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The Best Laid Plans ...

He who fails to plan, plans to fail. The need for a State Water Plan was recognised in the late nineteenth century, and while such a plan has never been carved in stone, there is little evidence to suggest that water planning has ‘gang aft a-gley’¹

The Second Report (1948–49) of the Commissioner under the *Irrigation and Water Supply Commission Act of 1946* discusses, at some length, the need for a State Water Plan. The 1993 Report on the Review of the Water Resources Program of the Department of Primary Industries discusses the need for a State Water Plan. The 1948–49 Report refers to investigations (among others) on dam sites on the Comet and Dawson rivers. In 1995 an Economic Development Statement by the Premier included investigations on the Comet and Dawson rivers.²

These facts would appear to vindicate the view of Alphonse Karr “*Plus ça change, plus c’est la même chose.*” (The more things change, the more they stay the same). Whether the aphorism does in fact apply to Planning will be seen presently.

The first Senior Engineer Project Planning in the IWSC was Harry Hiley.³ Within two years he had been promoted to Deputy Chief Engineer and was succeeded in Planning by George Symonds.⁴ The staff comprised four engineers and eleven other officers (presumably mostly draftsmen); one senior surveyor and ten other officers; one Superintendent of Boring and six other officers. It was, however, considered that a minimum staff of 62 would be required to “adequately and efficiently cope with the current programme of work.”⁵

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An artist's impression of the proposed Nathan Dam on the Dawson River

George Symonds was liked and respected by his staff and, judging from the fact that even after retirement he came back to work for a number of years, considered an asset to the Commission. He regularly travelled to work by tram from West End and he customarily used the blank back of his tram ticket to pencil approximate calculations which he would have checked out by his staff. He was usually right.⁶

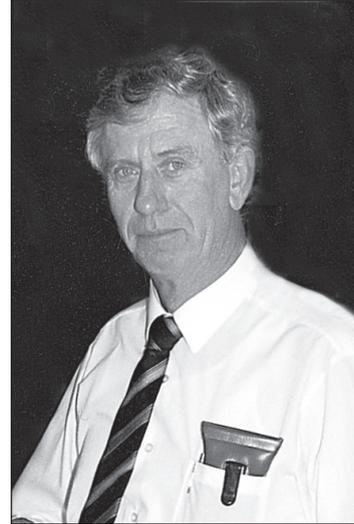
The old Public Service practice of promotion by seniority has long gone, but at one time it had the advantage of facilitating – indeed forcing – would-be executives to change roles and so gain experience they may not have otherwise acquired. Thus when George Symonds retired in 1960 and Dr AM (Don) Fraser was appointed in his place, John Morse, who had joined Planning in 1954, moved to the Senior Engineer post in Designs Branch. In consequence, Alan Wickham moved from Designs to be Executive Engineer Project Planning. Both John and Alan came to appreciate these moves in later years.⁷

Don Fraser, a brilliant engineer and manager, led the Branch in his typically highly efficient manner and a great deal was achieved in a short time. Investigations were carried out on a number of sites destined for later development, including the Burnett, Kolan, Nogoia, Pioneer, Lockyer, Cooyar and Dawson catchments, including Nathan dam site!⁸ Don resigned in February 1966 to become the first Director of the newly established Queensland Institute of Technology.⁹

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John Morse was appointed Senior Engineer Project Planning in April 1966. In 1984, he became Director, Planning Division until his retirement, aged 60, on 5 July 1985 “after 37 years and eight months service”.¹⁰ Thus John presided over the planning of major water resources assets constructed by the Commission. John was a thorough gentleman who believed in succession planning and therefore encouraged his staff to develop towards a future management role. Occasionally irreverently referred to as ‘Legs 11’, he could cut a cracking pace while on a field inspection.¹¹

John was fastidious in his report writing, although, during the Haigh era, Fred wrote the reports and the planning staff were required to fill in the blanks. (Fred’s Summary and Conclusions were often longer and contained more information than the body of the Report.) As the planning reports were typed on a manual typewriter, typists were reluctant to retype lengthy reports when the pagination changed. Consequently John and his staff would go to considerable lengths to try to ensure that any changes in wording did not result in the text spilling to the next page or, if possible, even to the next line!¹²



John Morse

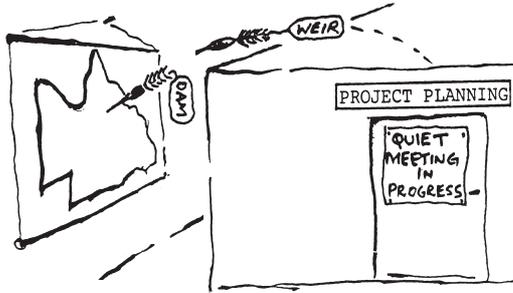
Hindsight is far and away the best planning tool, although unfortunately it has never been possible to locate a supplier in advance. With hindsight, however, it is possible to make some comments on planning during the Morse years. Planning was dominated by the engineering aspects and concentrated on specific sites (and any alternatives) in response to community requests for a water supply. A contemporary cartoon reveals how projects were selected.

In Planning, as in most areas of human endeavour, *good judgement comes from experience. Most experience comes from poor judgement.*¹³ Experienced officers are able to apply what Tom Crothers, current District Manager DNR Bundaberg, describes as ‘calibrated gut feeling’.

Engineering studies were mostly undertaken in-house, but some use was made of consultants. In particular, the Snowy Mountains Authority conducted a number of studies. Frank Connolly (who developed the concept of harvesting water from Buaraba Creek into an off-stream storage at Lake Atkinson) was appointed Executive Engineer through an appeal in 1966. Jack Haren, who had left the Commission in 1953 to work in private enterprise, returned to Planning in 1967 for the last few years of his working life and made a notable contribution. He believed planning could only be

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done by a combination of ideas and used a board and pins to generate ideas to which he encouraged everyone,¹⁴ regardless of their job, to contribute.¹⁵



Project selection process as revealed by Aquarius

Little attention was given to environmental or social impacts or to a broad-based assessment of regional needs and opportunities. In the 1980s, archaeologists were engaged to 'walk' dam sites and identify aboriginal sites and artefacts but Cultural Heritage Management Plans were not only not developed, they had never been heard of. And there was no consultation with aboriginal people. All these issues assumed their current importance much later.¹⁶

Project reports were jointly produced between the Commission and the Department of Primary Industries (DPI) with the latter agency undertaking assessment of the agricultural and economic aspects of the proposal. Thus Project Planning officers developed a close working relationship with a number of key players in DPI.¹⁷ Interestingly, following the election of the Goss Labor Government in 1989, the Commission was required to have an investigation carried out on the methodology used to determine the economic viability of schemes. Although many of these projects had been approved in an era when other factors such as social benefits were also taken into account by governments, the economic methodology was found to have been sound and to have been appropriately applied. This review was a major contributor to the *Interim Project Evaluation Guidelines* produced by Treasury Department in 1993.¹⁸

Community consultation was extremely limited. The Commissioner and/or the Minister would meet from time to time with communities wanting a water supply, but there was little involvement of stakeholders during the investigation phase, particularly into the technical aspects.¹⁹

Once project studies and reports had been completed, and often after schemes were approved in principle, a public meeting was held in the local town. The Commissioner of the day described the proposed scheme to the assembled multitudes (including potential beneficiaries and affected landowners). Tom Fenwick describes the process – *under Don Beattie and Fred Haigh, there was a very determined approach taken to irrigation – you know, “We will tell you what water you’re going to have, when you’re going to get it, and how much you can have, so don’t argue.” No one did argue.*²⁰

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A senior DPI officer similarly described the agricultural and economic components. Questions were invited but criticisms were not welcomed. The meeting announced that the scheme would not proceed unless a 'substantial majority' of landowners within the Benefited Area were in favour of it. Ballot papers would be issued to all landowners. Those not voting at all were deemed to be in favour of the proposal on the basis that those opposed would certainly register their opinion. Because the proposed water charges were always low (enough to cover operation and maintenance and sometimes a small return on investment), those opposing schemes were usually limited to landowners who would have all or part of their properties resumed.²¹

Potential resumees have always been the unfortunate victims of the planning process. Once an investigation has commenced, the area to be affected becomes public knowledge and no one wants to buy land that may be resumed. Often investigations may continue for many years during which time the owners will have great difficulty in finding a purchaser. The Government does not want to purchase properties until it is clear that construction will proceed. In the case of Bjelke-Petersen Dam, Cabinet resolved to enter into early purchase, but only after the dam had been approved.²²

In other instances, it is impossible to do anything to help. On behalf of the Border Rivers Commission, QWRC undertook investigations on a dam site on the Mole River in NSW over a number of years. In 1993, a local landowner rang planning officer Garry Grant, seeking advice. He was by then in his seventies, finding the winters increasingly cold and anxious to sell up and retire to the coast. Not surprisingly, he could not find a buyer.²³ The proposed Mole River Dam had been deferred indefinitely.

