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# Cowra Bridge - Preservation of a Unique Structure

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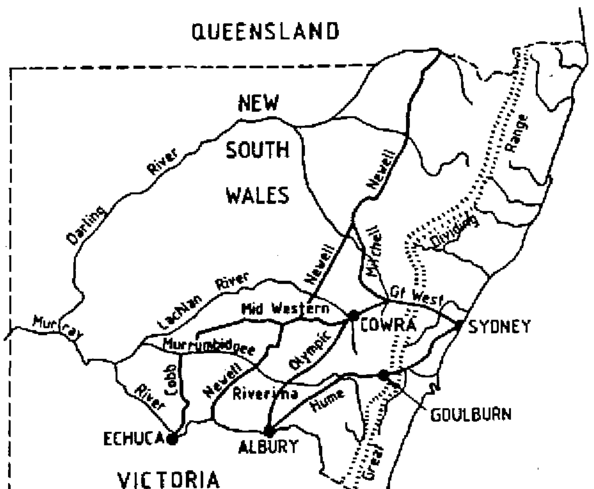
SUMMARY In 1988 the 1893 road bridge at Cowra over the Lachlan River, consisting of the only bow-string composite timber and steel trusses in Australia, was threatened with oblivion. This paper describes how a cooperative venture between civil engineering students from the University of New South Wales and the Cowra Shire Council saved one truss span, and located it in the adjacent riverside park as a landmark of engineering heritage.

## 1. HISTORICAL BACKGROUND

### 1.1 COWRA

Cowra (1), a town of 8,500 people is located on the banks of the Lachlan River 230 km due west of Sydney but 320 km by road (the Great Western then the Mid-Western Highways). Its name comes from the local aboriginal word 'coura' meaning rocks, and it is on a rocky, granite hill that most of the town has been built.




As early as 1831 a "main road" from Bathurst passed through Carcoar and Cowra and onwards south to the Murrumbidgee River district. At Cowra Rocks the road crossed the Lachlan River by a ford and, as so commonly occurred, a township developed.

Initially this crossing was useful for the squatters to move their large flocks and herds further south-west onto the inland grass country. Progressively, settlers followed and occupied the fertile river flats and there was a steady shift to a balance between grazing and farming. By the mid-1850s Cowra had become an established town, but stock and produce still had to negotiate the ford. And passengers too, from coaches, had to off-load and wade through many a river fresh as they crossed.

The worsening situation became chaotic in 1861 when the gold rush to Young brought a surge of traffic through Cowra and the owners of three boats did "a roaring trade" ferrying all and sundry, and Her Majesty's mails, across the river. Their businesses flourished until 1870.

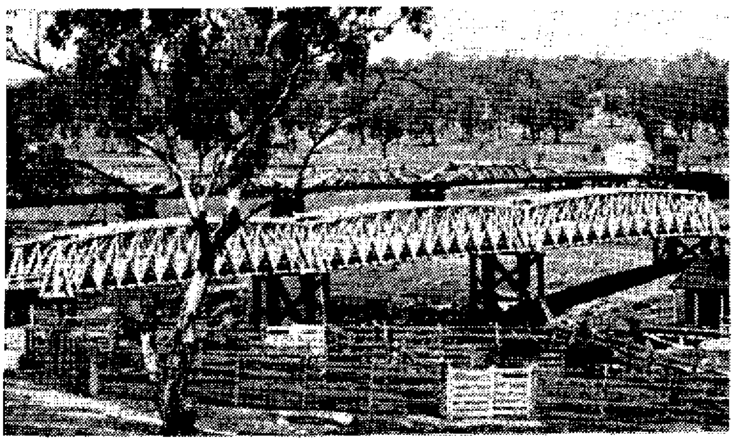
### 1.2 The first bridge

The posibility of the Colonial Government approving the building of a substantial bridge was reported as early as 1862 (2) and in 1867 the contractors Baillie and Chalder, with 100 men, began the work of building a timber truss bridge estimated to cost 9,120 pounds. It was to consist of 3/130 foot (40m) spans built to the McCallum design, an American structure. This in itself was a radical step for a british colony, but Public Works engineers had reached the 90-foot (27m) limit of the imported British style of timber truss.

But the decision was not made just on technical grounds, important social and political factors were also involved. The Sydney-based colonial government was very concerned about the movement of settlers from Victoria and South Australia into the Riverina District of New South Wales and were determined to divert the wealth of this, and other remote areas, to Sydney. Successive governments, therefore, pursued a grand stategy of improving transport to and from these regions through roadworks, railways and bridges (3,4,5).

