Education within Australia is generally administered by the various states and supplemented by private denominational institutions. To each state government falls the duty of determining such matters as syllabus content, distribution of facilities, general administration and so on. These matters (and others) are dealt with at many levels within the bureaucracies of each state. Nevertheless the federal government allocates to each state, through grants, the major funding required to implement any educational policies. The Commonwealth also funds a number of student assistance schemes which vary due to the location of each student. The result is a system within each state which, to a certain degree, has some homogeneity in terms of course content and assessment procedures. This homogeneity is not necessarily transferable between states although in practice certain similarities may exist.

Queensland is geographically one of the larger states but numerically one of the smaller. The distribution of students in some areas is very sparse. This situation can lead to educational inequalities merely by virtue of geographic isolation. The outback student in Australia can be disadvantaged in many social and educational spheres both in and out of schools. Such basic luxuries as television and radio may not be accessible to some outback children and only available in a limited sense to many others. Everyday communication and social interaction can be quite limited. Over the years various schemes have been successfully introduced to help combat the problem. Many families on the larger, more remote grazing properties may employ a governess.

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MAIN CONNECTING ROADS

N.B.:— BRISBANE & ROCKHAMPTON ARE NOT VISITED. MOST OF THE REST ARE VISITED ANNUALLY — SOME LESS FREQUENTLY!
MOBILE WORKSHOP IN FULL OPERATIONAL LAYOUT.

(TRUCK POSITIONS MAY VARY.)

OXY-ACETYLENE WELDING
(UNDER AWNING)

7 TON TOW VEHICLE.

FLOOR PANEL/JOIST STORAGE.

ELECTRIC ARC WELDING
(UNDER AWNING)

7 TON TOW VEHICLE.

STORAGE.

WOODWORK VAN.

DRAWBAR.

EMERGENCY ACCOMMODATION.

WORK BENCH.

WOOD LATHE.

4X4 TON VEHICLE.

3 φ POWER.

GENERATORS 1 & 2.

3 φ POWER.

REMOVABLE PANEL (SPARE)

ANNEXE AREA.

RELOCATED TO FORM END OF ANNEXE AREA.

7 TON TOW VEHICLE.

STORAGE.

MATERIAL STORAGE.

PLASTICS OVEN

STRIP HEATER

TEACHER DESK

BUFF.

MILLING MACHINE

BUFF.

METAL BRACE.

METAL WORK VAN

STAIRS

MOUNTED ON DRAWBAR.
or tutor for their children. There are government
sponsored bus schemes to transport students large
distances to schools. The reader may be aware of
Australia's 'School of the Air' where lessons are
broadcast to students on remote properties by two-
way radio. These schemes have been in progress for
some time and are just a few examples of work
being done in these areas.

More recently however a new scheme has been
introduced to the Queensland scene. It is called the
Priority Country Area Program (P.C.A.P.). The
activities embodied in this program are a result of
collaboration between the Commonwealth and
state governments and Catholic education, which
is a private body. A rationale was developed for
a scheme which would help to alleviate the problems
faced by outback students. This was based on
information and advice from both educators and
interested parents and citizens. The scheme is not
a static one and even now is still in the process of
evolution and development. The scheme provides
some quite diverse services, a few of which are listed
below:

i) The provision of video-tapes containing items
of general interest to remote schools. This service is
designed to overcome communication problems so
that students may gain a wider perspective on the
outside world.
ii) An itinerant teacher service whereby small
groups of teachers operating from a central point
pay regular visits to students on grazing properties
to help them with their correspondence courses.
iii) A music programme where music teachers
travel by light aircraft to the various centres to give
personal instruction.
iv) A mobile manual arts workshop travelling to
schools which either have no manual arts facilities
or whose facilities are to some degree lacking
compared with metropolitan schools. One example
of such a facility is welding (Gas or arc).

The aspect of the scheme which is of particular
interest here is the mobile manual arts workshop.
The unit was first conceived about four years ago.
The idea was to equip a fully operational manual
arts workshop with all the facilities which could be
found in a large metropolitan school. The problem
was that the unit had to be totally mobile and
robust enough to travel long distances each year.
A fairly rigid degree of compactness for such a unit
was also required so that it might comply with state
road regulations. The one favourable point was that
it would only need to cater to reasonably small
numbers of students at any one time. Over a period
of twelve months however the number of students
who pass through courses on this unit at the various
stopovers would far exceed the evolution in most
large schools.