There is still no solution to this problem, although the Government has on occasion offered to stand in the market place to purchase (not resume) properties affected by approved (or even highly probable) schemes.²⁴

Needless to say, these landholders are normally opposed to proposals that affect them and act in accordance with the NIMBY (Not In My Back Yard) syndrome. Occasionally an affected landowner may be a supporter of a proposal. For example, one woman who owned land within the proposed Glendower Dam storage (Albert River) was overjoyed in 1990 when that site was selected for future south-east Queensland water supply. She had had the property on the market for over two years without attracting a buyer.²⁵

Because affected landowners (dubbed MALOs – Most Affected Land Owners – by one consultant)²⁶ would prefer planning officers went somewhere else, they are sometimes unco-operative about permitting access and have occasionally pulled stock

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450 Queensland I.W.S. F526
IRRIGATION AND WATER SUPPLY COMMISSION
"The Irrigation and Water Supply Commission
Acts, 1946 to 1949."
"The Water Acts, 1926 to 1954."
"The Irrigation Acts, 1922 to 1954."
CERTIFICATE OF IDENTIFICATION
The Bearer I.S. POLLAK, whose
signature appears hereunder is employed
as ENGINEER
by the Commissioner of Irrigation and
Water Supply and is hereby authorised to
enter upon any lands to make surveys and
take levels and do such other acts as appear
necessary for the purpose of acquiring in-
formation regarding the nature, extent and
utilization of the water resources of Queens-
land and for carrying out duties in accordance
with the provisions of the abovementioned
Acts.
Dated at Brisbane this 5th day
of JUNE, 1970
[Signature]
Secretary to the Commissioner
of Irrigation and Water Supply.
Signature of Officer [Signature]

Authorisation card

whips or guns on departmental officers. Access has been permitted under the *Water Acts* and *Water Resources Act* but it is usually unwise to insist on the provisions of the Act. It has been reported that, on one occasion an officer who must remain unnamed, told a grazier that he was going on to his property to make an inspection, and showed him a certificate of identification giving such authority. Against the landowner's protests, the officer went through a barbed-wire fence and proceeded across a paddock. Before long he was confronted by a large bull and looked in appeal to the grazier, whose advice was, "Show him your card!"

It is possible to issue a formal 'Notice of Entry', but the officialese is usually considered officious and a carefully worded letter is always preferable. Most country people are generous and the normal attitude is, we don't like what you're doing but come in and have a cup of tea anyway.²⁷

Throughout the 1960s, '70s and '80s, it was generally recognised that dams were a good thing. Thus the populace at large was able to realise, "The Government has announced a new dam, there must be an election coming on." It was only during the 1990s that doubts arose and some people actively opposed their construction.

Dams are monuments and politicians have been very happy to conduct turning-of-the-first-sod and opening ceremonies. The structures also afford the opportunity to reward someone by appending his name to the structure. Thus structures have been named, for example, Bruce Weir, Collins Weir and Jack Taylor Weir, while Kajarabie Dam was renamed EJ Beardmore Dam, Maranoa Weir became Neil Turner Weir, Baralaba Weir changed to Neville Hewitt Weir and Ceratodus Weir was transformed to John Goleby Weir. The rationale for adopting Maroon Dam in place of Toowoongan Dam (the name of one adjacent mountain instead of the other) remains obscure. Reputedly, the Queensland statute, *The Maraboon Dam Act*, contains the clause, *The name of the dam shall be Maraboon Fairbairn*, in recognition of the financial contribution of the Commonwealth Government.

Many Queensland dams have names different from the name of the lake they have created. This is sometimes explained by the fact that a dam is a structure and is therefore not covered by *The Place Names Act*, whereas a lake is a place. Under *The Place Names Act*, places cannot be named after living people. Thus Bjelke-Petersen Dam, which had been named after both the Premier and his wife Senator Lady Flo Bjelke-Petersen, had to have a different name for its lake. The Commission wrote to the four Shire Councils adjacent to the impoundment explaining this situation and

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asking for suggestions for a suitable name for the lake. Three shires nominated Lake Bjelke-Petersen. Was this a subtle assassination attempt? The lake was named Lake Barambah from the electorate represented by Sir Joh.²⁸

John Morse seldom went to the community (however, their representatives occasionally visited him).²⁹ But when all is said and done, there's usually more of the former. Some of his staff, however, had a different experience. In 1978, Project Planning undertook to investigate a proposal formulated by Forest Hill farmers (Lockyer Valley), involving diverting water from a new weir on Sandy Creek to a series of hillside storages whence it would be released to irrigate the alluvial flats. The dairy farmers who owned the hill country could see no benefit to them and resented the possible loss of land to make the 'rich' irrigators even richer. Government representatives were invited to attend a public meeting in the Blenheim Hall in winter. John Ward and Ian Pullar joined Stan Pink (DPI) at the meeting, having been warned that the police had had to be called to the last such meeting in the hall, and having taken the precaution of acquiring a neutral Chairman. The lowlanders sat at the front and the highlanders at the back of the hall. The meeting was tense but not fiery and eventually it was proposed that a committee be formed. The Chairman asked for guidance on the size of the committee and it was unanimously agreed that five was the right number. He called for nominations. The local 'Godfather' was nominated as Chairman with unanimous support from both factions. Then three highlanders and three lowlanders were nominated by their supporters. The Chairman asked for direction on what form of ballot was appropriate. There was dead silence for some time, till someone finally ventured, "It may sound silly, but why don't we have a Committee of seven?" Carried unanimously by acclamation!³⁰

Surveying is an intrinsic part of any form of Engineering design and construction, every bit as much as planning. Throughout the life of Water Resources the Survey group has provided an essential service to all three groups. For convenience, the group was administratively attached to Planning for much of its life. Equally for convenience, we will attach it to Planning within this history even though since 1991 it has been attached to Engineering Services.

Put very simply, the objective of surveying is to define points on the earth in terms of their xyz coordinates. This is all very arbitrary as all our



1920s survey camp in western Queensland

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small parties using Geographic Positioning System (GPS) equipment utilising satellites together with electronic data processors. Long since gone are the meticulously recorded field books and the painstaking mathematical calculations to produce reduced levels and closures.

Surveying is historically a profession for those who like an outdoor life and are prepared to 'rough it' for long periods of time. Most dams are in relatively remote locations and usually surveyors are the first on the scene. They have to scrub bash and clear lines of sight over country they share with snakes and other pleasant creatures. If hotels are too far away they sleep under the stars – not for them air-conditioned caravans with generators.