Although the direct route between the Riverina and Sydney was through Goulburn, there was a large movement of stock and goods on the north-south line west of the Great Dividing Range (it is still so in 1992), consequently Cowra became and continues to be an important river crossing for the inland route. Therefore a high-level flood-free crossing was essential which meant the construction of a major bridge.

Completed in 1870 and officially opened on Australia Day (an occasion when "Cowra was all



The 1870 McCallum trusses

Official party for the 1893 opening

alive"), its significance can be gauged from the following extracts from two reports in the Town and Country Journal (6). "Constructed on a scientific principle ........ largest timber bridge in Australia ...... this really noble piece of engineering skill and workmanship ......... Cowra possesses one of those gems of engineering triumph."

Fortunately, it passed its first great test in April when flood waters rose 3 feet (1m) above the deck which had been set at 50 feet (15m) above normal river levels. The pressure of the water and debris against the lattice woodwork of the trussses caused a horizontal bow of about 8 inches (200mm), and there was extensive damage to the approach spans so three 65-foot (20m) timber trusses were inserted.

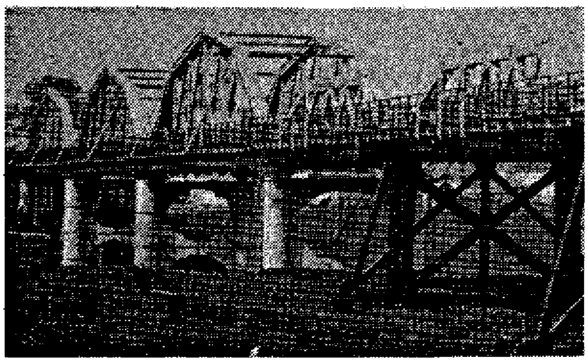
Despite the early euphoria, users soon began to grumble about its poor design. With a clear road width of 15 feet (4.6m) it was virtually a single-lane bridge which greatly inconvenienced opposing traffic flows, indeed, on May 8 1878 the drivers of two horse teams "positively refused to give way by backing off" (2). The resulting collision left men and animals in a sorry state. At least the tolls had been removed in 1872.

But the structure of the trusses was not as scientific as claimed, it was really a "carpenter's bridge", complicated to assemble and almost impossible to renew members once shrinkage and warping, a characteristic of Australian hardwoods (particularly with local unseasoned timbers), had occurred. Overcoming this problem was to be a feature of the 1893 replacement bridge.

By 1886 the approaches of the first bridge were in such poor condition that the addition of a footway and replacing the timber trestles in the river with iron-cylinder piers was deferred. The matter of a new bridge was placed before the Parliamentary Standing Committee on Public Works which considered three designs on a new alignment with the main street of Cowra, Kendal Street, and at a higher level to clear the major floods such as that of 1870.

1.3 The second bridge

The Report of the Committee was published in 1890 (7) and contained summaries of the three designs plus the technical evidence of John A. McDonald, Engineer for Bridges, Department of Public Works. The three schemes were (1) a series of iron lattice girders of spans varying from 111 feet (34m) to 216 feet (65m) with a timber deck estimated to cost 54,959 pounds, (2) three composite timber and steel bowstring trusses of 160 feet (49m) spans with shorter approach timber trusses and timber beam spans, estimated to cost 26,538 pounds, and (3) a viaduct of nine 90-foot (27m) timber trusses to cost 21,392 pounds.



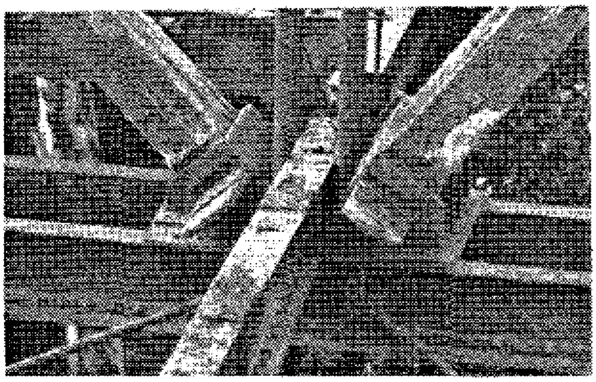
The 1893 Cowra Bridge

Although the iron lattice girders were "considered the best type of bridge" (evidence of Robert Hickson, Commissioner and Engineer-in-Chief) with 18 road and 12 railway bridges of this type built to that date (5), the design was rejected as too expensive. The timber truss viaduct was also rejected because 30 years of experience had shown that maintenance was a difficult and expensive problem.

