IAPetus

Quarterly Bulletin For the Institution of Analysts & Programmers

Issue 11 *September 1994*

Conference 1994

Friday 21st October 1994

Senate Suite, City University, London, England

Provisional Programme

Morning Session – Chairman: Gordon Bradley Cmpn IAP, Member of Council		
09.15	Registration and Coffee	
09.55	Mike Ryan FIAP	Welcome
10.00	Steve Clarke and Brian Lehaney	Information Systems Development – Why Structured Methods Fail
10.30	Tony Benfield	The Teaching of IT to People in Prison
11.00	Coffee	
11.15	Mark Snelgrove, Browne Jacobson Solicitors	Copyright Issues in Relation to Computer Software
11.45	Mr J Woulds, Head of Policy & Compliance, Office of the Data Protection Registrar	The Data Protection Act – Why is it Relevant?
12.15	Lunch in the Level 5 Refectory	
Afternoon Session – Chairman: Anne Gray FIAP, Member of Council		
13.45	Members Forum	
14.45	Stewart Shuttle	EDI – Its Relevance and Implementation
15.15	Tea	
15.30	Mr S Naldu Browne Jacobson Solicitors	Legal Issues in Software Contracts
16.00	Mike Ryan FIAP	Director General's Closing Remarks
16.15	Close of Conference	
17.30	Institution of Analysts and Programmers Annual General Meeting	

THIS IS AN INVITATION...

The 3rd IAP Conference, Senate Suite, City University (same place as the last two, she says, resisting the "Same Bat time, same Bat channel" that would reveal her age!) on 21st October 1994. Be there or be absolutely cubical!

If you've been before, you know how good they are. You may have read my reports on the last two – one kind chap said I'd made it sound so much fun that he was moved to come along to the next one! – but for your money you get fed, wined and entertained in the best of company.

The first AGM of the Institution will be held after the Conference, so why not combine the two. Now that we are a proper company limited by guarantee, this is the supreme governing body – *YOU*. Come and have your say in our future.

And what else... we need people to write and to pontificate – see the "Call for Papers" elsewhere in this issue. If the public is to hear sensible comments from and about the computing profession, someone has to make them. If you have something to say, you can always write for IAPetus too! Fame if not fortune awaits.

I'm off to the Last Night of the Proms. But I'll see you all, I hope, at the Conference.

Megan C. Robertson

The Director General Writes

Christine and I were on holiday in Turkey earlier this summer. We had a blissful little house in some orange groves by a river.

One day the owner's son offered to take us out in his boat to see the turtles. During the trip conversation ranged widely over some very non-rural subjects: the boatman had a sophisticated grasp of economics. "I am a computer programmer in a bank in Istanbul" he said. "What do you do?" I told him I was a civil engineer.

Having returned from holidays, despite the general slackening of activity which always occurs in August, there do seem to be signs that business is picking up. We have had several calls in the last few days from people needing programmers.

Amazingly, when there are still members out of work, it is not always possible to satisfy these needs. Our most useful "all-rounders" seem to be permanently busy or incommunicado. Others are ruled out by geographical handicaps. Why is it that talented programmers are so drawn to the life on small islands.

A lot of the people who call us are doing so as a last resort. Their original consultants have screwed the job up, and they want to be sure the same thing won't happen all over again. I spend a lot of time on the telephone trying to educate these people. I explain that it is not reasonable to expect a consultant to appreciate the difficulties of a job, or quote a fixed price for doing it, unless he has a clear brief.

Few clients are capable of providing this. They want their problems solved, but have little appreciation of what is needed to achieve it. Consultants themselves are not always blameless. When work is short, and a client presses for a fixed price, it is very tempting to shut your eyes to the problems and hope for the best.

Experience suggests this should be resisted wherever possible. Programming and analysis are labour intensive. It is logical that they should be paid for on a time basis. On the other hand, clients are usually working to budgets, and they need a bottom line.

My suggestion is that consultants should offer to undertake only a limited initial study of the project for a fixed fee. This study determines the work needed to complete the project, and exposes any technical problems likely to arise.

It enables the consultant to prepare a reasonably accurate estimate of the work needed to complete the project. It shows the client in some detail what he is going to get, and more importantly what he isn't going to get, for his money. At this stage both parties have a chance to rethink and make changes to the project or even abort it entirely. But once the haggling is completed, the remaining work, by far the major part, is charged on a time basis.

Most clients are business people who are sympathetic to the problems of estimating for work. They know computers can be of great benefit, and do not begrudge money spent on IT.