In 1964, cadet Hein van der Heide was sent to the Burdekin to join Dave Hosie's survey team. *They used to live in an old tobacco barn and were issued with a bit of a stretcher and blanket and that was it. One time they went to Birralee Station, on the Broken River somewhere, where they slept under canvas and used to go up to the homestead every three or four days to get a bit of meat from the locals. They worked six and a half days a week, only stopping to wash out the socks every so often.*³¹

According to Trevor Sleep, *the Mareeba camp in 1960 was the best camp around at that stage because each one got incrementally better. The living conditions would not be accepted today. The accommodation comprised timber floors, unlined masonite walls and a tin roof. The huts were hot only in summer, certainly not in winter, but they were dry. You got your quota of galvanised iron. Bathing was in a galvanised iron tub, with the water heated in the copper or a billy on the stove.*³²

There are basically two types of surveyors. One moved with his family from centre to centre and spent the project's life at each one. Others had an operational base, while the family stayed put and had their stability that way, while the surveyor moved around a lot. To a large extent, he could choose the lifestyle he preferred.³³

Single guys tended to roam around some more whereas married guys looked for some permanency.³⁴ In the early days, many of the survey camps were quite rough and better for single men.³⁵ Many surveyors tended to fit that lonely category and never married. Reg Dean springs to mind – he used to travel all over the place. He'd just throw a tent fly over a tree and that would be the base for the party during the few weeks of the job. He was in a large, quite established camp at Gin Gin in the mid-1960s for two or three years, but it was still under canvas. Reg was a precisionist. Whatever he did he did with absolute accuracy. The downside was, if you wanted an approximate job, he couldn't do it.³⁶

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recruit suitable staff rather than an unwillingness to employ them that was responsible for the shortages.

In June 1964, Charlie Martin was sent off to retirement and Graham Ledlie, a continual tower of strength without a mean bone in his body,³⁸ filled in for a few months until Bernie McDonald was appointed to the post. Bernie was a meticulous man, always impeccably dressed in a suit when he turned up for work.³⁹ John Ward reports that on one occasion when he had a short spell relieving as Senior Engineer he asked Bernie what he could do to help him. Bernie's response was that he required no interference, thank you very much!

The collection of topographic survey data by ground methods is slow, tedious and expensive. The surveying profession has always sought improvements in the speed and accuracy with which data can be collected. By 1960, equipment was starting to change. Levels had just shifted from external focus to internal focus. External focus instruments changed the distance between the lenses on the level which meant your head moved backwards and forwards as the lens moved in and out. With the new ones, the lenses moved internally, which was a marked improvement.⁴⁰ An old surveyor claimed that until the introduction of calculators, the biggest change he'd seen for the previous 20 or 30 years was the introduction of the nylon plumb-bob string.

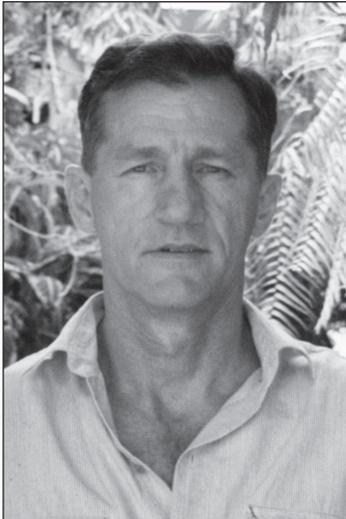
During the information collection phase for farm design at places such as Mareeba, the requirement was topographic information. *Because there was no existing information or photogrammetry in those days, the countryside was manually contoured. It was cut up into one mile blocks, then divided into strips 300 feet apart, then every 100 foot square was levelled, by pacing out, up and sideways and marking individual changes between that. That was the basis for virtually all design. Soil surveys were overlaid by Soil Surveyors using the same grid layout to find their way around. Gradually instruments changed but the techniques remained the same.*⁴¹ Joe Radkovic spent 20 years of his life doing grid surveys on the Burdekin.

As technology started to change, crunch calculators with the wind-up handles took over from seven- or nine-figure Peters log tables. The biggest change was the HP 25 hand-held calculator that could do minor computations in the field in a reasonable time span.⁴²

An allowance was included in the award for surveyors to get calculators. They were the only group who could because so much of their day was spent number crunching and using log tables was a real slog.⁴³ *But you had to buy your own. In the early 1970s they cost \$300, which was a lot of money. But you were prepared to put aside the money for the benefits and you were repaid at so many bob a week.*⁴⁴

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As more people bought their own, the price started coming down. Bernie McDonald pushed the idea and soon the Commission started buying calculators for everybody. But the allowance was quite significant, particularly after the first couple of years because it didn't reduce but the price of calculators did. Then more complex calculators that you could program were introduced, so the price increased.⁴⁵ The early changes in surveying had been in improving the accuracy of measurement while later changes improved the speed of calculation. Gradually the two came together.⁴⁶



Trevor Sleep

In 1976, Bernie McDonald took up a post in Lands Department. Trevor Sleep succeeded him as Chief Surveyor at the relatively young age of 37. Trevor had graduated in 1962 and had served in a number of locations including Mareeba, Coolmunda Dam and the Emerald Irrigation Area. He brought to the job his own personal energetic style and insatiable curiosity. He was always ready to tender advice which was not always received in the spirit in which it was offered. Long before Quality Assurance was introduced to the organisation, Trevor introduced standard methodologies for tasks such as weir surveys and the establishment of baselines for siltation surveys. Trevor's personal qualities led to his later selection as a Value Engineering facilitator and as an assistant to Malcolm Pegg in the challenging task of valuing departmental assets.⁴⁷

The ingenuity of surveyors has always been challenged. The setting out for Moogerah Dam, for example, was rather unusual. Each lift on each block had to have corners and curve offsets established from a new baseline in each case. In addition, the setting of monuments on abutments to enable measurement of arch deflections was a novelty.⁴⁸

During 1964 a Ground Elevation Meter was trialled and the installation in July 1964 of the Stereotope allowed some quick photogrammetry in house. Photogrammetry is a process by which xyz co-ordinates can be derived from aerial photographs. Like most processes, it has improved with time as technology and techniques have been developed.

A major advance in the Commission's ability to acquire survey data occurred when an in-house photogrammetric plotter was acquired in 1967. While National Mapping had produced topographic maps over the State, their scale and contour interval were too large for engineering design. Photogrammetry was able to produce maps to more usable scales with a reasonable degree of accuracy. The accuracy

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depended on a number of features including the quality of the ground control (points established accurately on the ground), the variation in spot heights over the photographic images and the skill of the photogrammetrist.⁴⁹

Hein van der Heide described the innovations. *In the early days the standards and quality were great considering the equipment they had. But now people say the lenses in the cameras were like beer bottles. Initially you had a multi-plex system – they had projection cameras set up and the operator wore blue and green glasses – like you would at an IMAX theatre – and they saw it in 3D. They had a little platform with a pin hole in it and they would adjust it up and down to find the contour and when they had it fixed and where the dots merged that was the contour you would trace out. They progressed to plotting machines, but these still had a graphical arm to plot it out.*

*The technology then moved to a digital system with electronic encoders in the plotter, which recorded x and y values. There were simultaneous improvements in the cameras and aircraft (ability to fly lower without shudder). But you still had to go out into the field to do the photo control, which was costly and time-intensive. Electronic distance measurements changed that. Until then photogrammetry's use as the major survey tool was inhibited, not by the plane or film, but the field work to control it. As technology improved, GPS made it cost-effective and useful in the investigation stage. In the early 1990s the GPS was moved to the aircraft. The ground control work became minimal, as the centre of photo will have a measurement to plus or minus one metre. Some academics claim you can do away with the ground work altogether.*⁵⁰



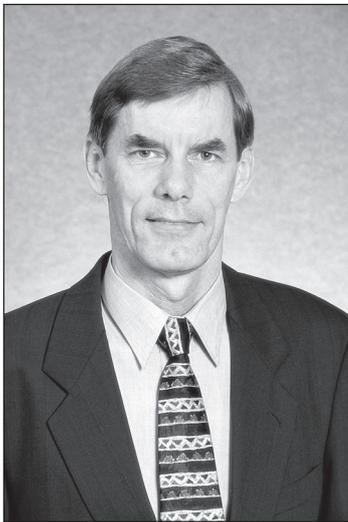
1990s surveyors in the field

This, of course, was not always the case. Photogrammetry, at the beginning, was as much an art as a technological innovation. The Commission was extremely fortunate to have the services of Peter Spierings over many years. Peter took an enormous pride in his work and remained abreast of every technological advance. He was able to use his mathematical expertise and error theory to manipulate data to limits beyond which anyone else could go at the time. Inevitably, all Peter's tasks were urgent and top priority, yet he managed to cope in his own phlegmatic way. He was the right man at the right time.⁵¹ Peter also acquired excellent help per medium of Ken Anderson and Ken Craw.

