rule may be used for all.

The Formula (by computer)

```
J=0 : N=12                                    number of payments
DIM P(N)                                      populate array with payments
r=1                                           initial guess
START
J=J+1 : XN=0 : XD=0                           iterate and initialise
  FOR K=1 TO N
    X1=r^(K-1) : X2=X1*r : XN=XN+P(K)*X2 : XD=XD+P(K)*K*X1
  NEXT
XN=XN-LOAN : XC=XN/XD
IF ABS(XC)<.0000001 THEN APR                  'within target limit?
r=r-XC                                        'deduct XC from previous r
IF J<50 THEN START                            'next iteration with new r
APR=((1/r)^N)*100-100
```

NOTE: J,K and N are integers all other variables must be double precision.
LOAN is the amount of the loan.

The Solution

Since the solving of the multiple equations rely on the Present Value Rule and is therefore iterative that which first comes to mind is the Binary Chop. That is to say: start with a Guess, then disregarding Sign and using Absolute values, continually divide the difference until the resulting figure is within the required limits ie the one decimal place as required by the CCA 1974. If this method is adopted it will be found that it will take about 20 iterations by computer or all day manually. Having regard to the fact that the number of iterations is always multiplied by the number of payments, for a lengthy Term, the multiplicity of equations becomes outrageous.
Obviously unsatisfactory at 20 x 120 (say) = 4800 and values!

Enter the Newton-Rapheson method of successive approximations: given an approximate solution x (the Guess) successive application of the equation will produce a series of values which will converge within 4 iterations to the solution f(x)=0. 4 x 120 = 480, a matter of seconds with a slow computer or almost instantaneous with a fast one.

The above Newton-Rapheson formula solves, by iterative methods, a polynomial of order N where N is the number of time intervals to the last payment. This formula has now been universally adopted by Banks, Finance Houses and all lenders generally since the results conform to DTI and OFT requirements and the solutions to the multiple equations lend themselves to computer operation.

It should be noted that since the legal requirement is for only one true decimal place APRs of 21.59% and 21.50% need only be stated as 21.5% from this it follows that if the Principal were large enough this small difference in the second decimal could be considerable in its effect.

Members Only

For anyone interested a program is available to members of the IAP which consists of a complete loans analysis giving comparison rates and repayments on loans and APRs calculated from either a Nominal/Annual Rate or a known monthly repayment, also included are calculations of Mortgage rates and repayments. This is the extraction of a modules of a suite of 17 modules which form a complete accounts program used by accountants in public practice. It is normally used for finding the Residuals of Loans for Balance Sheet purposes and the Interest paid for Profit and Loss financial statements. The entire suite was written by yours truly.

The program/module is not available to the general public though if it were its cost would be about £100. For members the price is £18 all inclusive and supplied on either a 5.25″ 360 KB or 3.5″ 1.44 MB floppy. It will run with any DOS on any IBM or clone and whilst all information is supplied on screen hard copy can be obtained with virtually any Impact or Squirt printer. Please note: all floppies can read DOWN but not UP so if you have a 1440 KB drive it will read a 720 KB.

Please send cheque direct to MEL Associates, 219 Old Lodge Lane, Purley, Surrey CR8 4AY stating that you are a member of the IAP and quoting your name, address and preferred disk, your copy will be sent by return.

Who's Afraid of the Big Bad Virus?

Alert readers will have noticed that this is the title of this issue's Survey. Even if you have never clapped eyes on a virus, please fill it in and send it back.

Why? To my knowledge, nobody has ever conducted a proper survey of the extent of the virus "problem". You get the stories put about by the press... generally every time a Friday The Thirteenth is approaching!... and you get the horror stories from those who make their living selling anti-virus software. Occasionally someone moans that it's difficult to bring virus-writers to heel even if you manage to find out who they are.

Are there loads out there? Or is it a big hoax. Nobody likes to admit they've been "had"; sheer embarrassment, commercial problems and the fact that the source is often pirate software or a computer game being played surreptitiously on a business machine conspire to keep mouths shut. So talk.

Now that's off my chest, how can you avoid getting a virus, or deal with any you find. Prevention is always better than cure, so a procedure designed to keep them out must be established...vital for the stand-alone machine (even the one at home) as well as the megacorporation office with thousands of networked computers.

Procedure is the key. Not just a "virus scanner" program in your computer. Do you check the source of every disk you put in the drive? Do you ALWAYS scan it before you do anything else, even read its directory? Big companies often lay down that someone, probably in the MIS department, has to clear every disk that you bring in... do you go to him without fail before loading little Johnny's project that the boss said you could print out on the laser for him?