It was decided at the time that the basic facilities
which should be offered by the van would include
oxy-acetylene welding, electric arc welding, basic
metal and wood machining and basic handcrafts
in wood, metal and plastics. To incorporate all of
these facilities within the aforementioned design
parameters has taken a deal of thought. Initially
a group of manual arts inspectors, interested
teachers and motor body building experts
collaborated to come up with a basic design. The
initial unit which was born of this collaboration
had its problems. These were more the result of
necessary cost cutting strategies which were necessary
because of a climate of economic restrictions.

It was found, for instance, that the original chassis
on the trailers was too light in construction to cope
with the weight under normal and country road
stresses. A dual axle system was converted to
tri-axle and so on. The original prime movers were
also underpowered for the job. It should be stressed
that they do not act purely as prime movers but
have the added function of incorporating back up
facilities. The advent of these problems however did
influence funding to allow for the flow of more
money so that they could eventually be modified.
The result is basically what exists today and is still
operating quite successfully.

Physically the actual workshop consists of two
large, heavy duty caravans, each one measuring 30 ft.
long x 8 ft. wide. On arrival at a school site the vans
must be carefully maneuvered into position so that
they are parallel and 8 ft. apart. The 8 ft. spacing
from one end to the other must be virtually to the
inch. Each van is then levelled using jacks at each
corner. A series of metal floor joists are now
positioned between each van on specially fitted
brackets. Several sheets of aluminium checker-plate
flooring are then dropped into position. Each floor
plate is then locked in place using a key system.
This makes them virtually immovable. A 30 ft. x
8 ft. open area now exists between each van.
To enclose this area each van has large, removable
side panels which are utilised for this purpose.
Two of these panels are now relocated at each end
of the open area and locked into position. A third
panel is not normally required and hence stored
elsewhere in case of emergency. A canvas roof is
now fitted between the vans. Above this again
a secondary 'tropical' roof is fitted. This allows for
air circulation between the covers which has an
insulating effect to combat heat build-up inside the
workshop area. This can be quite considerable in
summer months. The result is a general shop
measuring 30 ft. x 24 ft. which is totally protected
from the elements.

Each van is towed by a seven ton V8 truck. These
vehicles are also an integral part of the workshop
facility. One truck is used for the storage of
materials. This truck must carry virtually a twelve
month supply of materials since opportunities to
stock up during the year are few. The other prime
mover fulfills several functions. During travel the
floor plates and joists from the workshops are
stored in a central storage area in the back of the
truck. There is another storage area for small items
to be kept in lockers. However the vehicle finds the
greatest use as a welding facility. Toward the rear
end each side of the vehicle can be unlocked or
raised to form an awning. Metal benches and sight
1. Storage Truck and Woodwork Van on arrival at Wallumbilla.

2. Positioning floor joists between vans.

3. Dropping floor plates in position.

screens then fold down from the truck; one on each side. When fully erected the result is three welding bays on one side of the truck specifically for electric arc welding and three bays on the other side specifically for oxy-acetylene work. Three phase power is linked via the truck to the workshops so that the electric arc welders may be used. A third vehicle also belongs to the convoy. It is a four wheel drive unit which tows two generating sets. Although many schools are now equipped with three phase power outlets into which the mobile workshops can tap many others are not and so the workshop sometimes supplies its own electricity. Staff members on the unit drive the vehicles, as well as erect and disassemble the workshop. This is all in addition to normal teaching duties.

Having viewed the outfit as a whole it is now necessary to examine in more detail the internal facilities of each caravan. The central collapsible area between the caravans is a general area where students can work on any project from the wood, metal, plastics or welding areas. It is equipped with folding benches and vices but is generally non-specific in function. It provides necessary overflow space so as to avoid congestion in the subject specific areas. One van is equipped only for metal and plastics oriented projects. Hand tools for such activities are racked on the wall. In terms of fixed machinery this section offers: a small metal lathe, milling machine, drill press, bench grinder, panbrake, two buffing machines, a plastics oven and strip heaters for plastics. Such other portable tools as angle grinder are also in use and sometimes shared with the welding section outside. The other van is split into two parts. One section is an accommodation section for the staff. It consists of a full kitchen facility including a full-sized refrigerator and stove as well as a shower/toilet cubicle, dinette and triple bunks. This accommodation area is meant basically for emergency use. In general staff find accommodation in hotels or registered lodging houses. However, in the event of a vehicle breakdown or the lack of lodgings in a particular town, staff have some place to live. The other section is for woodcraft activities. Like the other van hand tools are racked in multiples of eight on the walls. Fixed machinery here consists of a band saw, wood lathe and a small drill press. There is however a wide range of portable electric tools which include drills, routers, jig-saws, an electric planer and portable circular saw and table. All fixed machines and power points can be isolated on a circuit breaker board in each van. The whole workshop area is also air-conditioned. This is a most necessary and welcome feature in a country where summer temperatures can often be well above 40°C. The accompanying diagram, which is not to scale gives the reader some idea of the internal layout of the mobile unit when assembled.

