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Status

QUARTERLY

OF THE WESTERN AUSTRALIAN REGIONAL COMPUTING CENTRE

OCTOBER 1988

WA Cybernet in NW Shelf Project

Project Director Joe Plumb (standing) and Structural Engineering Manager Michael O'Shaughnessy at Davy McKee-McDermott's graphics terminal.

WARCC's state-of-the-art resources are being utilised in the design of the Goodwyn "A" Platform destined for Western Australia's North West Shelf gas fields.

WA CYBERNET Services, a division of WARCC, is providing computing support services to joint venturers Davy McKee-McDermott on their Goodwyn Topsides Design contract. The engineering contractors were appointed by the consortium participating in the LNG Phase of Australia's North West Shelf Project, under the designated operating company, Woodside Offshore Petroleum Pty. Ltd.

Among the software packages offered by WA CYBERNET Services is the structural design suite SACS (Structural Analysis Computer System), an integrated software program used for the design and analysis of offshore structures.

By remotely accessing WARCC's CYBER 840 computer via a high speed telecommunications link , design engineers from the Davy McKee-McDermott office in Perth are enjoying a cost-effective solution to their computing requirements.

Their decision to use WARCC facilities highlights the economic benefits of using bureau services in very complex and expensive projects. Engineers can readily access the large scale computing hardware and specialised software necessary for their highly technical designs without an expensive upfront capital commitment.

There is the added advantage of convenience for the Perth engineers. WARCC provides close-to-hand computing expertise and personalised attention which amounts to valuable support for users of the SACS suite and other programs.

The SACS software enables engineers involved on the Goodwyn Topsides design to carry out static, dynamic, lift and transportation analysis of the modules, derricks and flare structures for the platform.

SACS is used to construct automatically finite element models as well as to generate environmental loads for waves, buoyancy, wind, current, and dead loads.

The decision to use WA CYBERNET Services followed several months of careful evaluation during which Davy McKee-McDermott and WA Cybernet Services proved the viability of using SACS and other software.

Project Manager Joe Plumb said,

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"We chose the SACS suite of programs to perform major analyses for the Goodwyn "A" Topsides structures because of the comprehensive range of reporting available and colour graphics enhancements.