Design 2 was a practical compromise and was adopted. The composite trusses were designed by McDonald and proved to be structurally efficient and very cost-effective. He included a number of features that were sound engineering both in theory and practice. For example

> The variable height of each truss reasonably matched the bending moment diagram
>
> All tension members were of steel or iron and all compression members were timber, thereby using the best structural qualities of each material
>
> The 1890 reporting by Prof. Warren (8) of the truss analysis by the Method of Sections appears to be the first published demonstration of this technique

With member forces correctly known there was a structurally efficient distribution of material throughout each truss



Opposing metal wedges,hammered against each other, were located at the bottom ends of diagonal timber members so as to counter the effect of shrinkage, thereby keeping the trusses "tight"

Cast metal fittings at all timber joints so that the squared-end timbers and iron rods could interact as "pinned" joints.

With this design, McDonald had almost doubled the span of timber truss road bridges and brought to its zenith this form of construction. It succeeded its 1870 predecessor to also become the largest timber bridge in Austrlia. In terms of a single composite span, DeBurgh's bridge at North Ryde in 1900 was 165 feet (50m) and in terms of total lengh of trusses, Percy Allan's bridge at Kempsey (also 1900) was much longer. But the Cowra bridge out-serviced them both by nearly 30 years.

The contract for the new bridge was awarded to John Wishart and Son on May 16 1891 and driving the first timber pile began on October 16. Exploratory bores taken during 1890 showed that hard blue granite was available at reasonable depths so the iron cylinders supporting the main trusses were taken down to rock and then filled with concrete.

The local newspaper carried regular reports of progress including the details of construction (9). Some principal items were - 1,540 tons of the very best ironbark from the North Coast, tallow wood for the decking, 460 tons of steel and iron from England, 530 cu yds of concrete, and the main trusses were erected on falsework. Total construction took almost 2 years at a final cost of 31,495 pounds (10), and, as might be expected, it was 2 lanes wide being 20 feet (6m) clear between the inner guard rails.

The NSW Postmaster-General, the Hon. J. Kidd, officially opened the bridge from a platform at the centre of the river trusses.

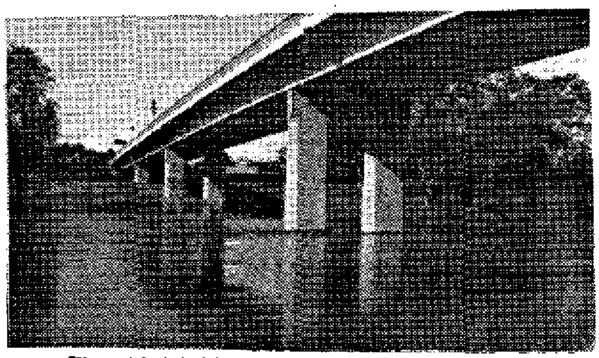
Three weeks later the 1870 bridge was pulled down by a team of bullocks attached to a wire rope (9).

The 1893 bridge was in service until November 1986, 93 years.

### 1.4 The third bridge

Although J. A. McDonald had devised methods for renewing any of the large timber members, it would have been an expensive operation at any stage of the service life and would have involved significant disruption of traffic on the very busy Mid-Western Highway. Long-term deterioration of the main truss timbers raised the matter of structural safety to carry the ever increasing vehicle loads. By 1980 the decision was made to build a new bridge parallel and immediately downstream of the old bridge.

The new bridge is a twin continuous post-tensioned box girder of constant depth (2.1m) with 7 spans - 33, 39, 44, 44, 62, 44,and 39m. It has a 9.2m wide roadway and two 1.8m wide footways, and has been built to clear the 1870 flood by 1.45m. Designed by Rankine and Hill Pty. Ltd. in 1981, it was built by McDougall-Ireland Pty. Ltd. between February 1983 and November 1986 for a tender price of $3,427,959. The tapered concrete piers are supported on 1m dia. cast-in-situ reinforced concrete piles taken down to granite bedrock. Final costs (excluding earthwork approaches) was around $4.2 million. When the old bridge cost is indexed to 1986 it would be approximately $3.5 million which emphasises that it would have been a major bridge in any era, but the concrete bridge would no doubt be regarded as better value for same order of money.



The third bridge was opened by Hon. L. J Brereton, Minister for Public Works, Ports and Roads on November 29 1986.

## 2 THE OLD BRIDGE - WHAT TO DO?

### 2.1 The immediate decision

Cowra Shire Council in March 1987 advised the National Trust of Australia (NSW) and the Department of Main Roads that it was not in favour of the retention of the old bridge and would not accept trusteeship of it. The department was re- quested to dismantle it and demolition was scheduled for December 1988.

This situation was confirmed by the author when passing through Cowra in August 1988 after a visit to the Darlington Point Bridge Preservation Project (11). There was a strong prospect that within 6 months there would be **NOTHING** on site to show that an historically and technically significant bridge had ever been there. Was it to go the way of its 1870 predecessor?

The author resolved that this should not be so.