A wide area of western Queensland is included in the circuit covered by the workshop each year. The towns serviced are shown on the accompanying
4. Fitting collapsable steps to central area.

5. Central floor area complete. Note side panel at rear of van is removed.

6. Vans are now completely set up, including tropical roof.

map. A similarly scaled map of Great Britain has been superimposed to give the reader a more accurate conception of distance. The period of stay in any one locality varies from two to four weeks. This period of stay is largely governed by the particular needs of a school. A wide age group is catered for and students may have a wide range of ability levels. For this reason a corresponding range of projects must be made available to them. Some projects are necessarily very basic so that a ten year old student may gain a degree of confidence and success in his first steps into manual arts. As this student grows older he will gradually advance through the range of projects offered during each annual visit of the workshop. By the time he is fifteen he may be tackling projects as similarly advanced as those offered in large metropolitan areas. Despite the above references to gender it is important to realize that both boys and girls do courses in manual arts. Whatever level the student is doing, however, the jobs must be of short duration and yet incorporate the skills and basic technology which must be taught. During any visit at least one job from every area should be completed by the student. To facilitate this schools generally waive their normal timetable and classes during the mobile unit's visit. In this way students are under manual arts instruction for a maximum period. The workshop staff may take a particular class level daily in half day or even whole day units throughout the visitation period. Small class numbers are also an advantage and the combination of these points means that in a two week period an amazing amount of work units can be covered.

Every job done on the mobile workshop is assessed and the marks made available to the host school, whether to integrate the mark in a student's normal manual arts mark (if the school has a manual arts centre) or issue school certificates outlining results. It must be remembered that for some schools the mobile unit provides the only manual arts course available. In other schools basic manual arts courses are already available but the mobile workshop provides some form of embellishment to their basic course. Catholic education, a private body which was mentioned earlier, has collaborated with the Commonwealth and state governments in the administration of this scheme and the mobile workshop. It is therefore important to realize that both convent schools and state schools are serviced in any one town.

In smaller towns where manual arts centres do not exist courses are offered to adults and usually run two nights a week. These courses are generally very popular. It is not uncommon for people to drive in adverse conditions up to fifty miles to attend an evening class. These classes are undertaken by the workshop staff in their own time as a community service. For the local grazier these courses provide an opportunity to learn the finer points of welding or perhaps to pick up the basics of metal machining. These skills are invaluable to them in their isolation. For the local ladies the night courses offer an
opportunity for a 'night out'. They gain a great deal of pleasure from doing some form of craft work with the added attraction of enjoying the social interaction with their friends. This is very important in towns where there is precious little entertainment.

There is at present a pool of six teachers available to man the mobile unit. At any one time three are required on the unit. The other three are programmed as relieving teachers in larger schools. Over a twelve month period a rotation register incorporating regular changeovers is worked. In this way all teachers are given the opportunity at some time to work together. For the individual, in effect, this means that in one year six months are spent travelling with the vans and six months at large city centres. In this manner staff can keep in contact with new developments in large schools and should illness befall a member or members of the crew in the field, replacements can be made quickly. It is necessary at all times to have a pool of teachers fully conversant with the running of the mobile workshops at hand. From a teaching viewpoint periodic breaks are necessary to provide a change of scene to help sustain and nourish enthusiasm.

From a teaching point of view working on the mobile unit can be very enjoyable. The workshop on arrival in town is often eagerly greeted by children and townpeople alike. Whether it be coaxing a very young student through a project or supervising the progress of an older student the rewards are ample. The high level of student appreciation is universal and disciplinary problems are virtually non-existent. The problem is often to curb a student's enthusiasm so that a higher quality job may be completed. Students are often known to roll up to adult evening classes as well. Regrettably, under these circumstances they must be turned away. On departure it is not uncommon to receive thank you cards or gifts. The teaching does however entail a commitment of personal time not always required in other forms of teaching. It is sometimes necessary to move the unit and reassemble it elsewhere, ready to teach, over the space of a weekend. Maintenance and servicing of the units, servicing generators, cleaning chores, etc. can at times make small intrusions on time but it is all worthwhile in the long run.

Briefly then the workshop has been designed, as described, by a group of people to alleviate an educational problem in Queensland. Physically the facilities operate efficiently, especially when viewed in terms of their student turnover, and provide new services hereunto unknown in many parts of western Queensland. The result seems worth the trouble and the appreciation shown by outback students and townsfolk would certainly stand to confirm it. Only one of the units as described is at present covering as much of the outback Queensland as is possible. It must be realized that many centres do not enjoy these services.