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OUR FATHERS' TROPIC HOUSE

The Role of Man-made Materials in Early North Queensland Housing.

In the initial stages of North Queensland settlement, dwellings were predominantly hand-made and of local materials, including a large number of temporary and makeshift shelters.¹ Increased length of residence soon led to a desire amongst many settlers for dwellings that were larger, more weatherproof and more permanent. New materials were introduced which led to improved housing quality. Some of these new materials, particularly milled timber and galvanised iron, determined for better or worse the character of northern domestic architecture for more than fifty years.

Canvas

It may seem surprising that as late as 1901 canvas tents, the earliest form of imported housing material, still accounted for 16% of North Queensland dwellings. The popularity of tents was enhanced by

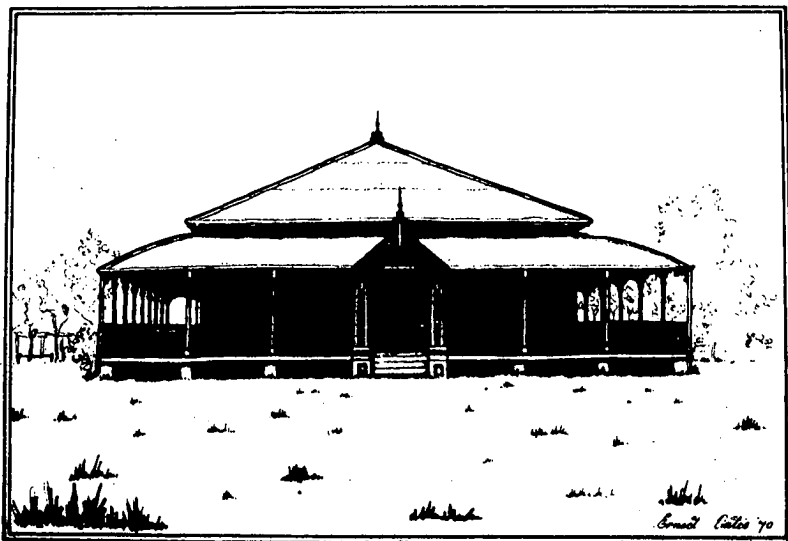
“a climate which enables people to tolerate without inconvenience very inferior house accommodation”.²

In addition, there were two other considerations. Firstly, residence in North Queensland was regarded by many new settlers as temporary or uncertain, encouraging the use of the lightest and most inexpensive materials for dwellings and shelters; this was initially canvas, later galvanised iron. At the same time, a tent provided a practical form of shelter for members of a highly mobile population; this was particularly evident at the gold-diggings, but also in other areas where more permanent settlement was planned. The western township of Boulia, for example, consisted in 1880 of two calico tents. The migratory nature of both settlement and employment involved not only explorers, and drovers, but also prospectors, shearers, farm-labourers and similar itinerant workers.

Even after a house had been erected, old tents were not discarded, but were used as ceilings or wall-linings.³

Timber

The dominant material in North Queensland dwellings however was always timber, at first in the form of slab and pitsawn timber. Although sawmill machinery was not introduced into Australia until 1846,⁴ small sawmills were rapidly set up near the new settlements on the North Queensland coast in the 1860's to cater for the growing demand. The first permanent house in Townsville, owned by J.M. Black, was constructed in 1864 of chamferboard, as was the oldest house remaining today, “Rosebank”, built in 1885.



"ROSEBANK"

Timber was also the material chosen for most of the extensive homesteads in Western Queensland, many of which are still impressive buildings today. In the Longreach area, for example, "Bimbah", "Camden Park", "Camoola" and "Beaconsfield" come to mind as notable large timber residences, while to the east, "Dunraven", "Lara" and old "Willoughby" are further remarkable old timber houses.

Timber was also the flooring material in almost all early North Queensland houses. In those days, any floor was better than bare earth, and timber was, as noted, relatively cheap. It also had the advantage of familiarity, since most European houses had timber floors.