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Data adequate for planning purposes are not always sufficiently accurate for design or operational purposes. The storage capacity curve for Beardmore Dam (completed 1972) was derived from photogrammetric plots and indicated a capacity of 101,000 megalitres at Full Supply Level. In about 1990, the storage was well below Full Supply Level and the opportunity was taken to resurvey the ponded area. The reassessed capacity was only some 80,000 megalitres.⁵² This, in addition to a number of other factors relating to changes in water allocations and use, has resulted in a reliability of supply much lower than originally thought.

In due course the in-house stereo plotter became obsolete. It was not replaced. Photogrammetric services, which had been supplied in part from the private sector for years, were now purchased exclusively from a number of consultant firms.



Hein van der Heide

Time brought further technological change with the invention of new instruments, including one called a Meekometer which could read measurements over very long distances with great accuracy. The Commission was one of the earliest organisations to use the electronic distance measurers because of the need around dam sites to collect data whereas the traditional surveyor in private or government practice was still involved in road surveys and cadastral type work.⁵³

Because such instruments were very expensive, they were only acquired in strictly limited quantities and were jealously guarded by the surveyors to whom they were assigned. The makeup of a survey party changed from a surveyor with two or three chainmen to a surveyor plus one. Precision instruments were also required for conducting deformation surveys on dams. Gordon Gracey, who was the specialist in such precision control surveys, set up on hills and did trigonometrical observations over many kilometres to try and bring coordinate grids over large project areas. There is a lot of skill in that. He would have to clear sight lines through the trees and they'd get up at 3 a.m. so they could see in good conditions over valleys for up to 10 kilometres.⁵⁴

In the early 1990s, when GPS came in, surveyors could set up for 15 minutes and get measurements within a few centimetres – a far cry from the olden days when surveyors were said to 'specialise in sweat'.⁵⁵ As Pat Walsh observed, *the big changes took place after I left the Commission. They've continued to do so to such an extent that when I talk to surveyors these days, I might as well be talking to someone from a foreign country. I don't understand it all.*⁵⁶

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When Trevor Sleep 'went up the road' his deputy Hein van der Heide was promoted to the position but with the title Principal Surveyor. Hein is very thorough and extremely obliging, ensuring that his group provides a quality service. Having joined the Commission as a cadet in 1964, Hein has served in many parts of the State – notably Bundaberg, where he had up to 15 survey parties answering to him.

Surveyors have been scattered throughout the State, based in the Regions or on particular construction sites. They take their day-to-day instructions from the local manager, but their technical supervision and deployment are managed from Brisbane.⁵⁷

Tony Bucknell commenced his career with the Commission as a survey labourer. He recalls *I was working with a surveyor named Sam Baxter up on the Burnett River and we had traipsed so many miles and we had to cross the river. We knew it was about five feet deep. We all stripped off our gear, made bundles of our clothes and held them above our head and began to cross. Sam Baxter was in front. He held a theodolite over his shoulder. Sam was very careful of his instrument. Anyhow we got about half way across and things must have changed and next thing Sam disappeared. He just went straight down and the water must have been about seven feet deep. Sam immediately shot his tripod up over his head. Sam had disappeared but here was his theodolite sticking six inches above the water. I have no idea how long Sam would have stayed there, but one of the guys grabbed the equipment and up came Sam. It always stuck with me as to how important the equipment was to the surveyor.*

Another chap called Scotty Grant was an old Scottish survey labourer. He knew exactly where he was in the bush all the time. It could be a cloudy overcast day, no sun, and we'd be crossing rivers and up and down ridges. Come about 4.30 and the boss would send us back to the truck. To me it could have been anywhere. Scotty would roll a smoke and then pick up his gear and take off. He'd walk a straight line and we would come out of the scrub within seeing distance of the truck.

It used to get boring at times in the bush and people would play practical jokes. Because I was a newcomer and everyone knew I was afraid of snakes, they'd play tricks. One guy killed a snake one day and put it in my swag. That night I wormed into my sleeping bag. You can't jump in, but you can certainly jump out. I leapt out yelling, "There's a bloody snake in my bag." Everyone was laughing so I thought it must be a rubber one so I shook out the bag and the snake fell out and slid away! The blokes' laughter died and they looked stunned!

I did most of the cooking. I made a great stew on the camp oven for evening meal. I would just add to it all the time. We would have bacon and eggs for a while

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*but it would run out but the stew kept. When the quantity was light on, I'd add potatoes. Properties would give us the offal ("we don't eat guts") and sometimes meat. We'd eat the stew for about a month.*⁵⁸

Many years earlier, Pat Walsh had run a survey operation in the Burdekin. His tales of working conditions are almost unbelievable to contemporary workers. A few examples will have to suffice. *We lived in very rough conditions. After the initial reconnaissance, we had 15 horses, about half of them for riding and half to cart the gear around. Dick Alford from Ravenswood, who at that stage was in his seventies, was the pack-horse tailer and he was a man of many parts. He used to supervise the shifting of camps even though we didn't really have any camp as such. We'd just put up a fly and virtually camp out in the open. It was a pretty laborious job for Dick to load these horses – it used to take half a day probably to get everything on and then it would be time for lunch. So you couldn't leave the horses there with packs on. So we had to take all the packs off and then after lunch, put them all back on. And then we'd go for two or three hours by which time it would be getting dark and we'd have to make camp. But it was quite an experience and new to most people. At one stage when I was a cadet we'd used pack-horses, but mostly I learned by bitter experience. One of the hairiest things on this job was when you had to cross the river with a 'fresh' and the current would be flowing pretty strong. There was a tremendous amount of slippery rocks. Old Dick knew most of the safest places to cross. You often had to give your horse a belting and he'd take an almighty leap into the water. You didn't know whether he would hit bottom or not. The horse might swim for fifty yards until he found sand and could scramble up the other side. We weren't too worried about crocs although we knew there were a lot of them in the river. Ignorance is bliss I suppose. I wouldn't do it now.*⁵⁹

*When I was at Clare in 1949, there was a big flood in the Burdekin. The 'powers that be' decided it would be a good thing to send a team up river as far as they could go to mark flood heights. The idea was to put marks on trees or whatever. To do this we hired a boat from the man who later became Senator Sherrington. It must have been like Matthew Flinders setting out when we started out from Clare. We had about three weeks provisions and all sorts of gear and rifles. As we got up towards the pump station, there was a great width of sand and the river was flowing at a great rate of knots. Our boat wouldn't make any headway at all. We kept hitting bottom and the motor would become full of sand. We'd spend an hour trying to fix it up. Most embarrassingly at the end of the day we got back to Clare having recorded nothing.*⁶⁰

