A 10 year old Waitara boy,
releasing a frog,
found this splendid Paepae
in a drain where it was
being used as a step.

There are over one million fascinating stories like this at the country's Museums and Art Galleries - Visit your local Art Gallery and Museum now and discover some of them.

International Museum Day 18 May

AGMANZ NEWS

The Art Galleries & Museums Association of New Zealand
Volume 10 Number 3 August 1979

COVER: *Museums poster.* Council suggests the poster be used throughout the year, not only on International Museums Day, and that museums keep stocks for sale to visitors. Supplies are available from the Secretary. Large 50c, small 25c.

A CARNIVAL AT THE TARANAKI MUSEUM

Over 4000 people came to the Museum that day to marvel at such old-time side shows as 'The Amazing Tattooed Man'; the 'Unbelievable Bearded Woman'; and the 'Incredible Strong Man'. People laughed at melodrama, drank kava and sang along with a Maori concert. Children screamed disapproval at Mr Punch with his mischievous tricks and won pumpkins in bugle-blowing contests.

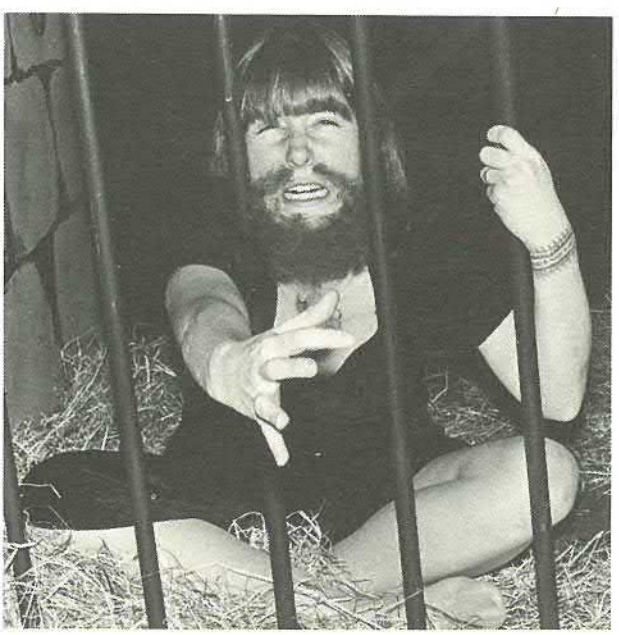
Small boys in particular were delighted with bullets moulded by Mr Whizz-bang the bullet maker, while others appeared mesmerised by the gruesome work of the taxidermist. Butter was churned, candles moulded and fortunes told.

Carving was demonstrated, dirty socks washed and ironed with old-fashioned machines and Professor Malvius sold his Elixir of Life — a sure cure for gout, dropsy and scrofula. And who's that? It's Mr Corney Esq. with his lantern slide expounding the trials of a settler's life. So many things to see and do.

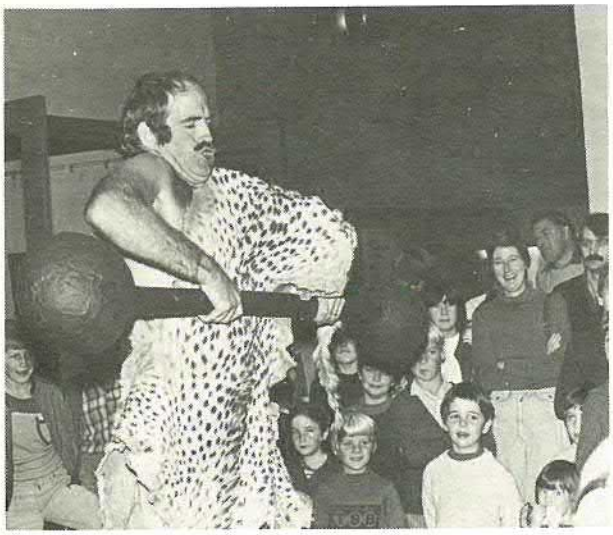
Did you see the mummified cat in the Chamber of Curiosities? Have your photograph taken in old-fashioned clothing? Roll up! Roll up! Candy floss. Roll up! Mount Damper Wild Man on show for the last time!

It's marvelous how they did such beautiful carpentry with such simple tools.

Hey, come over here, there's a magician.



Bearded woman in a cage.



Strong man lifting (papier mache) weights.

Fortune teller.

Archival and Restoration Materials from Process Materials Corporation, Rutherford, New Jersey, USA

by W. J. H. Baillie, Conservation Officer, Alexander Turnbull Library

A range of materials from the above manufacturer under the brand name of Promatco is being marketed in New Zealand by Ransons Packaging and Display Limited, 6 Porters Avenue, Eden Terrace, Auckland 3, PO Box 8745, Phone 797365. Their managing director, Bill Dowrick, has been showing these materials to many museum curators and he deserves encouragement. Unlike the big paper wholesalers, he is willing to entertain relatively small orders and hopefully will serve the entire museum community, not just the larger ones who can afford to buy in bulk.

I have extracted from his list the items that I believe are likely to be most useful, ignoring the fine printing papers that may interest artists and those doing repairs involving paper replacement and some others that cannot be used indiscriminately.

Paper consists of a web of cellulose fibres. Its initial strength is determined by the length of the fibre, its purity, the degree of beating and the sizing. Its permanence is determined by initial strength and chemical and storage factors. The strongest papers are produced from rag since the cotton plant produces almost pure cellulose as long fibres. The most permanent papers are acid free rag papers. However, for storage materials the use of rag may be an unnecessary luxury.

Acidity is harmful to works on paper and many other museum objects too, including textiles and metals. Certain acids can migrate and thus acidity in storage materials may have an adverse effect on the very items the material is supposed to be protecting.