Timber was the obvious choice as a building material in North Queensland, on grounds of availability, ease of construction, cost, and durability.⁵ A book prepared to accompany a display of Queensland Woods at the Centennial Exhibition in Melbourne in 1888 listed 422 kinds of timber and stated that

"no country in the world has a greater variety of useful and beautiful woods".⁶

The wide utilisation of timber for all types of buildings, not only houses, struck some settlers from England as unusual. Lucy Gray, who arrived in Townsville in 1868, en route to "Hughenden" station, observed

"I was surprised to see such large substantial buildings made entirely of wood."⁷

The two technological advances which contributed substantially to the development of the North Queensland style of timber house were saw-milling machinery and nail-making machinery. The structural outcome of these revolutionary production techniques was the balloon-frame house, developed in Chicago in 1833,⁸ adopted widely during the Californian gold-rushes, and thence brought to Australia soon afterwards; but reaching its fullest development in North Queensland, in a very light, single-skin structure of timber-frame and weatherboard.

An interesting feature of our early timber houses is the value placed on different timbers; red cedar was then a widely used timber, even in fairly modest houses, as it was abundant, durable, and had an attractive appearance when polished. Ceilings, and even whole rooms, were lined with cedar until depletion of stands made this timber too expensive for most people. Cyprus pine was very popular for timber-framing, but builders of large houses preferred imported softwoods, as they were slightly cheaper, and considerably easier to use. Oregon pine from Canada was used in houses such as "Rosebank", and even the "pre-cut" houses from Brisbane blatantly advertised their use of "Pacific Pine", which was really an imported hemlock, used elsewhere for packing cases.

Galvanised Iron

Yet another decisive technological advance which imprinted North Queensland housing was the production in Britain of the first zinc-coated galvanised iron,⁹ which was imported to Australia as ballast. The virtues of galvanised iron as a roofing material are many: light, easy to fix, waterproof, fireproof, and durable. However, it soon came to be used as a material for walls, as well as roofs of houses. Small iron-walled houses, often prefabricated in England, were relatively common in the gold-towns of Victoria in the 1850's, and it was not long before warehouses, stores, woolsheds and such buildings were also constructed entirely of iron.

In North Queensland, despite the fact that iron is climatically unsuitable for house walls, as high indoor temperatures are generated by day, galvanised iron soon became popular as a building material for private dwellings, accounting for 10% of all North Queensland dwellings by 1891.

An interesting tale from the pastoralist Winter-Irving relates his meeting with a couple on the Diamantina who preferred to live in an iron shanty, because it "cooled in an hour", rather than a stone house which they said took a week to cool.¹⁰

While early in this century progressive men like Dr. Cilento condemned

"the broiling tin box he (the North Queensland settler) calls his house"¹¹

and Doctors Breinl and Young sought alternatives to

"a galvanised tin 'humpy' without verandah, (which) is the most unsuitable structure to reside in in a hot climate"¹²

it is important to remember that, although iron heats rapidly during the day, it cools equally rapidly by night, so that it is suitable for houses unoccupied during the day, such as men's quarters on stations. One thinks in this connection of Alexander Kennedy, the pioneer pastoralist, who, when one of his men complained that the low iron roof would make the men's hut at "Devoncourt" very hot in the middle of the day, is reported to have declared

"I'll take damned good care you are not in there in the middle of the day."¹³

Even in these situations however, there are very real objections to galvanised iron dwellings on grounds of acoustic qualities, or lack of privacy, as well as on general aesthetic impression. Rose Scott-Cowan for example described the house she occupied at "Longford" last century as

"a dreadful building of unpainted galvanised iron roof and walls, and uprights of bush timber . . . the three good sized rooms were unceiled . . . the detached kitchen was also of iron throughout and had only an earthen floor."¹⁴

In this dwelling moreover the iron was fixed horizontally, and so collected the omnipresent dust along each corrugation, much to the neat young housewife's dismay.