What does upset such clients is being treated as idiots, not having the problems explained, and being conned by consultants into starting projects which cannot be brought to a satisfactory conclusion within estimated time and cost. I hope members of the IAP avoid such pitfalls.

Michael C. Ryan
Director General

AGM

Notice is hereby given that the Annual General Meeting of the Institution of Analysts and Programmers will be held at 5:30 pm on Friday 21st October 1994 in the Senate Suite at the City University, Northampton Square, London EC1.

It would be appreciated if those members planning to attend would inform the office so that we have some idea of the numbers to be expected.

Only corporate members (Members, Fellows and Companions of the Institution) are entitled to vote at the meeting.

Agenda

1. Approval of the Accounts of the Institution for the year ending 31st May 1994.
2. Approval of the appointment of the Auditors for the current year, and authorisation for the Council to determine their fee.
3. Any other business.

Unless other instructions are received in writing at the Institution's Office prior to 14th October, 1994, it will be assumed that, if you are not present, your proxy will rest with the Chairman of the Meeting.

Notice of any other business to be considered must be sent in writing to the Director General to be received no later than 14th October, 1994.

Call for Papers and Comment

Have you ever wished the computer press would pay more attention to professional matters? Do you feel that the big manufacturers have too large a say? Do you despair at "expert" comment? Or do academics and their glib remarks leave you cold?

Well, now's your chance to do something about it.

If you feel you have something pertinent to say on any subject concerning our industry, we need to hear from you. We are also seeking programmers, engineers, analysts and managers from our membership who feel they could write definitive papers on matters of professional concern. You can enhance you professional prestige (and maybe even earn royalties) by contributing your specialist knowledge to this project.

We have the means, the expertise and the forces to do battle. Now is the time to flex our muscles and march...

For full details and writers' guidelines, please send a large SAE to our HQ.

Your Institution needs you.

Ted Pugh, on behalf of the Council

A New Coat of Arms

Because I've been fascinated by heraldry for many years, the IAP Council asked me to organise the granting of an official coat of arms for the Institution.

What? you say, we've got one already. Er... well, sort of. The shield that appears on the front of your diaries and on Institution note paper etc. was designed by the late Robert Charles, and has been used without benefit of official sanction ever since. Technically, it is illegal, it's certainly unofficial.

In the United Kingdom, all coats of arms are granted by the Sovereign through the College of Arms (or Lord Lyon King of Arms if in Scotland); and if you – either as an individual or as an organisation – want to have your own arms you ought to apply for a Grant of Arms. Eventually, assuming you're deemed worthy to have one, you receive a beautiful painted scroll, called a Letter Patent, showing and describing your new arms.

The first step is to prepare a Memorial, which is a formal letter to the Earl Marshal (the Duke of Norfolk) asking to be permitted a coat of arms. The Earl Marshal makes this decision on behalf of The Queen, and while it's a formality, if you are unsuitable he can say no!

Legally instituted companies and societies, individuals who are considered "gentlemen" (as in the old phrase "An officer and a gentleman" for example) and the like do not usually have any problems. The Institution's Memorial was presented earlier this year, and has been approved.

Then comes the fun bit – designing the arms themselves. This is in the hands of the College of Arms, which is staffed by professional heralds. They have the final word, but will listen to the ideas and suggestions made by the person/organisation wanting the arms – especially if the individual knows what they are talking about!

When a design has been decided upon, it is prepared as a watercolour for final approval by the Kings of Arms. Once approved, the official Letter Patent is prepared and given to the person or organisation – it makes a nice display on the wall!

As well as being heraldically "correct" – there are all manner of rules, much as grammar and spelling is laid down for a language – each coat of arms has to be unique. And there are many thousands of them in existence.

To ensure this, records are kept of every grant made. One is in historical sequence, and the other is based on design and colours, so that the unique nature of each coat of arms can be maintained. All these are beautifully drawn and hand-painted.

With any luck, the Institution's arms should be ready by the end of the year. Then I'll describe them in full, so you'll all know what you are displaying proudly on your diary, letterhead etc.

Megan C. Robertson

The shield used so far.

Dear Sir,

I wholeheartedly agree with Brian Darling's comments (IAPetus – July'94) regarding the possibility of the Council seeking a Royal Charter.

The status accorded to the programming profession is often not in line with the responsibility that its members are required to undertake. Programmers and analysts often work on projects that will play a major part in a company's future growth and prosperity.