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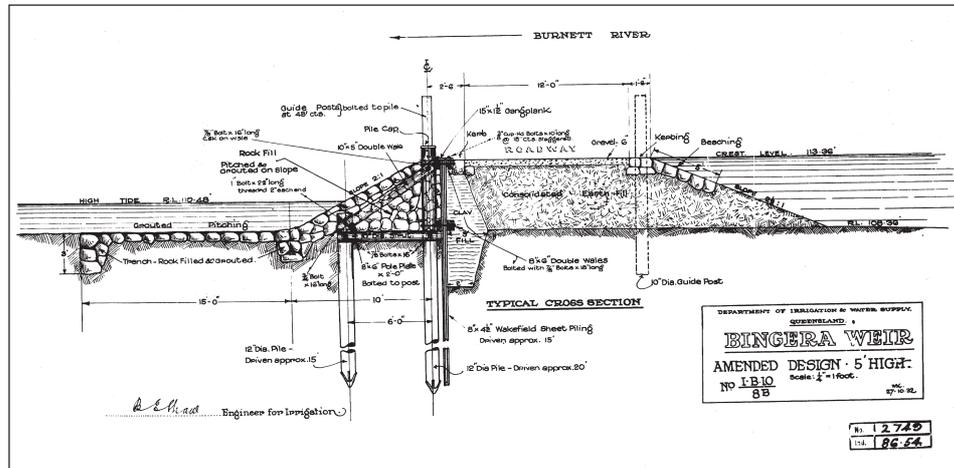
There was a survey party at Gorge Weir under Ron Parker. When they had to put in a stores order to get provisions, they had walkie talkies but could seldom get from base camp to Clare in one go so we had to relay messages. To do that, we had a battery charger and heavy-duty batteries from a grader or something. The charger was in a tent next to the mess. The technician, Arthur Rhodes, decided to run a couple of lights off the battery charger into the mess. After a while the battery charger seized up and we couldn't use it any more. It so happened at this time that the AWU bloke called in with a fellow called Joe Bukowski who later engineered the split in the Labor Party. The cook, Jimmy Stone, had no electric light and complained to the union. He showed his blackened hurricane lantern and said, "This is all they give me to see by. Florence Nightingale had a candle." Bukowski said, "Make a note of that and note that the camp is wired for electricity" which it wasn't at all – it was just two wires from the battery charger. But lo and behold, when that got to Brisbane, they decided to give us electricity and the place was wired up.⁶¹

Surveyors are called upon to collect spatial information about many things – foundation levels, cadastral boundaries, bore locations or flood heights. These tasks frequently challenge their ingenuity. One surveyor was asked to collect information on flood heights in a particular valley some years after the event in question. He did this by asking landowners to identify places where they knew the peak height of the flood. One farmer showed him a painted mark on his shed. Try as he might, the surveyor was unable to find consistency between this spot height and others. So he went back to the farmer who verified that he had painted the mark on the shed at the time of the flood – but had later relocated the shed up the hill above flood level!

At the time of establishment of Project Planning, a drafting section was incorporated. As the objective of the branch was to advise Government on which water resource development projects should proceed to construction, it was seen as essential that there be pictorial representations of the elements of the proposals – location, general arrangement, and so on. Whilst this may have been the primary purpose of the drafting group, its members were multi-skilled technical officers. As time went by, they developed new skills and discarded some of the traditional ones of penmanship.

The original Supervising Draftsman was Thomas Thomas and, yes, he did stammer. Tommy stuttered so badly that he made his presentation at his final draftsmen's conference to background music – it was clear as a bell with no stutter. Boris Wookovich (of Construction Branch) also had a terrible stammer which was used in part to justify his being passed over for Senior Draftsman. At appeal, however, he didn't stammer and his appeal was upheld.⁶²

WATERY SAUCES



Hand-drawn plan of Bingera Weir 1954 by Billy Kearton

A wiry, indomitable little Welshman, T-tommy believed strongly in the value of training. He was also a man of very high principle. When Eileen Rose (later Rossi) started work with Harry Hiley as a 16-year-old, Tommy gave her lots of lectures about what could happen to young girls if they weren't careful and went off with young men. She tried to tell him she was straight out of Sunday School.⁶³ Tommy was very patient and liked to impart his knowledge to young people. His encouragement towards achievement included a fair dose of menial work.⁶⁴

Cadet draftsmen were recruited from school and attended College at night. But a great deal of on-the-job training was provided by the Supervising and Senior Draftsmen. The cadets normally rotated between the several drafting groups during their formative years, in order to get a broad range of experience. Many of the drafting cadets went on to do further studies, resulting in a change of profession.

Each drafting group had its own area of expertise as well as a number of common activities. The planning group specialised in general layouts, survey drafting and geological plans as well as general presentation. One specialisation was the calculation of storage capacity curves, which involved the tedious planimetering of contours produced from interpolation of spot heights or photogrammetric plots. Neil King devoted years of his life to calculating storage curves, both volume and surface area. This task is now carried out by electronic computers. In fact, the vast majority of traditional drafting skills have been replaced by Computer Aided Drafting (CAD). Hand lettering was first replaced by stencils and then by machines. Drafting boards are virtually a thing of the past, having been replaced by work stations. Gone for ever

THE BEST LAID PLANS ...

are the splendid hand-drawn works of art – as well as the traumas of pens and inks, scratchers and erasers, dust, heat and humidity.

The Planning drafting group worked very closely with the surveyors, translating their field notes to drawings. Usually this took the form of initial pencil sketches which could be checked and adjusted before being inked in.⁶⁵ As all revisions had to be done by hand, there was a strong incentive to get it right before inking in.⁶⁶

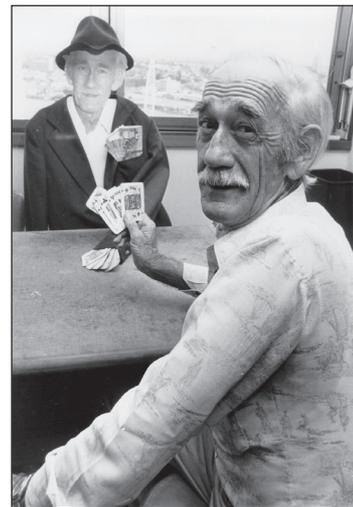


Harry Wright under repair by Alan Mayne

Geological plans also required very close liaison with the geologists. Frequent absences of field staff did nothing to speed up the processes.

The planning drafting group⁶⁷ was well known for its camaraderie and mateship. One or two of its members have been known to enjoy a drink on a hot day and to engage in some good-natured banter. A speciality of the group was the bestowing of nicknames such as Garry 'Max' Merrett (but without the Meteors), Roy 'Pottsie' Wheeler, Andrew 'Jugs' Clark, Daryle 'Mr Ugly' Green and 'The Whisper' (who had never been known to shout).⁶⁸ One of the best nicknames awarded to a departmental officer (though he was neither a draftsman nor a planner) was 'Fig Jam', an acronym for F— I'm Good, Just Ask Me.

The godfather of the group⁶⁹ was Harry Wright. Harry had served as a navigator in the Pathfinders during the war and completed an enormous number of flights, thus beating the incredible odds against survival. He wrote and self-published a novel based on his war exploits. He stood for Parliament on a number of occasions on a DLP ticket, having to resign to do so. This hindered his prospects of promotion and impacted on his superannuation. But he remained a larrikin and a source of inspiration until his retirement and early death (from emphysema).⁷⁰ On the occasion of his retirement, Harry (who had suffered damage after falling over from the excessive celebrations the night before) had been collected in a Rolls Royce and brought to the office where he was presented with the Royal Order of the Bench Mark.



Harry meets his match

WATERY SAUCES

Don McCulloch was also seen off in elaborate style. Phil Sternes recalls *the guys saved for his retirement months before and decided to hire a Council bus for his last trip. Against his protests, they gave him a taxi voucher the night before. Most of the drafting group got into the city at 6 a.m. and got onto the council bus and went out to his house, got out and told Don his lift was there. He got on the bus and they drove into work yabooing and drinking champagne* to the bewilderment of the regular passengers on other buses.⁷¹

The group was at the forefront of Geographic Information Systems (GIS) technology, experimenting with and perfecting innovative approaches. The ability to depict layers of geographic information (such as contours, cadastre, land use and soils information) is an important planning tool and the group embraced the technology with vigour and expertise.

When Project Planning Branch was first established, it had no resident geologist. This was rather a handicap, as every engineering structure has to be designed taking into account the geological conditions of the site. This may be particularly the case for dam sites as the very conditions that create the dam site (a stream cutting a path between two abutments) are geological weaknesses such as faults that need to be evaluated with care.⁷²

The lack of a geologist was more symptomatic of the inability of the Commission to recruit technical staff of all types, rather than an unwillingness to employ one. The engineers had to 'make do' for some years until Claus Gloe and Bob Dunlop were engaged.