The rules for a virus-free life are simple. Get a good "virus scanner" program, then make sure that you get the regular updates. New virii arise which may not be detected by last year's program – it's a game for the virus writer but may mean disaster for you. Always use it on any disk you intend to load onto your system.

Be very careful of disks from unknown sources. Even reputable companies have inadvertently distributed a virus – one local trader acquired his "plague" from a shrink-wrapped disk sent by a commercial supplier in America – and disks from friends are notorious. Worse are the games your youngsters may be passing around at school!

If you use any computer communications, "sweep" your entire system frequently. The person at the other end of the modem may not be as scrupulous about his anti-virus procedures as you are. Some bulletin boards have a bad reputation, avoid them... but even the good ones can be unlucky!

If you get one, or think that you have one, don't panic. Some "virus scanners" also have a "cleaner" program, and will recommend its use when necessary. If in doubt, seek advice. The local business computer store should know of an expert, and spending about £50 to call him in can save you far more in lost time alone, even before you cost up any damage the virus or you might cause to the system until you get rid of it.

finally, despite all the stories, you see very few around. My husband is the local "expert" and he's seen two in the last five years!

[*The Editor writes:* As for virus writers... my husband has been told that if I catch him writing one he gets his divorce papers!]

CD ROM User Group (UK)

Alex Robertson BA, CmpnlAP, AfiMA, MBCS, MABAC, AIMgt

I don't know how many of our membership are either interested in or are already using CD-ROM Technology, but there is a dearth of information available to individuals except via a few knowledgeable dealers, and through conferencing systems such as CIX.

I was therefore pleased to receive the following information recently from the CD ROM USER GROUP (UK).

What is *CRUG*?

"It is an organisation whose main aims are to provide information and technical assistance regarding CD-ROM technology and to provide a source of discounted CD-ROM multimedia hardware and software via negotiated discounts with manufacturers and distributors. It is envisaged that *CRUG* will become a major source of information and influence within the field of CD and Multimedia technology. It is not perceived to be a competitor to the mainstream supplier of Hardware or Software, but purely to satisfy the unique requirement for the amateur enthusiast, and to act as an interface between them and the industry on matters of interest that may be raised on both sides."

Membership is currently £29.99 per annum, which allows access to the various services and benefits that CRUG offer, which include a free CD disk title, monthly newsletter, special offers, a CD Exchange service (where this does not contravene licenses), a "try before you buy" scheme, help, advice and access to a CD ROM pressing service.

Data Security – A Word from the Sadder and Wiser?

T. Longhurst FIAP

Data security is an issue which is gradually creeping deeper and deeper into our commercial lives, particularly in large companies. A legion of modern day witch doctors is descending upon us.

They may wear suits, and they may also write data security handbooks, but the description of being witch doctors is particularly apt. Like the shamans of old, their influence relies on threats of impending doom which are based on information which they keep to themselves, and which bear no resemblance to historic events.

But what senior executive would risk his position by ignoring such advice? It is just not worth it. So, like the tribal princes of old, the executive impose upon their subjects the whims of the practitioners of black magic.

Well, what if this is true, what if the threat of data crime is greatly exaggerated, where is the harm? So a few people sit around in head office departments writing memos to each other and making little contribution to the wellbeing of the companies. So what? Most people actively involved in making or selling the products on which their company's well being depends think that *all* people in their head office sit around writing memos to each other and making little contribution to the company.

I became involved with the witch doctors when I was working in a head office department of a large financial company. We contributed to the cost effectiveness of the business by originating many of the changes affecting the branch network of the organisation. We had an overall responsibility for the cost effectiveness of the working practices, and had to show that actual cost benefits were being achieved. Ours was not an exact science, but we consistently exceeded our target of a ten times recovery of cost for the changes we originated.

We had a traditional foe, they were the internal auditors. However, they played the game by the same rules as us. If they wanted us to change the working practices to improve security, then between us we quantified the costs and the benefits. We might have a frank exchange of views on the validity of each other's figures, but after some toing and froing we agreed on a practical solution. So we got on fine, because we agreed on the way we conducted our business, and, above all else, we believed that good security has to pay for itself or it is not worth having.