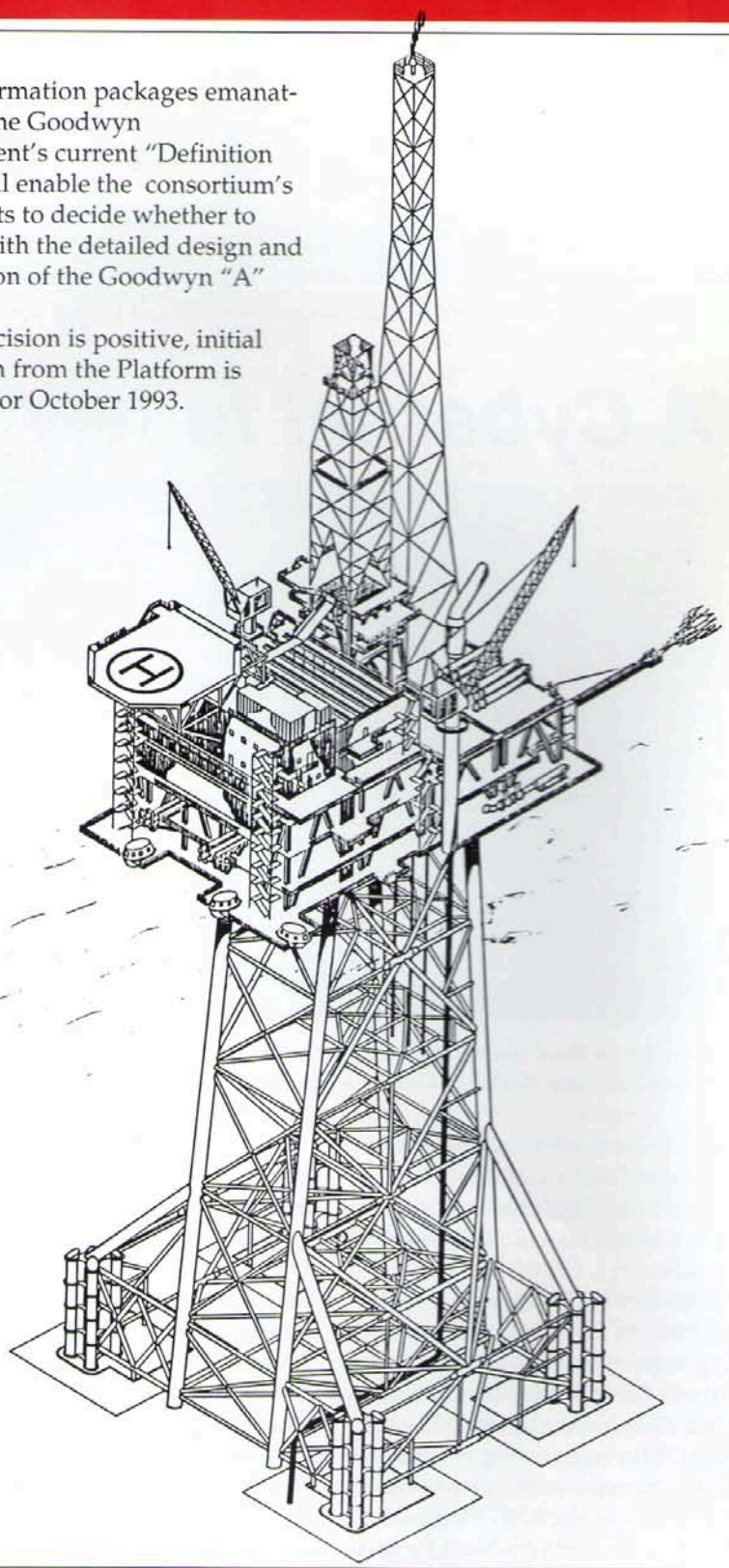
"By making SACS available in Western Australia, and ensuring that sound technical support is continuously available, WARCC has provided a valuable contribution to the engineering effort on the Goodwyn Project."

Davy McKee-McDermott and WA CYBERNET Services are also studying how other engineering and management needs of the Project may be efficiently solved using WARCC's bureau services and facilities.

The choice of WA Cybernet Services to provide the computing and software package is an example of the preferred involvement of local industry in the development and production of the State's major resources, such as the natural gas and condensate reserves on the North West Shelf.

The information packages emanating from the Goodwyn development's current "Definition Phase" will enable the consortium's participants to decide whether to proceed with the detailed design and construction of the Goodwyn "A" facility.

If the decision is positive, initial production from the Platform is sheduled for October 1993.



Goodwyn "A" Topsides Isometric. The Topsides Project involves the design of all the structure above the platform level.

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Bob Hutt Signs Off

Bob Hutt has called it a day as Bursar of The University of Western Australia. His retirement also sees the end to his long association with WARCC as a Member of its Board of Management.

During his time as one of the University's most senior financial advisors, Bob undoubtedly influenced the course of events which helped shape the character of WARCC. He became a Member of the Centre's Executive and Finance Committee, precursor to the present Board, in February 1974.

His involvement with the Centre required considerable input in "the early days" particularly in relation to the funding and building arrangements of WARCC's new premises close to its existing facilities.

"It was a major step forward," recalls Bob. "The extensions to the University's Physics building enabled the Centre to house the increased computing power necessary to service the State Health Department's escalating requirements."

Another milestone which he "feels very pleased about" was his influence in changing WARCC's funding arrangements.

The acceptance of his new funding equation enabled the Centre to break away from the then standard pattern of funding within Universities.

"The concept of WARCC being run on commercial lines," explained Bob, "of charging for computing time and services, and building into its charges full costing for the regular replacement of its equipment, put the Centre into a superior position to any other capital intensive project within the University.

"It was the only way to go. Up until then WARCC had been limited in its development by having to go to the Equipment Committees whenever it needed large amounts of capital. Funding was usually on a short-term basis and its continuity never assured."

Bob Hutt

WARCC's entry into capital expansion has not been without its risks, but fortunately they have all paid off, says Bob. In estimating the requirements of computing capacity (a function of the Board), there is always the risk that the demand will not eventuate.