Bob Dunlop

Claus remained only a short time before moving on. Bob Dunlop had a longer career with IWSC, remaining until the early 1970s. Bob's extremely neat, microscopic lettering is his signature on so many bore logs and field sheets, while his quiet, competent approach to his work is legendary.⁷³ Bob's brothers also gave the Commission long service, Ted as an inspector in Mechanical Branch and John as a plant inspector in Mareeba.

It is, of course, impossible to see a dam's foundations before they are opened up. Nevertheless, Planning requires an assessment of the foundation conditions and the accuracy of the preliminary cost estimate depends on the reliability of the foundation information. The foundations (and overburden) can be assessed and tested at points by drilling bores or excavating test pits. It was customary during the 1950s and '60s to drill bore holes on a grid and interpolate between them.⁷⁴ Borumba Dam was the first Commission storage to be constructed entirely by contract, CITRA

THE BEST LAID PLANS ...

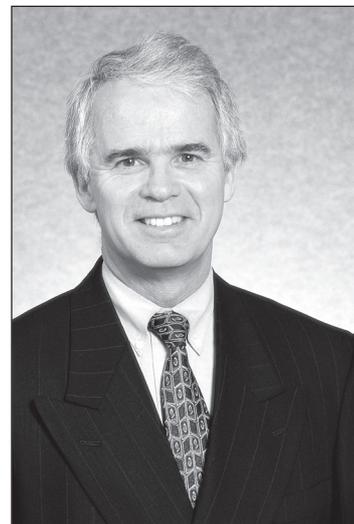
Australia being the successful tenderer.⁷⁵ When the foundations were opened up, it was found that several of the bore holes had penetrated boulders or bedrock highs, and a lot of weak material occurred at greater depth than expected.⁷⁶ Contractors delight in the extras that result from such a situation.

Maroon Dam encountered foundation problems of a different sort. It was found that seams of extremely weak slickensided clays occurred in the foundations that provided potential slip planes. Ian Ferrier was on site at Maroon and describes the event. *I was watching a backhoe excavate a section of trench for the grout cap on the left abutment. As the operator 'crowded' his bucket, a large block of white, waxy clay came away to reveal a highly polished flat surface with a few striations – a classic 'slickensides' caused by the valley walls creeping towards the river. You could tilt the block and the reflection of the sun was blinding! This revelation caused a considerable flap among the designers, particularly Alan Kinder and his slip-circle analysis.*⁷⁷ The dam design was modified after a major geotechnical analysis of the whole valley to provide extensive weighting zones,⁷⁸ and a doubling in the volume of material in the embankment.⁷⁹ Even so, it was decided not to allow the dam to fill to the maximum designed depth until the pore water pressures dissipated. Twenty-five years after completion, the dam has still not been filled. Bob Dunlop's bore logs do detect some weak seams – perhaps the writing was so small the designers missed it.

Following Bob Dunlop's departure, his job was advertised and filled by an ex-SMHEA geologist, Paul Creevey, who remained for about 10 years until he left to take up a post in a private sector exploration firm.

In 1981, the Commission was fortunate to be able to recruit Geoff Eades from Main Roads Department. Interestingly, Geoff Eades and John Ward are brothers-in-law, having married sisters. Geoff has been an outstanding acquisition with his technical competence, managerial abilities and people skills all proving invaluable. In 1995, at the close of this history, Geoff was given the managerial responsibility for a geotechnical section including engineering and materials testing components.

There has been a steady turnover of geologists. Geoff Eades described a number of them. *Greg Mules was a bit of a Hippy and a vegetarian who was an early campaigner for Animal Rights. He always had this conflict about working for an organisation that built dams when he was a bit of a greenie. It never sat very comfortably with him, which is presumably why he left.*



Geoff Eades

WATERY SAUCES

Dick Purser wanted to be a racing car driver, but he never had the talent or the money. He was an outrageous egotistical character who claimed “There’s only two sorts of people in the world. There’s professionals and there’s others and I’m a professional.”

Dave Aubrey was a good geologist, but he wanted to get out and try something else and he eventually got out into the business world, into the managerial area. He ended up managing a transport company somewhere and then working for Pioneer Concrete in a managerial role in Brisbane and Perth.

David Lucas was a brilliant geologist, but he had his quirks as well. He couldn’t handle people who did not cotton on, who weren’t bright. He went to New Guinea after us and I believe he had a great deal of trouble training the local geologists.

Mal Irwin arrived shortly after Geoff on a temporary appointment and is still here – but now a real asset to the permanent staff. Mal is a real country boy and gets on well with everyone. He’d rather be out in the field – and his wife would rather he were out in the field too. Mal recently had the task of supervising a female student. She was pretty bright and in her mid to late 20s and when Mal tried to assist in helping her do the hard heavy work she used to get really angry with him. Instead of letting her be a liberated woman, and letting her do all the hard stuff and standing by to assist, he wanted to get in there and do it for her. He’s part of the old school. He’s never had to work with one of these liberated women before.⁸⁰

Geologists, like Surveyors, are front line field staff and have to deal with disaffected landowners. This involves defending the overall investigation program as well as the particular geological field activities. The work may require moving equipment across a property, constructing access or drilling or excavating in a cropped area. Arrangements have to be negotiated and they may, from time to time, require the payment of compensation.

Not all subsurface exploration is destructive, as modern technology has come to the aid of geologists too. Seismic traverses are frequently used, particularly to interpolate between bore holes. A pressure wave is created in the ground via a small explosive charge, or sometimes a hammer blow, and detected at a number of points by probes. The different travel times of the pulse enable the different strata to be delineated. Resistivity probes, which measure the travel times of electrical currents, can also be used in subsurface exploration. New exploration techniques, often using airborne equipment, are constantly being developed in the minerals exploration industry. These are generally applicable to broadscale exploration and have, as yet, limited application in dam site investigations.

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Broadscale mapping, often from published material, and regional geology are primary tools of the engineering geologist. There are sometimes other clues, too. Perhaps not surprisingly, the Cave Hill dam site near Cloncurry not only had a void (cave) in the left abutment, it had a void infilled by mud in the foundation. This dam site proved to be unviable for geological reasons.

The reasons for site selection may not always be well documented. Two axes were being considered for Peter Faust Dam near Proserpine. The engineering report states that the downstream site was preferred for geological reasons, while the geological report selects the same site for engineering reasons! The final design was based on the upstream axis.

The Lake Clarendon foundations featured a great depth of lacustrine clays that had to be removed. As a result, there is more embankment below ground level than above it.⁸¹

Planning has always been under pressure to have a number of evaluated and approved projects 'on the shelf' ready for quick development. This objective has never been achieved. In fact, whilst Project Planning always attempted to plan for the future as well as for the short term, the urgent always gained the higher priority. This continued to occur despite serious attempts to have a team of officers dedicated to longer-term planning.

In 1973, Forward Planning Branch was created specifically to undertake the function of addressing longer-term and more strategic planning needs. The existing Systems Branch was incorporated into the new entity.

FORWARD PLANNING

Sign for new branch

Tom Fenwick had been posted to Project Planning on his return to the Commission after a couple of years in the private sector with WJ Reinhold Consultants. Tom was appointed Senior Engineer Forward Planning.⁸² This was generally seen by the staff as one step on the ladder to inevitable top office.

The new Branch had an immediate workload in addressing the needs of the mining industry as development of the Bowen Basin took off. There was virtually a continual procession of miners seeking advice from the Branch on potential sources of water supply.⁸³

Another major activity for the Branch was the investigations into the Burdekin Scheme. This project was 'writ large' in the mythology of the State, like the Bradfield Scheme. It was the dream of a number of influential men including Eamonn 'Ted' Lindsay, who held the Federal Parliamentary seat of Leichhardt for many years. Under

the direction of Tom Fenwick, the Branch undertook the evaluation of the various available options which included sites at Burdekin Falls and Hell's Gate on the Burdekin River and Urannah on the Broken River. The ultimate decision favoured Burdekin Falls.