2.2 Reversing the decision

The Darlington Point Bridge reconstruction, a joint project between the civil engineering students from the University of New South Wales and the townsfolk of Darlington Point, was drawing to a successful conclusion and the author saw the potential to repeat the co-operative venture with the Cowra Shire Council in order to save ONE truss span.

Time did not permit the preparation of a conservation plan nor the following of established heritage procedures. Quick actions and decisions, and a living with the consequences, were the order of the day.

First, discussions took place with Ray Wedgwood (Chief Bridge Engineer, DMR) regarding the demolition contract. It provided for one complete span to be carefully dismantled and stored at Blayney for re-erection somewhere else at some future time. Without going into all the technical and heritage problems, this was an unsatisfactory option for the contractor, the DMR, the town of Cowra and the principles of the Burra Charter. Following discussions with the contractor, Murray Constructions Pty. Ltd., the DMR varied the contract so that additional cranes could be hired to lift one truss span off its piers and place it on the western bank, together with 4 sections of the cylindrical piers, at no increase to the contract price. DMR responsibility would then cease.

Second, the author submitted a scheme to the Cowra Shire Council in October 1988 advising them of the contractural changes and outlining how the truss span could be placed on the salvaged piers as a joint Council-student project and within 2 years. Given the experiences at Darlington Point, where free technical assistance was received from many sources together with the enthusiastic voluntary local support, it was suggested that real cash expenditures would probably not exceed $20,000. A promise of $5,000 from the School of Civil Engineering plus other cash donations indicated that for a modest cash outlay plus the services of its large and experienced Works Department, the Council would have a unique landmark of engineering heritage.

Cowra Shire Council agreed to the plan on 16 November 1988 and set up a Working Committee of 3 Councillors to liase with the author and the School of Civil Engineering.

2.3 Conservation principles

The plan, therefore, was to completely clear and landscape the site of the old bridge but to save one truss span (minus all the deck planks and bearers), grit blast all the old flaking paint, paint the iron/steel members, apply preserving oil to the timber members and place the structural skeleton on the salvage portions of piers in a riverside park 100m from its original position. The relocated structure would become a monument to engineering history and to Cowra's social and cultural heritage.

How did this plan rate in terms of the principles of the Burra Charter (12)?

Fortunately, the Burra Charter is not as constraining on heritage actions as some determined proponents make it seem. It sanctions conservation processes ranging from retention in-situ, to restoration and reconstruction, removal to another location, even demolition. The Cowra plan involved **PRESERVATION** - maintaining the fabric in its original state and retarding deterioration, and **RELOCATION** - the only way to save a significant structure. The author commends Godden's paper (13) to the reader for useful guidance in these matters.

Unfortunately, the Heritage Council of NSW was unable to grant $10,000 due to pressures on the available funds and a priority to support in-situ preservation projects ahead of saving bits and pieces. **BUT THE PROJECT PROCEEDED.**

2.4 Saving a truss span

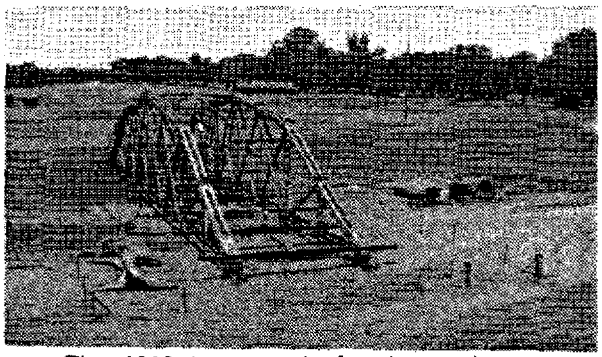
The decision to remove all the decking was based on (1) the need to reduce the stresses in the old deteriorating timbers because, without the traffic live-load and the decking dead-load, the stresses could be reduced to one third their original design values, and (2) the need to keep the nett weight of the span to a minimum, thereby making lifting and moving the truss easier. The final skeletal weight was 120 tonnes compared to an all-up of 227 tons.

On Friday 13 January 1989 the contractor assembled six mobile cranes, varying in lifting capacities from 25 to 65 tonnes, and began to lift the western span off its piers and move it onto the western bank. It was essential that the lifting points were at the corners of the structure because the trusses had been designed and constructed to be simply-supported with never a thought for reversal of member forces. Indeed, all compression timbers simply butted against each other at the top joints and were bearing against wedges at the bottom joints. Any tension force would have caused them to pull out of position and the structure would have collapsed into a heap of separate pieces.

Due to the tops of the river piers being 60 feet (18m) above water whereas the ground piers were 10 feet (3m) above the top of the bank, moving the river end of the span onto the bank proved to be a slow process. Cranes had to be frequently repositioned due to the limited amount of slewing that the steeply sloping bank would allow.