Since 1983 Bob has also doubled as Investment Manager, responsible for the University's investment activities. He has played a major role in consolidating the site for WARCC's planned accommodation just off-campus, due for completion late next year.

From his vantage point in charge of the University's extensive financial portfolio, Bob is pleased that he was able to provide the Centre with valuable business contacts and give advice on various funding schemes.

Bob plans to maintain his connections with the business world during retirement. Capitalising on his wealth of experience, he will be active in consultancy work in his special field of finance and investment.

Alex Reid, Director of WARCC, paid tribute to Bob's invaluable assistance and advice in transforming the Centre from a rather nebulous organisation (characteristic of many University centres) into the business-like and financially sound operation that it is today.

Staff at the Computing Centre and Members of the Board wish him well in his retirement.

Director's Desk

At the recent World Computing Services Industry Congress in Paris, several speakers indicated that the future growth of the computing industry will not be in sales of hardware, but insoftware and services.

Hardware has dominated the industry for all of its short life, with incredible advances having been made in the speed, size and price of computers. But the benefits of advances are being significantly impaired by the pace at which software can be written and by the availability of people able to deploy the equipment in the most appropriate way. Ultimately it is people who determine the effectiveness of any computing activity.

Industry giants like IBM and Digital have responded to this new predicament and set up substantial software services groups to make installations useful (Systems Integration); and are even are moving into the next stage, of servicing the computers once installed (Systems/Facilities Management).

WARCC has long recognised

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Director's Desk

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that these personnel- based services are the key element in the effective use of computers. Sections like our Applications Programming Group have earned an enviable reputation for the quality and scope of their work. MicroComputer Support is very keen to ensure it is not just a "shop", but a provider of sound technical advice. And the Facilities Management group is providing the high quality, professional and economical services required to enable computer owners to maximise the benefit they receive from their own systems.

People are at the heart of WARCC, and we are very proud of the justifiably high reputation that they have earned over the years, and the invaluable service they have rendered to so many Western Australian educational, government and industrial organisations.

Alex Reid, Director

E.S. Interest in Micro Stock Control Package

A computerised stock control system developed for WARCC's MicroComputer Support Section has already attracted strong interest from at least two universities in the Eastern States.

The phenomenal growth insales of microcomputers, in particular the Apple Macintosh, has seen a corresponding demand by users for stock items from WARCC's MicroComputer Support Section.

As a member of the Apple University Consortium, WARCC is permitted to sell Apple Macintosh computers to University staff and students at considerably discounted prices. Over the last three years business within the campus computing environment has increased five-fold.

Micro Support Manager Rob van Zanten said that, faced with the burden of keeping track of more than 3000 stock items within his Section, the development of an automated system to replace manual office procedures had been a priority.

"Our product range has become increasingly diverse and our customers have demanded, and received, levels of service that have placed heavy demands on staff. With the new automated system we can now offer a vastly improved service to customers," said Rob.

The project was undertaken internally by WARCC's Applications Section. Some months were spent in defining the system's requirements and choosing and purchasing an existing stock application. Programmer Marilyn van Niekerk then spent a year customising the application to suit Micro Support's specifications.

Rob expects the cost of the system to be quickly recouped, simply by the more efficient use of Micro Support staff. Interest shown in the system by other Australian universities facing similar difficulties, and their possible purchase of the software is seen as something of a bonus.

The new stock system keeps track of the complete MicroComputer Support stock inventory. It controls purchasing, records sales, maintains stock balances and provides accounting information. It also has the ability to examine and analyse the Section's whole business operation.

The system has been written in OMNIS 3+ which has multi-user capabilities and will run on most Macintosh computers. The standalone stock system, which is suitable for any small to medium sized business, requires only basic computing knowledge to operate.