THE BRADFIELD SCHEME⁸⁴

The scheme, popularly held to be the salvation of Australia through its ability to 'make the deserts bloom', was proposed by the noted engineer Dr JJC Bradfield (who designed the Sydney Harbour Bridge) in 1938. He envisaged diverting water from the coastal Tully, Herbert and Burdekin Rivers across the Great Dividing Range to supply the inland waters, principally the Flinders and Thomson rivers and Torrens Creek. This would provide water for stock and fodder to offset the recurring problem of drought, plus recharge for the Great Artesian Basin. He paid little attention to using the transferred water for irrigated agriculture or hydro power generation.

Bradfield's work was based on elevation (height) information obtained from a barometer that he carried on horseback and the extremely sparse streamflow data that were available at the time.

In 1947, W Nimmo, while Chief Engineer of the Stanley River Water Board, carried out a review of the proposal, published as Appendix A to the Queensland Bureau of Industry Annual Report for 1946/47. Based on the latest data then available (including height, flow and storage capacities), the review gave a very detailed analysis of its practicality. His findings implied that the initial concept by Bradfield was not viable but some modification may be possible, albeit at very great cost.⁸⁵

In about 1983 the Government commissioned an engineering consortium to undertake a re-assessment of the scheme. Although the final report was not released some results follow. Equivalent 1996 costs are given in italics:

- Estimated cost of the total project was \$1380 M in 1982 dollars (*\$3170 M*)
- It would be possible to divert 924,000 megalitres of water per year to the Hughenden area.
- After allowing 60,000 megalitres per year for industrial and urban demands, the remaining water could irrigate 72,000 hectares of intensive cropping for which there is ample land available.
- Using water to generate hydro power east of the Divide could either seriously impair the amount of water available or completely preclude the scheme.
- The route proposed would involve a total lift of 409 metres through 47 kilometres of pipeline with gravity flow through a combination of 94 kilometres of canals and 34 kilometres of tunnels.
- The route would be from water backed into the Clarke River by a 76 metre high dam at Hell's Gate to a receiving storage on the Flinders River upstream of Hughenden.
- Based on 1982 values the proposed scheme would be built in four stages ranging from a cost of \$590 M (*\$1,355 M*) to irrigate 11,000 hectares in stage 1, to \$1,380 M (*\$3,170 M*) for the complete scheme to irrigate 72,000 hectares.
- The annual cost for electricity for pumping would be from \$17 M (*\$39 M*) for stage 1, to \$57 M (*\$130 M*) for the final stage.

The scheme has not been promoted because of the major costs involved as well as modest benefits. Greater benefits at far less cost were considered to be achievable by developments serving land east of the Great Dividing Range.

It has been stated that it would be cheaper (and economically better) to give every person west of the Great Divide \$1 M than to build the scheme.

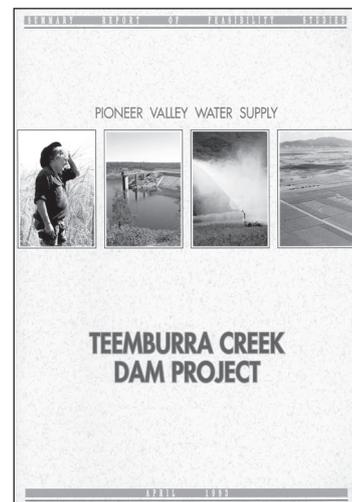
THE BEST LAID PLANS ...

In 1979 Tom Fenwick was promoted to Senior Engineer Special Projects. He took with him responsibility for the Burdekin Project and conducted the negotiations that led to funding of the dam by the Commonwealth Government.

Col Hazel became Senior Engineer, Forward Planning until 1983 when he moved to Groundwater and Bill Eastgate replaced him.⁸⁶ In 1986, Warren Lane assumed the office.⁸⁷

By this time, the mining boom had slowed and the Branch had taken on the role for which it was presumably originally intended – the selection of potential future projects. The methodology was to undertake regional planning studies – basically an inventory of current industries, available water resources and potential growth within a region – and to identify water resource development options and evaluate these through preliminary studies to determine which, if any, had the potential to be viable projects to meet the identifiable needs. These preferred options would then be handed over to Project Planning for detailed feasibility studies.⁸⁸

This process was probably better in theory than in practice and Project Planning continued to develop its investigation program on the basis of intelligence from its traditional sources – representations from groups of potential water users – rather than a logical progression from Forward Planning. Again, it was time that dominated. Just as Designs Branch had not had a steady stream of approved schemes coming from the Project Planning production line, Project Planning had not received its endless list of preferred options from its sister Branch. In due course this situation was largely redressed, and a logical progression was established as with the Pioneer Valley (Teemburra Dam) and the Dawson Valley (Nathan Dam).



Cover of Teemburra Report

The general public, perhaps fortunately, do not understand the process of dealing with official letters. Thus they will write to the Premier, the Minister and the Departmental Head and (usually) receive either one reply or identical replies. However, there were instances of letters to the Minister and the Commissioner being sent for draft reply to the two different Planning Branches and two different and conflicting replies being sent out!⁸⁹

In 1984, the two Planning Branches were amalgamated into Planning Division with John Morse as Director. Following his retirement in 1985, Lee Rogers became Director of Planning Division with Warren Lane and Ian Pullar heading up Forward Planning and Project Planning respectively. John Ward, who had been second-in-

WATERY SAUCES



John Ward

charge to John Morse was appointed Director Water Resources Division. In 1987, Lee Rogers returned to Design Division as Director and John Ward became Director Planning Division with Bill Eastgate as his 2IC.

Following Tom Fenwick's appointment as Commissioner, the responsibility for conducting public meetings was delegated. By the late 1980s, governments throughout Australia were developing policies in relation to water supply which required users to contribute towards the capital cost of works. This policy was not welcomed by the Commission's potential customers even though the level of contribution proposed was quite modest. Public meetings at Laidley (Bill Gunn Dam), near Gatton (Lake Clarendon and later Clarendon Weir), Biloela District (Kroombit Dam), Boonah (proposed Teviot Brook Dam) and near Stanthorpe (proposed dam on the Broadwater) provided an excellent opportunity for planning officers to hone their performance and debating skills!⁹⁰

Among his other duties (and those included chairmanship of the computer committee), Bill Eastgate was given the task of defining the Planning Process. This was not completed by November 1988 when Bill was transferred to Local Authority Services Division, swapping with Greg McMahon. By then, Strategic Planning had arrived (see Chapter 3) and this also contributed to the definition of the Planning Process. The documentation identified four distinct phases of Planning:

- Policy Planning (development of policies including pricing)
- Overview Planning (inventory studies of regions/catchments)
- Appraisal Planning (definition of water needs and opportunities and identification of available water supply options)
- Project Planning (feasibility studies of specific options)

Conveniently, there were four Senior Engineers in the Division, so four groups were created under the leadership of, respectively, Ian Pullar, Greg 'The Major' McMahon, Warren Lane and Ian 'Charlie' Chalmers.⁹¹

By this time, in recognition of changes in community values, the Division had engaged three environmental scientists, Glen Moller, Rachel Barley and Kate Guard. Following the creation of the four groups, these were initially assigned to Overview Planning, but were soon moved to Policy Planning. Overview Planning retained the services of the Town Planner (David Myers) and Policy Planning had the economist (Ian Shears).

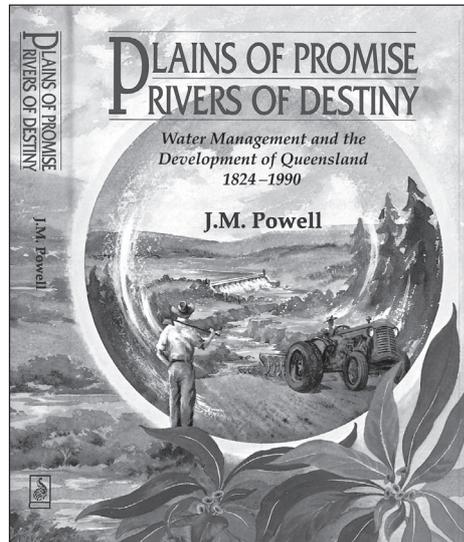
THE BEST LAID PLANS ...