Nevertheless there was much to be said for the economy as well as the weatherproof qualities of galvanised iron. The pastoralist Oscar de Satge, for example, wrote that, in the Peak Downs area,

"In 1861 galvanised iron played a great part in the buildings of that period".¹⁵

At the present time, there are still many houses with galvanised iron walls occupied as dwellings in North Queensland, ranging from modest one- or two-roomed cottages, such as old "Tatoo" and "Jardine View", to quite large houses, such as "Kynuna", and even including some houses with two stories, as at "Clarafield", or the fanciful towered homestead at "Garfield".

Brick

Baked clay brick, as a material for private dwellings, was rarely used in early North Queensland, accounting for less than 1% of all houses in the first fifty years of settlement. Difficulties of supply combined with high labour costs served to restrict the use of brick to hotels and commercial buildings, where an appearance of solid establishment was desirable, or to industrial use as mine-stacks and foundry-chimneys. Charters

Towers had five brickworks in its heyday, and numerous early timber houses and even miners' cottages there had a brick chimney to reduce fire risk, but the only brick house in the city is the extravagant "Thornburgh", constructed by E.T.H. Plant in 1890.¹⁶

Minor Wall Materials

In the Queensland Censuses of 1911 and 1921, three imported wall materials were listed, which features to a very minor extent in North Queensland housing: concrete, rubberoid and asbestos-cement, or fibro-cement. Houses of these materials were recorded in two's and three's only, in the coastal towns, which, because of the greater frequency and volume of communications, were the first to see any innovation in materials or techniques.

Concrete was not introduced to Australian buildings as a structural material until 1905, and the first private house of reinforced concrete was erected in Victoria in 1912.¹⁷ The use of concrete in North Queensland was almost negligible in earlier times, and remains so, for private dwellings today; Townsville had fourteen concrete houses in 1921, this representing over one-third of the North Queensland total, the others being isolated examples in the other coastal towns. Although the early builders in timber showed some knowledge of cyclone reinforcing (use of cyclone-bolts), cyclone-resistance does not appear to have been a particular factor in the choice of concrete in the early years. Only in more recent times has the heightened general awareness of cyclone hazard in North Queensland led to increased consideration of structural strength of dwellings, and the adoption of suitable or even stringent building regulations; this applies particularly to the reinforcing of concrete-block, which has now become a popular material for private dwellings.

Rubberoid was a thin waterproof material rather similar to "Malthoid", described below. Its use for walls implies a cheap and temporary sort of dwelling. There were 89 such dwellings recorded in North Queensland in 1921; the greatest numbers were to be found in the new sugar-growing areas, nine in Ayr Shire, eight in Hinchinbrook, and nine in Johnstone. These may then have been occupied by poor farmers who were struggling to develop their land and had no money for better housing.

Fibrous cement sheeting, known as "fibro-cement", was produced in Australia from 1917, but the material, which is now so popular, seems to have been used rarely in the tropics until a much later date. The only reference to its early use on a pastoral property is from "Brunette Downs" in the Northern Territory, where the original homestead was replaced in 1915 by a fibro-cement building.¹⁸ In 1921, North Queensland had 53 houses and 16 roofs of this material.

Minor Roof Materials

Apart from the early organic roofing materials or galvanised iron, there were three other roofing materials also recorded in the 1921 Census: tiles, slate and Malthoid. The use of these materials was minor and they were all unsuited to tropical housing in various respects.

Tile-making machinery was introduced to Australia by Otto Wunderlich in 1916, although for many years prior to this his company had imported large quantities of Marseilles clay tiles from Europe. These were particularly popular in the Sydney area. Even after such terra-cotta tiles were manufactured in the south of Australia, their use was still largely restricted to the local metropolitan area because of high freight costs on such heavy article as well as because of breakage.