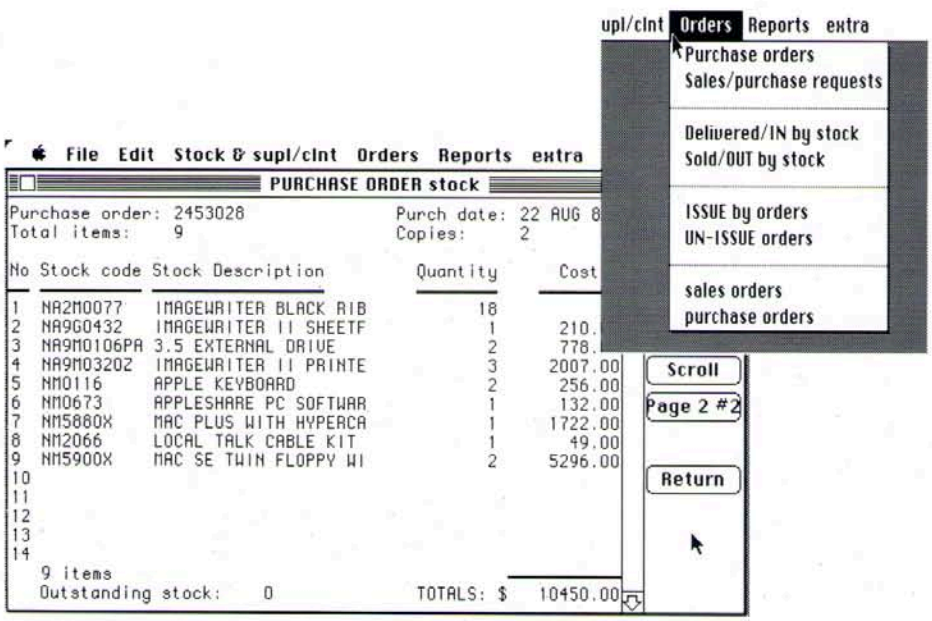
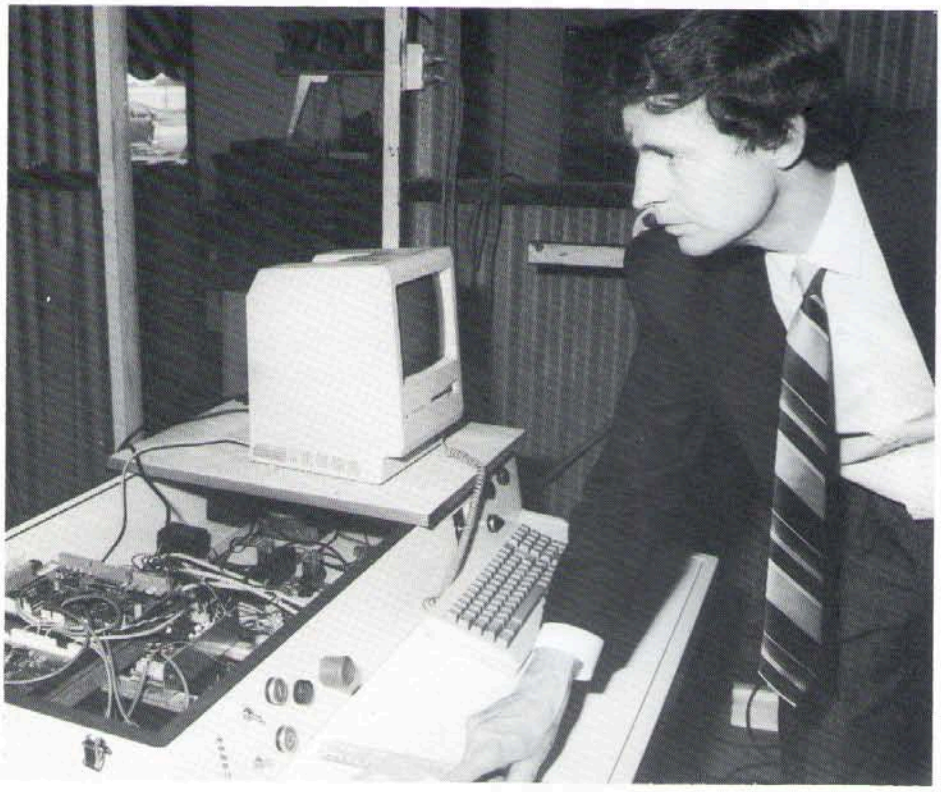


Figure left shows a sample of a purchase order that can be selected by using the pull- down menu (top right).