Also, everyone involved realised that this was **THE ONLY SURVIVING TRUSS OF ITS TYPE IN AUSTRALIA** so nobody wanted to lose it. Care

and caution prevailed all day until evening when the 6 cranes and a suspended structure were locked for the night. But success was in sight and by 2pm the next day the truss span was landed on the bank, or rather on 4 low-loaders, whence it was driven a short distance to its final location. The cranes re-assembled, lifted the span free of the low-loaders and placed it on timber baulks, virtually at ground level. Soon after, the contractor saved 4 portions of cylindrical piers, 2 sections of diaphragms (to go between the pairs of piers) and other metal pieces.



The 1893 truss ready for the students.

## 3. CONCAMP 1989

### 3.1 Introduction

Final year students at the School of Civil Engineering at UNSW have the option to do the Construction Major starting in Session 2 during which they take part in a practical construction project in week 10. Following Council approval of the scheme and the saving of the truss span, the author and lecturing colleagues visited Cowra for site discussions with the Council's Working Committee and the Shire Engineer and set the groundwork for a CONstruction CAMP in September 1989.

The principal tasks were identified as (1) clean and paint as much steelwork as possible (2) brace the truss across the roadway now that the deck had been removed (3) set out the pier holes for the Council excavator (4) assist with cranage at potting the piers and (5) do trials with hydraulic jacks to lift and move the truss by small amounts.

### 3.2 Planning

CONCAMP 1989 consisted of 26 students and 2 supervising lecturers. In August 1989 the students formed groups, Admistration, Technical, Logistics, Resources, Historical and Public Relations, in order to plan and manage the project. Weekly meetings were held to co-ordinate the group decisions and confirm details. By week 8 a schedule of work had been prepared, tools and equipment identified and arrangements with the Roads and Traffic Authority (RTA, formerly DMR) and the Council were finalised. Also, a 25t crane was hired from B. M. West Engineering (Cowra) plus a storage shed, compressor and oxy-acetylene gear. The Council agreed to provide an excavator, prime-mover, low-loader, vibratory compactor and other tools.

Prior to CONCAMP an RTA gang grit-blasted a substantial part of the bottom chord steelwork and applied a prime coat, but weather and ground conditions prevented completion so the remainder was deferred to CONCAMP 1990 when the span would be "up out of the mud". In addition Council removed unneeded brackets and the two end cross-girders were relocated within the truss rather than being above the piers where they would impede other work.

### 3.3 Concamp achievements

The construction camp began at the site on Saturday 23 September at 2pm and concluded on Friday 29 at 4pm. Despite losing Tuesday morning due to rain and delays caused by problems with two of the piers, most of the goals were achieved. The unexpected pier problem was that two salvaged portions were each heavier than the capacity of the crane. The students discussed a number of options to maintain the schedule and resolved to cut 1m from the bottom of each of these longer piers. Brian West's oxy equipment was used to cut the iron shell and plug-and-feathers were used to split the internal concrete which reduced the pier weights by 4t each. All piers were potted and the holes backfilled using the vibratory compactor.

With the trusses cross-braced it proved suprisingly easy to (1) lift the corners using standard hydraulic jacks, a manual pump and a grillage of hardwood timbers, and remove the old bearings and (2) push the whole structure sideways on greased plates.

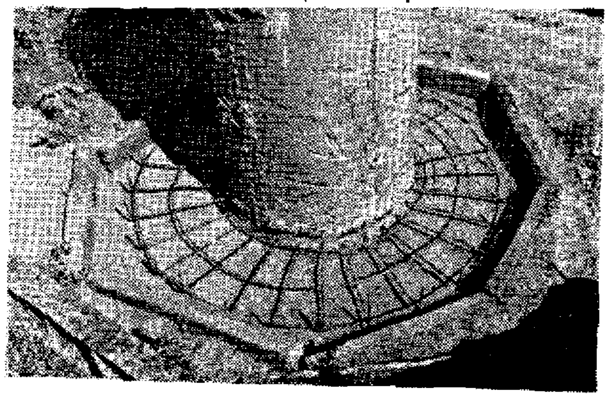
The students gained much valuable hands-on experience even though certificated operators had to work the excavator and crane. Good relationships were established with the Council's work staff, with the townsfolk through local newspaper reports and site visits, and with the district when a news item appeared on PRIME TV.