One task, already in train, that fell to the Policy Planning portfolio was the management of Joe Powell's contract for the production of the history of water resources in Queensland, eventually titled *Plains of Promise, Rivers of Destiny*.⁹²

In December 1989 a State election was held and the first Labor Government in 32 years was elected. The Water Resources Commission ceased to exist as a separate Department but was incorporated into the Department of Primary Industries. This had no immediate impact and it was more or less 'business as usual'.

However, an election commitment of the Goss government had been the abandonment of the Wolffdene dam site as the proposed future source of urban water for south-east Queensland. The Department was directed by Minister Ed Casey to undertake studies to identify and evaluate all potential alternatives. This task occupied virtually all planning officers for the entire year of 1990, with many working well 'beyond the call of duty'. Warren Lane headed up the team⁹³ which undertook studies of 32 dam sites, including preliminary engineering designs, hydrologic studies, environmental scoping studies and economic studies. It was a huge task. In the end the preferred option, endorsed by the Government, comprised raising Hinze Dam (c. 2000 or later), Glendower Dam on the Albert River (c. 2015) and Wyaralong Dam on Teviot Brook (c. 2060).⁹⁴

Formal community consultation was not included in the program, but Ian Pullar volunteered to man a 'hot line' and to deal with correspondence. This became virtually a full-time job for nine months and certainly produced its own level of stress. Callers expressed trauma, despair and anger. One resident of a potential dam site had retired to his rural haven on a public service invalid pension, had lost his children as they matured and left home and his wife had also departed so that now he had nothing to do and all day to do it. Thus he made lengthy phone calls with his latest conspiracy theory. A Gold Coast woman ventured the opinion that the Department should look at options other than dams. On being told that the terms of reference included rain water tanks, waste water re-use, desalination and towing icebergs, none of which were as viable as dams, she said, "Well, you'd better think of something else." When told that no other options had been described in the literature and asked if she had any suggestions, she responded, "Well, I don't know. You're the experts."⁹⁵



Cover of J.M. Powell's book, taken from one of Minister Tom Foley's Christmas cards

WATERY SAUCES

Once the Government had endorsed the preferred options, public meetings were held on successive nights in Beaudesert and Boonah to explain the decision. Each was attended by more than 300 angry residents (and no friends). Subsequent meetings with the MALOs proved to be less traumatic and helped to placate the anger. At least there was a very long lead time and people would not have to move quickly. The South East Queensland Water Board offered to purchase the properties of anyone who wanted to sell and would also allow them to lease the property back. The Department found an unexpected ally at Boonah, a Mr Richardson who had already been resumed for Wivenhoe Dam and again for Bjelke-Petersen Dam and now owned property within the ponded area of Wyaralong Dam. At least he could assure the MALOs that Water Resources would treat them fairly, and he advised them to take the money and move on – but not leave a forwarding address!⁹⁶

In 1991, Water Resources underwent a reorganisation that resulted in Planning Division being split again. One group, Investigations, was attached to Development Division with Malcolm Pegg as General Manager (and Deputy Commissioner). The remainder of the Planning units were attached to Water Resource Assessment Division, of which Lee Rogers was General Manager.

In 1993, three major technical Divisions were created, each led by a General Manager (and Deputy). Investigations, now named Infrastructure Planning but soon to change name again to Scheme Planning, was attached to Water Production Division with John Potts as General Manager while Overview and Appraisal Planning were attached to Water Resources Division under General Manager Lee Rogers.

Overview Planning undertook the production of Overview Reports for the key basins of the State.⁹⁷ Appraisal Planning undertook appraisal studies of, notably, the Pioneer Valley, the Dawson Valley and the Mary River/Sunshine Coast area.⁹⁸

In 1993, DPI produced a *State Water Conservation Strategy* which was, in effect, a State Water Plan.⁹⁹

A major activity of Scheme Planning was the feasibility study for Teemburra Dam. By the time the studies were completed in late 1992, government policy required a contribution of an unspecified magnitude towards the capital cost of works. *Canegrowers*, Mackay, had reached a policy position that their members would not contribute one cent towards capital. Against that background, Ian Pullar and Regional Engineer Peter Gilbey were sent out to negotiate a water price with growers through a series of animated public meetings. Farmers were told that the Department intended to conduct a survey of willingness to pay and if they offered to pay nothing, that was precisely what they would get. By the end of the campaign, office bearers of *Canegrowers* were

THE BEST LAID PLANS ...

sharing the podium with the departmental officers urging their constituents to contribute to the capital cost.¹⁰⁰

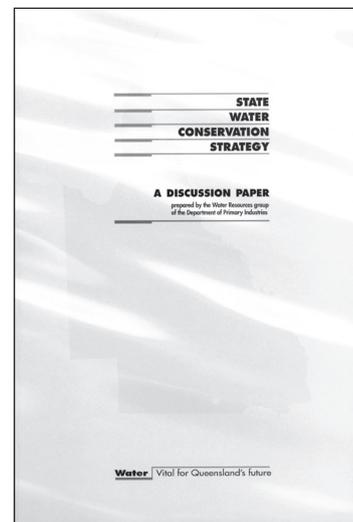
In 1993, the Commonwealth, Queensland and New South Wales Governments announced a \$40 million Sugar Industry Infrastructure Package (SIIP) and invited submissions. Financial assistance would be provided to projects that were economically viable and environmentally acceptable and where water users were prepared to make a substantial contribution towards the capital cost. This, in most cases, finished up resulting in a third of the cost being contributed by each of the Commonwealth and State Governments and the local industry. Scheme Planning was awarded the ultimate prize of administering the Package. Graham Young, the Project Officer, thinks the four-year Package may come to an end by the end of 2001.

Both the Teemburra Dam and Walla Weir projects (Burnett River) were nominated and approved subject to environmental studies. Because the requirements of the Commonwealth Act were called in, these studies were much more detailed and comprehensive than any previously undertaken in the State and set a benchmark for future studies. Even so, Walla Weir was the subject of considerable disputation and strong opposition from the environmental movement. The Federal Minister for the Environment (by then a member of the Liberal-National Party government) commissioned an independent review of the Impact Assessment before approving the proposal, subject to stringent monitoring requirements. Further meetings were held with growers, *Canegrowers* and sugar millers to achieve agreement to a capital contribution. Interestingly, Bundaberg Sugar agreed to rebate the canegrowers part of their surcharge rather than make a direct contribution which would also benefit vegetable growers.¹⁰¹

Teemburra Dam was the subject of a (State) Parliamentary Public Works Committee inquiry from which it emerged with flying colours.¹⁰²

Had it not been for the SIIP, it is doubtful whether either proposal would have been constructed at that time. The budgetary priorities of the Goss Labor government were not directed towards the provision of water infrastructure.

During 1994 external pressures were brought to bear on DPI to achieve greater integration. The Water Resources Business Unit was about to come to an end. Central planners had decided that separation was necessary between the regulators



Cover of the Strategy

WATERY SAUCES



Teemburra Dam under construction in 1995

(gamekeepers) and developers (poachers). In addition, there were strong moves towards commercialisation of water services. These pressures resulted in a new organisational structure where, in March 1995, the Water Resources staff were deployed into Regional and Rural Development (RRD) group (along with land resource and forestry staff), Resource Management (RM) group or Water Commercial (WC) group or joined the Resource Sciences Centre (RSC) at Indooroopilly.

The staff from all the pre-existing planning groups were 'scrambled' to meet the needs of each group. The Overview Planning function went to RSC. WC set up a Project Planning section under John Ward within its Engineering Services, basically to plan the implementation of approved projects. It also provided an investigation service on a commercial basis. The RRD planning group, managed by Ian Pullar, had a charter of holistic resource planning (not just water).

Whilst this last reorganisation brought this history to an end, planning continued within DPI and from 1996 within the Department of Natural Resources (DNR). Over the years, it has become progressively more complex, more comprehensive, more time consuming and vastly more expensive. One hopes it will also produce better outcomes.