Wizardry in Software

The successful development of software to broaden the applications of an automated foam cutting machine has won praise for the Computing Centre.

"Wizardry in software" is how Wintech Managing Director, Richard Macfarlane described the WARCC Applications Programming Group's work on his latest automated cutting device, the Plasma Profiler.

The modified Profiler can cut metal up to 20mm thick and Richard expects that future developments of the system will allow later versions to cut anything from wood panels to clothing fabric.

"Basically the idea is simple," he said. "Draw something on the Macintosh computer's screen and the Profiler's cutting head will translate the shape."

The new program allows shapes to be generated and changed quickly; assists in the optimum nesting of shapes; enables shapes to be stored on a disk; calculates costing; and drives the cutting machine.

The incorporation of the Macintosh computer makes it easier to use Wintech's products than other more complicated and expensive industrial types of cutters. Also, with a standard Macintosh printer, hard copies of the programmed configuration can be printed out for customer approval.

As a result of the quick turnaround now possible with the new cutter, Richard expects to sell up to 12 Plasma Profilers a year and, like his foam cutting machine marketed by Pacific Dunlop, he considers it to have excellent export potential.

Pacific Dunlop had encouraged the development of an affordable machine to cut foam. Now, after two years, nearly every foam factory in Australia has the Wintech foam profiler. At around $75,000 they are a third of the cost of their German counterpart. The first foam profiler is due to be shipped to the American market later this year, followed by New Zealand.

Richard spent 15 years developing and building windsurfers and surfcats and fondly recollects his association with fellow designer Andrew Mason, now winning plaudits for his three-dimensional yacht and hull shapes including the successful Around Australia yacht race entry, *Steinlager One*.

"I suppose we both sailed into uncharted waters of design," he said.

While Mason stayed with the sea, Richard chose foam of another kind — polystyrene and polyurethane which is simply cut with the aid of advanced computer-aided manufacturing.

Richard is delighted with the performance of the upgraded program and considers his decision to call upon the experts at WARCC to have been very worthwhile.

"The programming has been totally professional from the ground up," he enthused.

The popularity of his various Profiler systems translates to profits and as he says, "If the client is making money with our software and machine, then we'll be in business a long time."

Above: Richard Macfarlane at his factory in O'Connor where the new Plasma Profiler is proving to be as successful as Wintech's foam cutting machine.

DSS Package Crucial in Channar Deal

As developer of the Decision Support System corporate modelling package, WARCC played host to the DSS Conference held in June, where speakers articulated the benefits they had experienced in using information systems modelling at a corporate level. Principal Advisor to Hamersley Irons Channar Project, Mr Jon Parker spoke on "Modelling all Stages of a Large Resource Project".

Negotiations between Hamersley Iron and the People's Republic of China on the Channar Iron Ore Mining Joint Venture were underpinned throughout by financial modelling.

Addressing delegates, Mr Parker spoke of the important role corporate modelling had played during difficult and protracted discussions with the Chinese. The eventual success of the negotiations had taken five years to come to fruition.

"There are many other reasons why we got through to the other end, but modelling had a critical role and I would be surprised if we could have done the job without having that sort of support to our decision making," said Mr Parker.

Minimising project risk was a particular concern of the Chinese. Right from the start they had taken a keen interest in the project's economics and although the estimated cost of $280 million wasn't extraordinary by Australian standards it did represent, for the Chinese, the largest productive investment outside of their own country. Not surprisingly, they had been extremely cautious during negotiations.

Modelling enabled Hamersley to respond quickly to queries and requests concerning accounting statements. For example, in just 10 days it had been possible to build into the core model some routines that generated profit and loss account, balance statement, funds statement, and cashflow and financing statements.

"If any parameter in the model changed, everything was logically connected to flow right through all the dependent systems," said Mr Parker.

"I think that impressed the Chinese. We were able to respond quickly to a request for additional information or for a change in the project's concept. Obviously, without an adequate approach to modelling we wouldn't have been able to do that."

During the long negotiations quite a number of models had been developed to assist in tactical and strategic decision making. Some of the smaller ones had very short lives but "at the end of the day" there was one major dynamic model which governed the economics of the project and supported most of the Company's strategic decisions.