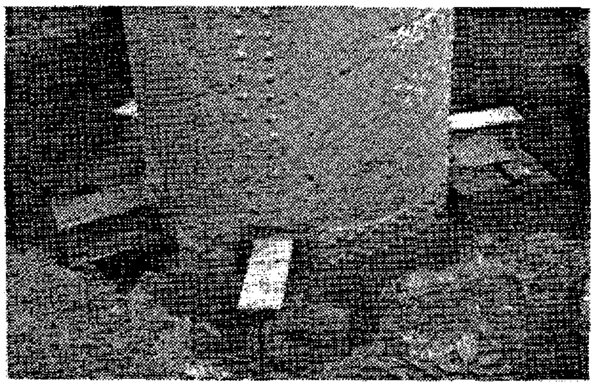
The students also found that the need to plan every aspect, down to the smallest detail, was a valuable reinforcing of the formal lecture material, and then, to take a grand plan out into the real world, adapt it to unexpected events so as to achieve the desired result was an experience not able to be simulated in the classroom environment.

Overall it was a great learning experience.

## 4. BETWEEN CONCAMPS

With the 4 piers potted only 1.5m into the alluvial topsoil, the bearing capacity to support the truss would have been inadequate. Consequently, reinforced concrete collars were attached to the southern pair of piers, and stub



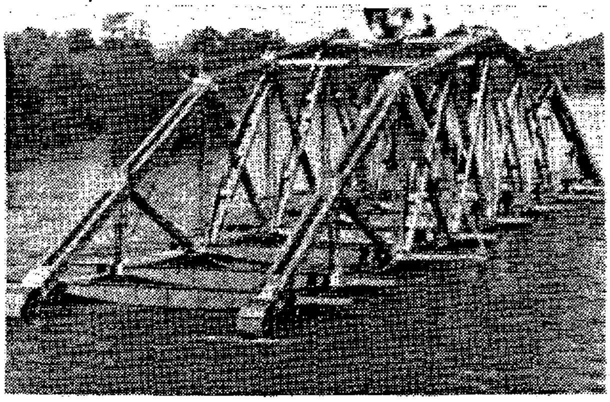


beams were welded to the northern piers. This work was carried out early January 1990 by local businesses Tom Bryant Concrete and Lachlan Steel Fabrications Pty. Ltd.

The students and lecturers had given much thought as to how to raise the 120t truss span and place it on the piers, hence the trials at lifting and pushing with the hydraulic jacks. In principle this would have worked but substantial scaffolding would have had to be progressively fitted beneath each corner as the raising took place. This and other shemes could not be carried out until the next CONCAMP in September which was not acceptable to Council who wanted to landscape and seed the area before winter. Final landscaping and other works would then be carried out after the second CONCAMP.

The solution was to hire virtually the same group of cranes to lift the structure onto the piers at a cost of $11,000. Although a seemingly high cost solution it had the advantage of being safely done by experts in a short time (four hours in fact) and gave Council clear access to the site well ahead of their deadline for landscaping.

On February 14 1990 the truss span was placed on its piers.



The big test occurred in August when persistent heavy rains fell during July on the upper catchment of the Lachlan River and a major flood passed Cowra on August 3-4. The water level reached the underside of the elevated truss, 2.5m above ground, however the truss and piers survived. There was scouring around all four piers but not deep enough to weaken the foundations, mostly the loose landscaping material. The concrete collars of the southern piers were exposed so compacted fill was placed over them by Council. At the northern piers the stub beams were exposed but the timber packing was still secure. Two damaged stub beams were repaired by Council and the area around the piers was filled with concrete. Finally the diaphragms between the piers were welded into place by Council staff.

All was clear for the RTA gang from Dubbo to completely grit blast the remaining steelwork and apply the prime coat, and blast all the timber members ready for the preserving oil.

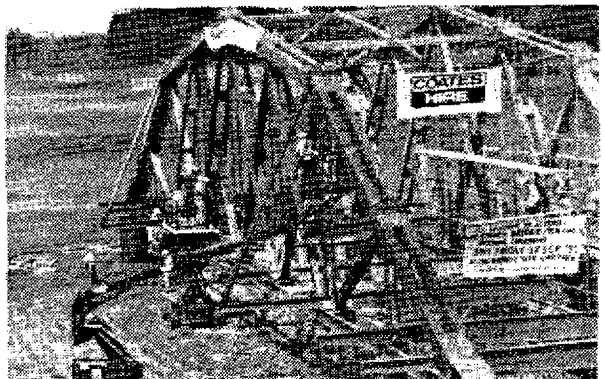
These items of work proved critical to the successful completion of the project at the next CONCAMP. The local committment had increased so much that the co-operation and skills of the people involved saved the project from disaster.

## 5. CONCAMP 1990

### 5.1 Planning

This CONCAMP involved twice the number of students, 45, and 4 lecturers, however the larger workforce greatly helped completion of the project within the two years promised to Council. The students formed two companies ICE CUBE CONSTRUCTIONS and CUBE ROOT CONSTRUCTIONS, both answerable to the controlling authority (the lecturers) called CUBE CONSTRUCTIONS (the CUBE being derived from Cowra University Bridge Engineering).