On occasion, members of the profession work on systems where human safety is a critical factor. There is also the responsibility of working within the sometimes substantial budgets allocated to new software projects, and perhaps even having a role in planning and managing them.

Given the nature of the profession, and a future where computers will inevitably play an ever increasing part in all our lives, the need for proper recognition should go without saying.

Yours faithfully,

Paul Anthony Stocks BA (Hons) MIAP.

A Free RS

by Ted Pugh AFA FIAP

Following my last two *IAPetus* articles, I received a number of enquiries regarding RSA and the uses to which it can be put.

I also received a call from an irate system manager complaining that my discussion of the Vernam cipher was tantamount to encouraging hacking and that I would do well to consult a psychiatrist regarding my criminal tendencies. (No prizes for guessing what method his system relies upon.)

In contrast, my last article sparked an interesting conversation with one of my colleagues. She told me how her last firm had employed the simple XOR instruction to produce a secure cipher for its teleworkers.

"The idea" she said, "Comes from combining the assembler programmer's technique of exchanging variable values and a little-known historical fact concerning the method used by Sir Francis Drake to secretly dispose of the Royal share from his Spanish booty...

On pirates and virgin queens

"Alone in his cabin, Drake would select the finest treasures from his latest raid and place them in a chest destined for Queen Elizabeth I. This was duly secured with stout chain and a padlock – to which Drake held the only key.

"Once back in England, the swag would be delivered to the Queen who would then re-enact the process. (She would place a further chain around the chest and secure it with another lock that she had the only key to).

"To complete the handover, Sir Francis had only to remove his padlock. The chest's contents would remain a secret between his illustrious sponsor and himself – and only she could open it thereafter.

"But, like yourself" Pat added, "Our CP was aware of the dangers from repeating the key stream; so, to overcome this problem, the system kept a record of the last seed generated to allow further encryptions to begin from where the last had finished. In this way, the algorithm never generated the same key sequence twice."

A computerised handover

The CP's method can be illustrated by assigning three variables with random numbers and then running through the XOR process. Let's say that Treasure is given a value of 178, Drake 106 and Elizabeth 219.

First we simulate Drake securing the chest by: 178 XOR 106 – giving a cipher of 216. This is presented to Elizabeth who then applies her own secret code: 216 XOR 219, to give a new cipher-text of 3.

Drake now removes his padlock (3 XOR 106 becomes 105) and henceforth only Elizabeth can access the spoils by using her secret key. (105 XOR 219 becomes 178 – our original value for Treasure).

Promising?

"But you are reusing the key streams" I protested.

"Well, strictly speaking: yes. But only to open a previously applied lock", Pat explained.

"You see, the treasure has been doubly protected using both Drake's and Elizabeth's keys before Drake reuses his – and Elizabeth only reuses her secret key when alone in her private chamber. That's the beauty of it!"

A short silence followed, punctuated by a dawning "Oooh" and finally an understanding giggle.

"Do you think I should give him a ring?" she asked.

On challenges and rewards

Since I don't wish to encourage further irate phone-calls to my domestic line, I now leave readers to ponder the matter alone. But, as just recompense, I promise to suitably reward the first six members who can tell me, correctly, how to break the cipher.

Their reward will be a copy of my RSA utility and a personalised shareware copy from which to supplement their incomes. (Sales made via the latter earn substantial commissions.)

The prize

RSA.EXE is a complete implementation of the RSA public key cipher with the following significant features:–

- New code production from any four numbers between 3 and 100 denary digits in length.
- Key-optimization to significantly reduce encryption and decryption times.
- Support for RSA moduli up to 203 denary digits in length.
- Safe-prime location for the production of high-grade RSA ciphers.
- Automatic originator authentication and tamper-detection.
- Optional secure deletion of the plain-text file.
- Automatic block-sizing.
- Optional full-path encipherment of the plain-text file name.
- Person to person encryption.
- Person to persons broadcasting (sometimes referred to as: signing or witnessing).
- Decryption with automatic update of public directory details.
- Self-test facility to ensure .EXE file integrity.

Its introductory price is £35 (less £5 discount to IAP members). No one seriously concerned with data security or originator authentication should be without it.

Quiz answers please to Megan (to ensure impartiality). The results will

"a little-known historical fact concerning the method used by Sir Francis Drake to secretly dispose of the Royal share from his Spanish booty..."

SA Utility

be published in next quarter's *IAPetus*.