Together with high initial cost plus transport, other economic considerations serve to restrict the numbers of tiled roofs. The materials are heavy, and require a heavier roof-frame than other types of roofing materials, with a minimum pitch of 15° for complete weatherproofing. In addition, a tiled roof requires a large number of battens, and the tiles must be fixed by a skilled workman. A further drawback to tiled roofs, particularly in coastal areas, lies in the finishing-off, which is unable to withstand cyclonic winds, such as Cyclone "Althea" in 1972 for example.¹⁹ On the other hand, a tiled roof has the major advantage of being very durable. From the occupants' viewpoint, an additional benefit is the soundproofing quality of the tiles, so that heavy tropical downpours are barely audible inside, in marked contrast to metal roofs.

With tiled roofs in the tropics, problems of thermal performance also arise. As with heavyweight wall construction, the heat capacity of the tiles can reduce interior temperature maxima, as well as provide a significant time lag in the time of maximum heating. This beneficial daytime effect must be weighed however against increased evening temperatures, when the heat stored by the roof is released; adequate and efficient roof ventilation becomes important if this is to be minimised. A final consideration is the absorptivity of the tiles to solar radiation. The early clay tiles were always dark red in colour, and thus had high absorptivity by day, but a relatively low emissivity by night. Although there were almost 600 tiled roofs in Queensland in 1921, only 13 of these were in the North, reflecting economic considerations and freight problems. The establishment of a factory producing cement roofing tiles in Townsville in 1969 has led to wide use of this material in modern North Queensland housing; however freight costs and breakages still restrict their use mainly to the local area.

The major restriction on slate as a roofing material is the problem of supply. When "Jimbour" was built in 1874, as the grandest mansion in Queensland, the roofing slates were imported from Wales. A slate roof involves not only costly quarrying of the material and subsequent transport, but, as with tiles, a strong supporting roof frame is necessary, and thus a solid foundation preferably on stone or brick walls. The shaping and fixing of roofing slates is a skilled occupation, so that, even if a local

source of supply were found in early North Queensland, the labour to trim and fix the slates would probably not have been available. In 1921, there were only six slate roofs in North Queensland. The tropical climate is also unsuited to slate roofing, as large quantities of solar heating are absorbed and retained. Yet, although modern cement tiles are available in a range of colours, including white and pale cream, this has not deterred most present owners of tiled roofs in the north from frequently choosing the hotter shades of slate-grey and dark brown.

Synthetic roofing materials also suffered the disadvantage of transport costs, and achieved little popularity in North Queensland. One such manufactured roofing material was Malthoid, a hessian-based bituminous material used for dampcourses and also as a roofing material. It was recorded as a new class of roofing material in the 1921 Census, as was the similar wall material Rubberoid, mentioned above. Malthoid was only a minor material, although the Johnstone shire had 48 such roofs in 1921. The material is unsuited to tropical areas as it deteriorates quickly in the high temperatures.

Glazing and Fenestration

The earliest houses in North Queensland had unglazed windows, as glass was at that time unavailable. Ventilation and light were provided in these houses by hinged wall sections which propped open at right angles to the wall itself and parallel to the ground. This style of building is still common today not only in country areas, on pastoral and agricultural holdings, but in many holiday huts and "weekenders". The obvious disadvantage of such structures is that both light and much-needed ventilation are blocked when the "windows" are dropped shut to keep out heavy rains.

Panes of glass were initially imported from England, and later from southern Australia. Small panes were favoured to reduce risk of breakage, but large panes were also available at a relatively early date, as is seen for example by the great sash windows of "Rosebank" which are two metres high. Glazed French doors and fanlights were also widely used in all but the smallest of North Queensland houses. Although Richard Twopenny wrote of Adelaide houses in 1883

"the strong light and heat of the sun has the effect of a window tax in limiting the size and number of windows"²⁰

this was not generally the case in the tropical North, where ventilation was appreciated as a means of coping with high temperatures.