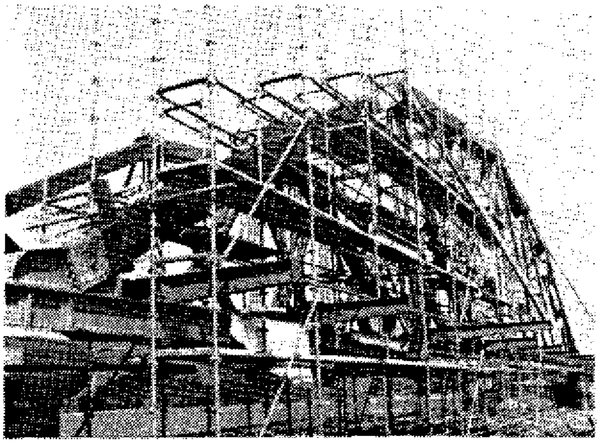
The structure was "split" down the middle and each student company was given a free hand to develop methods to achieve the main tasks of (1) painting the steelwork, relatively easy being about 3m above ground, and (2) applying preserving oil to the timbers, a far more difficult job because most of the timber was 8m above ground. The multiple use of ladders was quickly shown to be too slow and potentially dangerous.




ICE CUBE CONSTRUCTIONS chose to use mobile equipment and arranged the donation of a boom unit with an end cage plus a sissor-lift platform from Coates Hire. Students who were happy to work at heights did a crash course to become certificated operators.

CUBE ROOT CONSTRUCTIONS opted to use scaffolding donated by GKN KWIKFORM who trained a group of students in the erection and dismantling of high-level scaffolding.

Both companies met regularly during August and September 1990 to plan all aspects of the respective work programmes including organising accommodation, meals and transport. It was recognised that some work would overlap and



other matters such as Public Relations was best done collectively, so a small joint committee was appointed.

The supervising lecturers were amazed and gratified by the enthusiasm of the the students and the effectiveness of their efforts to arrange donations of equipment, sponsorships for meeting accommodation costs and obtaining promises of support from townsfolk - the hardware stores, church and community groups. They are to be commended for having so much organised in time for the CONCAMP.

5.2 Concamp achievements

The construction camp began on site at 2pm Saturday 22 September, however advance parties had arrived the day before to take delivery of the mobile equipment, the scaffolding and the site store. CONCAMP concluded at 2.30pm on Friday 28th just before the Opening Ceremony at 3pm.

The most distinguishing feature of the CONCAMP week was the excellent weather, a marked contrast to the continuously unsettled conditions throughout winter.

This CONCAMP was a different exercise to the previous one where a fair amount of problem solving had been done which set the groundwork. This time the work was somewhat mundane, mostly painting, but it involved a large amount of resource allocation and monitoring of progress and quality in order to do the work in a fixed time frame of one week.

In terms of rate of achievement, ICE CUBE with their mobile equipment "won" by "finishing" Tuesday evening. But their success has to be qualified by the fact that the weather held good. Had it rained to any marked degree, the mobile equipment would have bogged in the softened ground. Also, due to rivalry between "companies", haste led to a problem of quality control, so much so that the RTA Inspector required a fair amount of patch painting which took till Thursday to complete.

The CUBE ROOT team, although they had the slower and very physical task of erecting and dismantling scaffolding, could work virtually weather-independent. Once a section of scaffolding was available to its painters, a sound, safe working platform meant that good first-time painting was achieved so their quality control met the inspection standards. They also were able to complete their work schedule on Thursday evening.

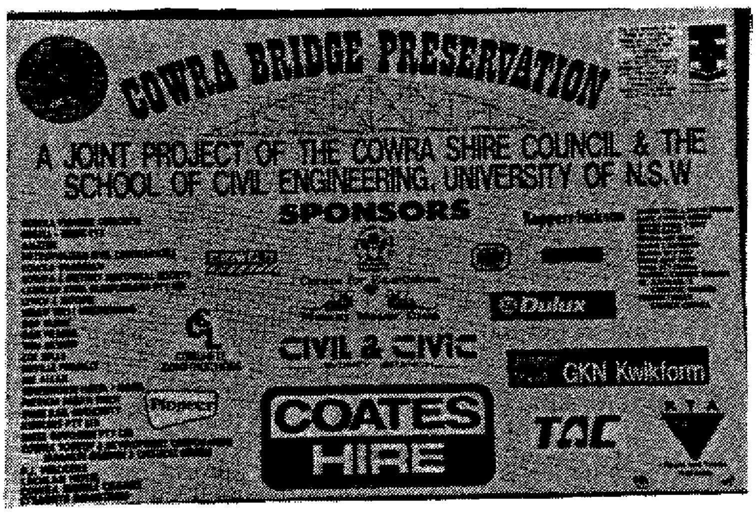
All work was monitored and reported by the local newspaper and there was a news item on PRIME TV. The whole Shire Council was given a conducted tour by representatives of the the two student companies and the professionlism applied to the project was praised by the Councillors.