The unique, language-based nature of DSS modelling proved invaluable in this strategic decision making. In contrast to spreadsheet systems, DSS

The signing of the memorandum of understanding in Beijing, 30th June 1987, where all Chinese and Australian government approvals were finalised for the project.

models are auditable and can be easily read and understood. Hamersley's Channar team was provided with a solid platform for the exposition and development of the ideas embraced by the modelling effort.

DSS modelling had accelerated Hamersley's understanding of the commercial relationship being entered into, as well as facilitating improved insight into the nature of the project.

"It really helped us develop a gut understanding of the project and how it was going to operate over a 20-year period," said Mr Parker.

The special attributes of the DSS model afforded the Chinese too, with a clearer understanding of the economic considerations, so vital for the success of negotiations.

A joint exercise was established to review the source code of the major model in the minutest detail. After three weeks of exhaustive analysis, the exercise established that the model truly reflected the intentions and understanding of both parties in the joint venture. The confidence that this knowledge engendered was of inestimable value and no doubt contributed to the final success of negotiations

Although initial site work for the 10 million tonne per year open-cut iron ore mine (based at the Channar deposit near Paraburdoo) did not start until January this year, the long negotiations did much to strengthen the relationship between the prospective Chinese and Australian joint venturers.

"I think both the Chinese and ourselves are firmly of the view that this project is a very positive demonstration of the co-operative benefits available through China and Australia working together," said Mr Parker.

"In hindsight, we really couldn't have sustained the long period of negotiation without the special corporate decision making support DSS offered."

Paul Honóre

New Face for Operations

Just as well staff in Operations "have a high potential to meet demands" because new Operations Manager, Paul Honóre has some significant developments in store for his Section.

Paul wants to boost the volume of mainframe computing work handled in the Computing Centre's Operations Section and to build his team's strength to face increases in business in any direction.

Operators will be encouraged to undertake additional training in other fields such as networking, procedures, trouble-shooting and staff supervision so that the Section's expertise will be augmented on a broad front.

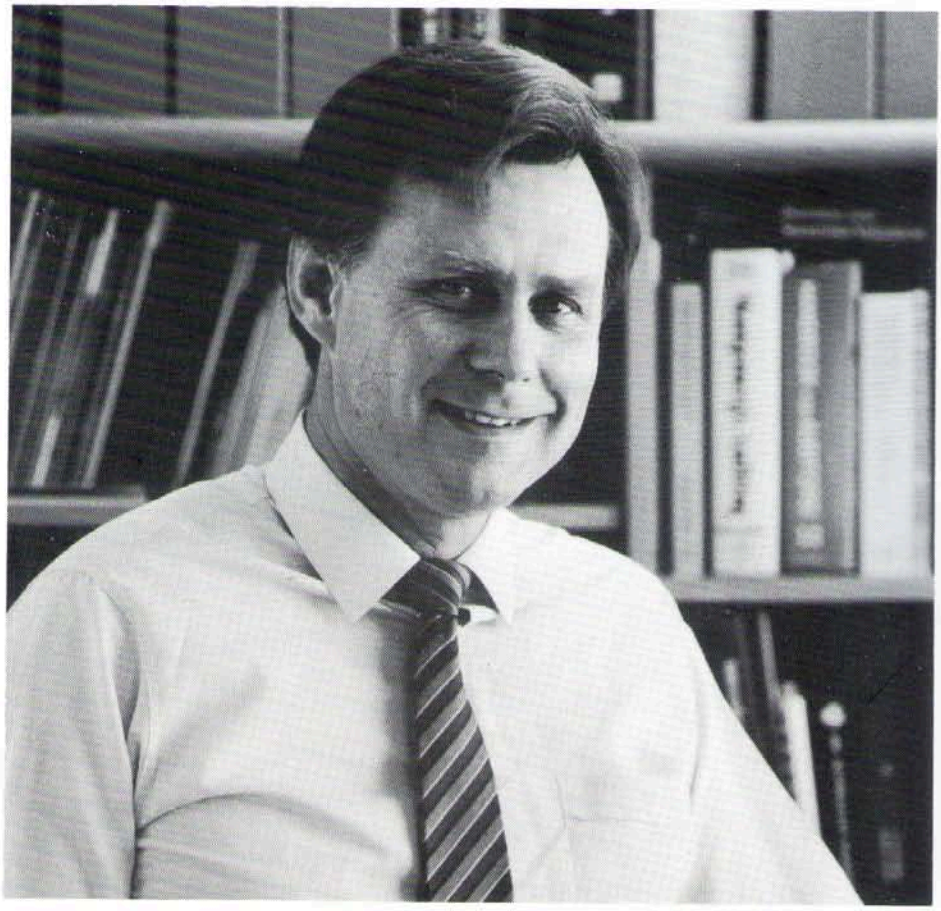
Paul also envisages a seven-day, 24-hour full operations shift. "Fortunately," he says "there's no shortage of (his team's) commitment".