More on RSA uses

Quite apart from the putative security that RSA offers, the cipher's authentication feature can be used to great effect in computerised environments.

Those of us who have to manage large software projects, for example, are often faced with the problem of having to identify programmers responsible for particular code fragments. (Too often our suspects claim that someone else must be responsible).

The procedure preferred by myself is to have all programmers produce a RSA code and store their public details in a central directory. A similar logic is applied to QA personnel (with the exception that their details are denied to programmers).

At the end of each day, system users sign-off their work by "broadcasting" it to their colleagues. (A RSA public broadcast, remember, is undertaken with an individual's signature encryption key).

In this way, all team members can have access to each other's work (signature encryption keys are public) but modules are always attributable to the last person making a modification.

The whole process, complete with "accumulative archiving", is easily automated via the normal MAKE facility and the tame response "I didn't do that" need never be heard again.

An old guy reminisces

In the good old days (before widespread use of computers in business) auditors were able to design paper-based systems that could be virtually guaranteed to disclose any fraudulent abuse.

"RSA offers the advantage that the security level of its signatures can be specified. This could be a huge bonus to disabled members of society."

The underlying principle was to ensure that fraud could only be undertaken with the minimum collusion of two parties in different departments; or to force a perpetrator to forge someone else' signature.

Today, these principles remain unchanged; but, because passwords will never replace personal signatures in a Court of Law, the paperless office will always remain a dream. That is: until our Courts are forced to accept that certain electronic signatures are as unique as their hand-written counterparts.

RSA holds our industry's best hope in this direction (and, considering Microsoft's strategy in the FaxMail market, I guess Bill Gates would agree) but, before our Palaeojudicial System is forced to accept such radical ideas, a large-scale trial needs to be undertaken.

By releasing the RSA utility as shareware, I hope to ensure that such an experiment can be conducted.

Although this particular version is limited to producing Grade 0 ciphers (with moduli less than 20 digits in length) the odds against anyone producing an identical modulus to anybody else is really quite phenomenal.

By the same token, the fact that low-grade signature blocks may be broken by factorisation does not invalidate the RSA signature argument.

After all, hand-written signatures can be forged – it just takes a different kind of skill (or a different kind of hardware) – but RSA offers the advantage that the security level of its signatures can be specified. This could be a huge bonus to disabled members of society.

Only when electronic signatures are accepted by our Courts, and the technique is in day-to-day use, will the over-hyped super-highway then become reality.

When that day finally arrives, we will all be able to conduct business on a true international scale: safely, securely, and from the comfort of our own homes.

In closing

By the time this article is published, interested readers should be able to obtain my utility's shareware version from their normal ASP vendor.

Members only can obtain a free copy from myself: just make sure you enclose suitable return postage and packing with a blank, pre-formatted 5.25" 360K PC floppy.

Overseas members should enclose suitable international reply-paid coupons. (This time, no coupon, no software).

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"Only when electronic signatures are accepted by our Courts, and the technique is in day-to-day use, will the over-hyped super-highway then become reality."

Historical Image Storing: A Preliminary Thought

Megan C Robertson BSc MIAP

In-between minor activities like editing *IAPetus*, I spend most of my time in the study of military and other uniforms. As well as having been an abiding passion of mine for many years, uniform history is the topic of the research that I am doing as a student at the University of Keele.

By its very nature, much of the material that interests me is visual... and to my delight there is an awful lot of it.

I am attempting to devise a means of storing the images I collect – photos, prints, paintings and drawings (some good, others by me!) – in a manner that is easy to access and to reproduce, adaptable to my changing requirements and capable of transfer to other people. And (prompted by wail from husband/system administrator) does not take up inordinate amounts of disk!

The short term objective is to enable me to organise my own material, both for my huge collection of "uniform files" and for impending thesis.

Paper files

The uniform files, primarily in paper format, contain pictures and notes on the uniforms and insignia of organisations, military units of all nations and virtually any other which can be recognised by a distinctive form of dress. These are arranged according to

1) Nation
2) Organisation and
3) Date (going back to 1660 or thereabouts!).

Originally, hand-written or typed notes were combined with pictures cut out of magazines and newspapers, photocopied or actual photographs which were simply glued to the paper. Definitely "low tech"!

The advent of word processors led to several stages of development, beginning with word processed notes being combined with pictures stuck down and (several generations of WP package later) now taking the form of text with embedded black and white images, colour ones still depending on glue (although black and white images are stored in the computer file.)