> **"Computer centres were not islands in an empty universe."**

Then, gradually, one aspect of security started to take on a life of its own. It started in the computer centres. A new section was formed to make recommendations on the data security standards. They were people who had worked in the computer centres, they had excellent first hand experience of the environment and the work undertaken, and their advice was seen to be good. A section became a department.

Then someone realised that the computer centres were not islands in an empty universe. The data, of which they were the guardians, came from the branch network. What was the point of having the finest security in the centres if the controls on the input and use of that information were not to the same standards? As the acknowledged data security experts surely they should define the standards to be applied throughout the business?

Sounds familiar? The problem was that, from the point of view of the business, the computer centres were a backwater. A land of strange rituals and incomprehensible language. They were vital because they held the life blood of the company, its data, but they employed only a tiny proportion of the work force. Computer centres are hugely expensive anyway, and the witch doctors had never been required to cost justify the security standards they had introduced.

We had a clash of cultures. We used words such as 'cost effectiveness', they used words such as 'professional opinion' and 'industry standards'. Of course, the industry standards are set by the witch doctors so they amount to no more than their collective professional opinions.

At about this time, on the grounds of the increasing importance of data protection, an update of the data security standards was submitted to a member of the board for approval. He may never have read the document, and it was not circulated for comment, but when these standards were issued under his authority, we were obliged to implement them.

Ho hum.

Further information and membership application forms are available from:-

CD ROM User Group,

19 Faygate Close, Bexhill, E. Sussex, TN39 5EE

Please note that this is purely for the information of IAP members, and does not represent an endorsement or recommendation of CRUG by the Institution.

STOP PRESS: CRUG have said that they will offer a £5 discount on their annual membership fee to IAP members, making the membership fee £24.99. Just include a photocopy of your membership certificate to claim it.

AICS

The Association of Independent Computer Specialists is a Trade Association founded in 1972 and registered as a Company Limited by Guarantee in 1992. Its members are individual practitioners and principals of firms whose main business is the provision of computer-related services.

They include: consultants at all levels; project managers and team leaders; business analysts; systems designers; systems and applications programmers; software houses; trainers; technical writers; expert witnesses; hardware and software engineers; and specialists in a wide spectrum of vertical market applications.

What they all have in common is a commitment to setting and maintaining high standards of service to their clients. This commitment is expressed in a Code of Practice to which every member is obliged to adhere.

> *"A commitment to setting and maintaining high standards of service."*

The minimum technical qualification for any grade of membership is five years' practical experience in a relevant field. Ordinary (i.e. "full") membership may be granted to applicants who have been in independent practice for at least one year immediately prior to the date of application. Ordinary members may register the organisations they control as Corporate members.

Associate membership may be granted to former Ordinary members who cease trading independently but wish to continue to support the Association and to individuals who have the necessary technical experience but lack the trading qualification.

AICS and the IAP already have several members in common and it seems likely that a significant minority of IAP members (particularly those who practise independently) may see benefit in belonging both to an Institution which confers a professional qualification and to a Trade Association which can further their business interests. At the same time, AICS sees potential benefit in enlarging the pool of talent on which it can draw when seeking individuals to provide specific services for known clients.

For these reasons, AICS now offers non-voting Affiliate status to bona fide Members, Fellows and Companions of the IAP on the following terms:-

1. Submission of an application on its standard application form supplemented by:
   a. A full curriculum vitae.
   b. Evidence of IAP membership.
   c. The recommendation of one referee nominated by the applicant.
   d. Payment of the Annual Subscription for Affiliate Membership (currently £30).
2. Approval of the applicant by the AICS Membership Committee.

Affiliate membership confers the following benefits:

a. An entry in the regularly updated AICS Directory of Members' Services which may be freely distributed to interested parties on diskette and is available for downloading from an open conference on the Compulink Information Exchange (CIX).
b. Access to a members-only conference on CIX in which matters of mutual professional and business interest may be discussed and business intelligence may be exchanged.
c. Receipt of a Newsletter 10 times a year.
d. Formal and informal meetings and conferences which facilitate networking with other members.
e. Representation by invitation at exhibitions, seminars, meetings and conferences organised by third parties.
f. Increased business credibility by association with a respected body which has frequently received favourable editorial mention in newspapers and trade journals and has entries in directories distributed throughout the world's libraries.
g. Potential for sub-contracting work to kindred spirits when demand for your services exceeds supply and for sub-contracting to other members when you are in a slack period.

Further information and application forms can be obtained from:

Duncan Macdonald
AICS General Administrator
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High Wycombe
Buckinghamshire HP12 3NZ

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