5.3 Sponsorships

Support for the project before and during CONCAMP 1990 was excellent and beyond expectations. Local support was initially hesitant but quickly accelerated as the realities of a successful conclusion became more evident. Eventually 30 organisations and individuals contributed in a variety of ways, food, accommodation, equipment, materials and cash. A complete list is shown in the photograph of the credit board. This avoided a heavy cash demand on the Shire Council who, none the less, were a major sponsor by providing the invaluable expertise of their engineering and works staff.

5.4 Opening ceremony

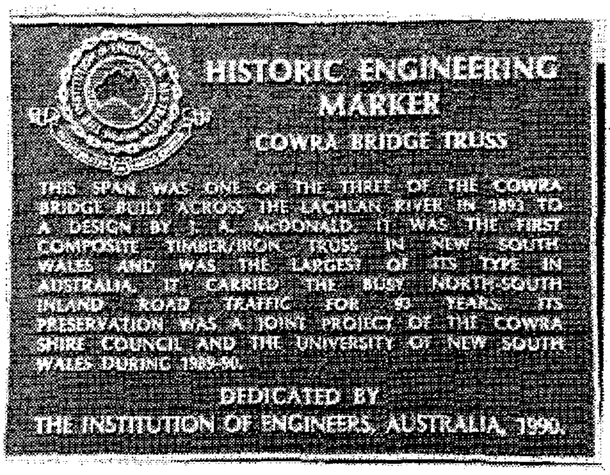
Joint arrangements were made between the UNSW students, Cowra Shire Council and the Cowra Development and Tourist Corporation. Shire President, C. P. Treasure, the Councillors



of the Working Committee, guests and a large assembly of townsfolk attended the ceremony near the resplendent truss. The order of proceedings was

- 3pm Welcome by Councillor Rod Blume
- 3.05 Shire President unveiled credit board
- 3.10 Don Fraser for UNSW and handing over of I.E.Aust landmarking plaque
- 3.25 Student response by Rod White
- 3.30 Close

followed by afternoon tea.



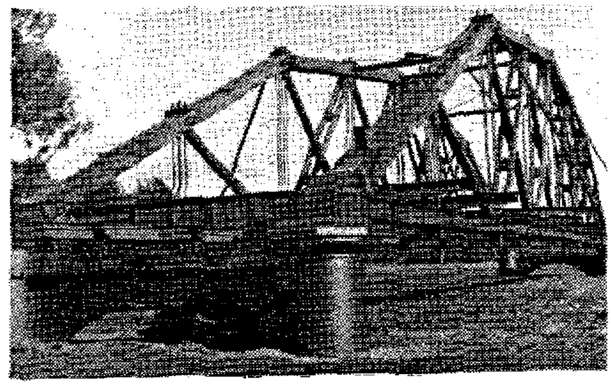

## 6. ACKNOWLEDGEMENTS

*The credit board acknowledges* the sponsors and supporters of the project, but success would not have been possible without the time and effort of the "back room" group who provided essential practical knowledge, who "open doors", who had the authority and willingness to make decisions. The author gratefully acknowleges the contributions of Professors Max Irvine and Robin Fell, *Jonathon O'Brien, George Nawar* and Ron Wakefield (UNSW); Ray Wedgwood, Graham Kershner and Don Willey (RTA); Rod Blume (Shire Councillor); Howard Smith (Deputy Shire Engineer), Col Fleidner (Shire Overseer), John Apps (Shire Workshop Foreman), and Chris, Marty, Derek and Carl (Shire works staff); and Andrew Fisher (Cowra Guardian).

## 7. CONCLUSION

At 3pm on Friday 28 1990 Cowra was presented with a unique souvenir of culture and engineering heritage, a preserved truss span from its famous 1893 bridge over the Lachlan River. Everyone associated with the project can be justly proud *of the achievement. On the open market* the project was estimated to cost in excess of $100,000 but with so many donations of all kinds, the real cash expenditure was kept to $20,000. It clearly demonstrated what a well organised co-operative effort could achieve.

The contribution of engineers and their works, *both past and present, tends to be taken for* granted and is often forgotten, but, this preserved structure is a dramatic physical statement on a grand scale that affirms Cowra's awareness of the part played by the bridge for 93 years in the development and prosperity of Cowra and its district.



The completed project

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