The current technological details are: AmiPro running under Windows for Workgroups for the completed "words and pictures" files, with the images being acquired using Picture Publisher and an Epson GT-6000 scanner, using running at 300 dpi. In Picture Publisher, the images can be appropriately sized and trimmed before being saved as .TIF files; these then being imported into the appropriate AmiPro file. Hard copy is printed out on a laser printer.

OK so far. Nothing particularly exciting (unless, like me, you enjoy the resulting collection of information).

However, a long term aim of all this is to develop a method, a standard if you like, for the interchange of uniform information. For, although many of you may be wondering "Who cares?", there are quite a few people interested.

As well as the obvious such as military museums, there is a large hobby group of military modellers who want accurate information about the dress of the figures they wish to build and paint and the producers of films and TV shows also have the need to "get it right".

> ***"I'd like a common method of storing and transmitting images"***

There's a lot of information out there.

Finding information

I am reasonably well-known as a hoarder of information, and so I get regular enquiries about all manner of uniforms – Baron von Richtofen, Life Guards at Waterloo 1815, a sergeant in the Royal Welsh Fusiliers 1994, Spanish Marine Bandsmen... just a few of the recent ones.

Often the answer is hidden away somewhere in the files, in the vast quantity of books and journals in my crowded den, or between my ears. Once found, a report can be written. Illustrations from the collection of images... so how do I find it all when I want?

Retrieve

All published material, books, magazine articles etc., are entered in on a nice database system written by by my husband. He used a language called Retrieve, which is the database engine behind Sage's "Sovereign" accounts and management information packages. It's not widely known, in fact Sage barely even make it available outside of the dealers and developers who write enhancements and bespoke additions to Sovereign...but it does the job very nicely.

The chief joy is a "many to one" index, so I can type in, say, "UK – RWF" and get a list of all articles and books that mention the British Army regiment The Royal Welsh Fusiliers. The index keys can be anything I've set up, keying "1776 – UK" will find me, amongst other things, any references to the RWF during the American War for Independence. And so on.

The pictures

As for my pictures, each one – as well as being contained along with notes in the appropriate AmiPro file – is held as a .TIF image. These are indexed very simply, with a filename that refers me to the right AmiPro file. So any picture of a uniform or badge relating to the Royal Army Medical Corps, say, has a filename like "RAMCOO2.TIF". I make sure that the filename appears by the picture whenever I print it out, so after flicking through the hard copy files, I can call up the right image.

"once such a system is developed, it could be used for any kind of visual information"

The filenames are also used in a Picture Reference Index, which is used for keeping track of where everything comes from. A system like mine could very easily transgress people's copyrights, so I ensure that I know both who originally painted or photographed the image, and where I found it (book, magazine, postcard etc). Then, if I want to publish it myself, I can go and ask permission and pay any fee required.

The long term aim of all this is even more far-reaching. I'd like a common method of storing and transmitting images so that anyone with basic kit – probably a PC capable of Windows – will be able to access uniform information from any source. The main ones are museums and fellow fanatics, both of which have far more information and images than they can make publicly available.

Most of the time, it's hard enough to know who to ask, unless he's written an article on the topic you are after, or it's a museum specialising in the right regiment etc. And not everybody has extensive reproduction facilities, they may have the image you'd like but no way of making you a copy.

CD-ROM

I think the end-point will be CD-ROM based, just because of the vast amount of information and the not inconsiderable size of some of the image files.

Probably with an integral database, to find the images on the CD-ROM, and with additional text information about the picture in question. Images could be downloaded to floppy and sent to an enquirer, or the entire CD-ROM passed on, as appropriate ... and all in a form that the person wanting it can make use of with minimal effort once he gets it.

I'm a dreamer, and this dream may never reach fruition. But the way the cost of technology involved is coming down, who knows? After all, once such a system is developed, it could be used for any kind of visual information – birdwatching, antiques, garden plants, needlework patterns, general art history – all sorts of things that don't usually spring to mind when people say "computers" to you.

Watch this space – and in the meantime, if any of you out there have any ideas or suggestions, I'd really like to hear them.

New Fellows

We are particularly pleased to welcome the following new members who were admitted to the Institution as Fellows on the first Wednesday of July, August and September 1994.

ARSCOTT, John R., BSc(Tech) Chemical engineer with ICI, then founder/technical director of Ling Systems, Eaton Socon. Retired early but still busy as programmer, lecturer and author.

ATHANASIOU, George N. BSc(Hons) Specialist in software for analysis of the financial markets. Now Project Leader with Dewe Rogerson, London EC2.