Paul comes to WARCC from the New Zealand Government Computing Service (Wellington).

His experience in Operations began when he entered the GCS (Wanganui) immediately on leaving secondary school in 1976. He has spent seven years on Sperry Univac sites and four years on IBM. The GCS Centre in Wanganui runs New Zealand's centralised law enforcement system, a large database for the Police, Justice and Transport Departments now on-line to more than 1000 sites. Paul rose to shift supervisor level, in charge of operations training.

A two-year stint with Computer Sciences of Australia in Sydney followed on a facilities management assignment for AMP.

Then, in 1984 he transferred to GCS's Cumberland Bureau in Wellington which serves 30 Government Departments in payroll, financial management and insurance databases. He became Manager, Bureau Services (an amalgamation of operations and systems programming). Paul said that heavy mortgage rates, a high cost of living and Wellington's infamous climate contributed to his decision to seek a better lifestyle in Perth.



Peter Farr, honorary life member of a most exclusive club

Nightlife for Perth's Computing Pioneers

Peter Farr, a member of Perth's select band of computing pioneers, recalls life during the embryo University Computing Centre days (or nights) in the early 1960's. Peter is now Associate Director of Coopers and Lybrand - W.D. Scott.

In the early 60's the University Computing Centre (forerunner of WARCC) offered a small group of dedicated technology buffs their only access to mainframe computer time. With the demand for access exceeding supply, frustrations ran high.

"There was never enough time," says Peter. "The next guy was always there waiting.

"If you took the whole machine it had to be a night job. And Friday, Saturday and Sunday nights were really the only times when off-campus people could be certain of getting computer time."

Long-suffering wives of these pioneers endured their own frustrations, regarding their spouses' nocturnal behaviour, of midnight trysts with a computer, strange to say the least.

"It was necessary to know the basics of running the machines in those days including boot strap starts," says Peter. "You were often on your own."

Peter worked on the Centre's first computer, the IBM 1620, in 1962 while doing an electrical engineering course at UWA and recalls the Fortran courses run by the Centre's then Director, Dennis Moore.

"The University Computing Centre was the first co-operative centre I knew of," Peter says. "Dennis Moore deserves credit for changing the face of computing in Perth." Dennis was to become WARCC's first Director in 1972.

Since those early days Peter has made his mark on information technology and communications in Australia and overseas.

After graduating in 1966 as a Master of Applied Science from the University of British Columbia, Peter worked for British Columbia Telephone Company as long-range planning engineer and used large-scale computer applications to design telecommunications networks. He brought this expertise back to a job with Telecom in Western Australia. The facilities at WARCC, including the PDP-6 mainframe, were the tools for his durable telephone network design.

"Computing has always been a tool for me," says Peter. "I am very proud that the package I wrote on the PDP-6 in 1968 for Telecom's dimensioning of the Perth 'phone network has stood the test of time. It has been upgraded but it has proved general enough to remain a usable tool. My original concept of matrices and subroutines proved to be a good one."

Peter was recently made project director of the Federal Government's $200,000 review of its communications needs and strategy for the 1990s. The appointment reflects his wealth of experience in planning, design, construction, operations and maintenance of large-scale telecommunications facilities.

Peter served on the WARCC User Group during the years 1971 to 1979. Though not directly involved with the Centre at present, he retains his association with the University as one of through his recent appointment as of two external directors of Uniscan.