Coloured glass was installed only in the largest residences, the houses of wealthy mine-owners, as at "Ay-Ot Lookout", or pastoralists, as at "Mount Cornish", because of the considerably greater expense.²¹

Panelling

The production of metal panelling for lining walls and ceilings was begun in Sydney by the Wunderlich Company in 1887. These metal panels, known generally as Wunderlich metal, met with speedy adoption, particularly for lining ceilings; they were quickly and easily fixed, and resembled quite closely the plaster ceilings with which the settlers were familiar in their English houses. Wunderlich metal was used extensively in most large early houses, such as "Rosebank", or at "Elderslie", and "Bimbah" which was built around the turn of the century near Longreach even had the old kitchen lined with the metal sheeting.

Insect Screening

Gauze wire is now used universally for insect proofing on houses situated in areas away from the coast, but even to the present it is not used extensively in any of the coastal towns or even on the coastal pastoral properties, such as "Inkerman" for example; in these coastal areas the flies are not so troublesome as further west, and cool breezes are more welcome in the humid climate. The chief disadvantage of gauze is that it inhibits air flow to a marked extent. In the 1920's there were relatively few inland houses with gauze screening, although the use was increasing quite rapidly. In these situations, where space permitted, gauze could be used in unique and innovative ways, to form breeze-rooms, with all walls of gauze wire, or to build a sleeping-house, like the building at "Glenlyon", a two-storey structure consisting only of stout timber uprights, a timber floor, and gauze walls, the ultimate in cool construction.

Scrap

Finally, mention must be made of a dwelling-type known as a "humpy", a shanty in other parts of the world, which seemed to be the only housing of many people in early times in the North, particularly in western areas of Queensland. These structures consisted of an assortment of introduced materials — iron, tin from flattened kerosene containers, hessian sacking, cardboard, plywood cases, together with any other material which came to hand, all combined into an ugly and unsanitary shack, where numerous children were reared in overcrowded and depressing conditions. In a critical survey made in the 1930's, the Longreach doctor Watson-Brown deplored the way in which "the temporary shanty of the parents" became the "home" to the children, and was accepted by them as the normal order of things.²²

Northern Development

The increasing reliance upon manufactured and imported building materials is related to the overall history of northern development. The increasing population of the North led to the establishment of more regular and more frequent communications with the Southern ports, as

well as with Britain. Throughout the 1870's, the electric telegraph was extended to nearly every settlement in North Queensland, and most centres had at least one local newspaper. Thus a knowledge of the materials, techniques and styles, which had been developed elsewhere, became quickly disseminated over wide areas.

In addition, supplies of imported building materials were gradually improved by better and more frequent transport facilities. Townsville's first builder, Mr. Francis Hodel arrived in January 1865 with

"building materials to meet the demand for residences".²³

Roads to the interior were made by the heavy bullock teams which supplied remote inland holdings such as "Bowen Downs". Corfield, for example, mentions loading supplies and quantities of galvanised iron on his team in 1876,²⁴ and another biographer recalls

"the wonderful variety of goods which Robert Philp sent out by bullock and horse teams to the settlers in such distant areas as Winton before the railway was built. Sawn timber, windows and doors, galvanised iron, flooring boards and champher(sic) boards for building their houses, furniture of various kinds to make them comfortable . . . were drawn hundreds of miles over unformed bush tracks and the roughest country."²⁵

Coaching services connecting important northern centres began in the 1880's. Throughout the whole of the last century however, transport of passengers and freight between the coastal towns and southern states was by ship, as there was no rail link to the South.

A system of decentralised railways was constructed, reaching inland from each of the ports: from Townsville in 1877, reaching Hughenden in 1887; from Mackay in 1885; from Cooktown in 1885; from Cairns in 1886; and from Normanton in 1890. It was not until 1924 however that the coastal line from Cairns to Brisbane was finally completed, which reduced the dependence of northern settlers on sea freight of their building materials.

At the same time that these improvements in communications were dispersing both materials and ideas through the north, a greater number of skilled workers and tradesmen was also available, particularly after the gold rushes. Nevertheless, the problem of sheer distance was not overcome, but merely alleviated, by these developments. The geographical location of North Queensland is such that even today distance operates as either a deterrent or at least a challenge to much northern development.

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