BEE, Robert L. Project planning specialist with many years' experience in the shipbuilding industry. Now with Knowles Project Services.

BISSETT, Michael P., BSc Sous-Directeur, responsible for the EDP Department at Banque Colbert (Luxembourg) SA.

DYSON, Steven H., BA(Hons) Senior Project Leader with Manchester CWS for the last seven years.

EVANS, Michael IT Manager at Ondawell (GB) Ltd., in Wales. Previously Systems Controller at Bowater Containers and Computer Operations Controller at Hymac.

FOY, Michael A. Programmer with Quality Software Products (Gateshead) or Shell International Shipping for the last 12 years.

HUNTER, Keith, BA Systems Manager at Chemisolve (Manchester). A specialist in the control of paper-making processes.

HORTON, Roderick R. MIS Manager at Carrdale Growers of Hull, responsible not only for normal business systems but also systems which optimise growing conditions in glasshouses.

MORRIS, Peter C. Freelance designer/project manager, background mainly in the banking sector. Development Manager with the Woolwich Building Society for several years.

MOORE, Paul Now independent, previously Principal Consultant at Hoskyns and before that with Honeywell/Bull for several years working on large inhouse development projects.

O'DOHERTY, James, BSc(Hons) Technical Support Consultant to Microsoft, and author of numerous technical articles.

SEW HOY, Wai Lean Applications Software Advisor to Fujitsu (Singapore). Previously at the ANZ/Post Bank Data Centre.

WHITTINGTON, Capt. Colin M. EDP Manager for the United Nations Protection Force in the former Yugoslavia.

Well, I hope you have all registered for the Conference in October...

If you have registered...

"We are focusing on practical issues affecting those involved in the Systems Development and Support process"

You will be able to look forward to an interesting and relevance selection of papers. We are focusing on practical issues affecting those involved in the Systems Development and Support process, and on topics of interest to all computing professionals.

We are particularly pleased to welcome as our KeyNote speaker Mr J Woulds, the head of Policy and Compliance at the Office of the Data Protection Registrar.

The Data Protection Act is often the subject of heated discussion, and its relevance and application is sometimes misunderstood, or simply ignored.

We will have an opportunity to hear exactly why it is important, what it means in practical terms, and how we might build systems better able to cope with the demands it makes. There will be ample opportunity for discussion on this topic.

As we mentioned in the last *IAPetus*, the other papers to be presented cover a wide range of topics, including:

Copyright Issues in Relation to Computer Software – dealing with questions relating to the ownership and transmission of copyright in computer software, the ways in which such copyright may be infringed, and issues resulting from the copying of interfaces and reverse-engineering.

Legal Issues in Software Contracts – addressing the concerns of software suppliers in relation to the variety of clauses that purchasers of software will try to impose, including those specifically relating to bespoke development work.

Information Systems Development: why structured methods fail – analysing experiences in real project development and looking at the reasons for failure, including a discussion on alternative methods and their potential problems and pitfalls.

The Teaching of IT to people in prison – explaining how the teaching of IT, suitably planned and supported, can enable prisoners to obtain qualifications, helping to score employment upon release and so break free of the vicious circle of crime.

EDI – Its relevance and implementation – explaining what it is and how it works, why we should consider it, how much it costs, and how to go about it.

In this year's Conference we are introducing the idea of a Members' Forum, where Members attending the Conference can discuss the future direction the Institution, and make their opinions known to Council.

The topics to be covered will be:

- Local IAP Branches
- A Directory of Consultants
- "3 things the IAP could do in the next 12 months that would make me recommend it to a friend"

All Conference delegates will receive notes prior to the Conference giving more detail about these topics and asking some specific questions.

It is important that the Institution is your Institution, and that can only happen if you make your views known.

If you haven't registered...

whatever you're doing on Friday 21st October, I doubt that it will provide an opportunity to hear speakers on such a wide range of topics, gather information useful to your job, and enable you to have a say on the future direction of your Institution. Never mind, there is still time to register.

Just return the enclosed Registration Card and you can be a part of the IAP Conference 1994.

Nick Swain
BSc (Hons) FIAP
Conference Co-ordinator

IAPetus is the Quarterly Bulletin of the **Institution of Analysts and Programmers.** The Editor is Megan C. Robertson. All views expressed herein are those of the authors, and do not necessarily reflect the Institution's or *IAPetus*' opinions or position. Produced by Breeze Ltd, 061-792 4442.
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