'Acidity' and 'acid' are meaningful only in relation to water and when one says that a paper is acid one really means that an aqueous extract of the paper is acid.

In the case of plastics other factors than acid may determine the suitability for contact with museum items. Acidity is expressed by the pH value, an open scale in which 7 is neutral, below 7 is acidic and above is alkaline. In paper a pH of 6.5 is considered acid-free. High pHs indicate the inclusion of alkaline anti-acid reserves, usually calcium carbonate, which react with acidic atmospheric pollutants and any acidic degradation products in the paper.

Paper and board for storage and mounting purposes

All these materials are satisfactory as regards acid content. Minimum pHs range from 7 to 8.8. They are listed in rough order of weight. The figures in brackets give the relative price per unit area (1 = .00001 cents per square inch in June 1979, subject to confirmation by Ransons).

LS-104-PA Process Tissue Paper
Weight 21 g/m², smooth (13) and textured (14) finish.
Suitable for: Interleaving and wrapping of documents, manuscripts and works of art on paper; Wrapping of costumes, etc; Wrapping of silver — will not cause tarnish.
Sheets 20" x 30" — smooth also rolls 40" x 500 yards (17).

LS-100-PA Process Art Paper
Weight 118 g/m².
Suitable for: Lining paper for picture framing (barrier sheet); Interleaving in storage documents, prints, etc; Endleaf for hard-cover books; Proofing sheet for production of art on paper; Lightweight document folders.
Sheets: 40" x 30" (21); 25" x 38" (21). Rolls: 54" x 250 yards.

LS-100-PA Colour
Same as previous but coloured.
Sheets: 26" x 40" (18). Rolls: 33" x 250 yards (29).

LS-101-PA Processing Wrapping Paper
Weight 118 g/m². Rolls 26" x 54" wide x 250 yards (35), (33).
Suitable for: Wrapping of documents, art work and textiles for archival storage and shipping; Endleaf for hard-cover books.

LS-150-PA Process Museum Barrier Paper
100% cotton fibre. Approx. 7 pt caliper.
Lining material for picture framing and for backing works of art on paper.
Rolls 60" wide x 50 yards (56).

LS-125-NW Promatco Art Print Material
Synthetic non-woven material.
Well suited for use as a lining material for large prints instead of the 100% rag lining paper normally used for this application.
Rolls 40" wide x 25 yards (206).

LS-143-PA Archival Quality Lining Paper
Sheets 30" x 40" and Rolls 50" wide x 500 yards (17).

LS-105-NW Promatco Lining Synthetic non-woven Material
18 pts caliper. Extremely tough.
Suggested uses include the protection of valuable pictures in storage and shipping, use as a reinforcing, backing, and interleaving material in restoration work, lining material for boxes, storage of maps, manuscripts, broadsides, etc.
In roll form 50" wide x 100 yards (125).

LS-102-PA Reflex Matte Transparent Paper
Weight: 82 g/m².
For overlays and interleaving applications where the high transparency is desirable.
26" x 40" (55).

LS-163-BR Process Library Board
10 pt (60) and 20 pt (125) calipers.
Suitable for: Map folders; File folders and special construction document folders; Lightweight archival mounting; Protective covers and wrapping of individual volumes in libraries.
Sheets 28" x 42" and 40" x 60".

LS-134-BR Process Bristol
10 pt caliper.
Recommended for the storage of maps and broadsides in roll form, for making protective folders, as a lining material in picture framing, and for lightweight matting and mounting.
Sheets 30" x 40" (66). Rolls 40" wide x 100 yards (73).

LS-138-BR Promatco Bristol 100% rag
Approx. 12 pt caliper.
Lightweight matting and mounting and backlining in museum conservation framing.
Sheets 32" x 40" (133).

LS-161-PA Extra Heavy Blotting Paper
100% Cotton Linters. Approx. 70 pt caliper.
This grade is primarily intended for use in conservation laboratories and 'fine art production workshops' (excellent for work with paper pulp). It is also suitable as a padding and cushioning material in the manufacture of boxes and used for storing valuable books.
Sheets 34" x 53" (364).

LS-120-BD Conservation Mounting Board
Non-rag but high quality.
2 ply and 4 ply (140) (280) Ivory and extra white.
Sheets 32" x 40" and 4 ply 40" x 60" also.

LS-121-BD Museum Mounting Board
100% Cotton Fibre. 2 ply (24) and 4 ply (480).
Pure white; Off-white; 'Metropolitan Antique' Cream; 'Florentine Tan'.
Sheets 32" x 40". Off-white also in 40" x 60" (LS-121-X-BD) (600). $14.30 per sheet.

LS-142-BD Process Neutral pH Board
35 caliper.
Use as substitute for mounting photos, as binders' boards, and as an acid-free backing material in picture framing.
Sheets 30" x 40" (130).

LS-148-BD Promatco Photomount
Ash Gray; Dark Gray; antique finish.
2 (170), 3 (300), 4 and 6 ply.

LS-158-BD Archival Multi-use Board
Double walled corrugated board. Approx. ¼" thick.
Suitable for a wide range of conservation applicatons, in particular for the backing of pictures in framing, as a stable backing in shrink packaging to avoid acid deterioration of the art work in transit or storage, as well as a supporting panel in displays, conservation laboratories, and print workshops, and for the manufacture of archival quality boxes, trays and dividers, for making library shelf dummies, etc.
Panels 40" x 60" (310).

Other materials useful for storage

LS-135-SU Mylar Film (Du Pont)
Polyester. Inert. .005" caliper.
Applications for Mylar Film in conservation include its use as a barrier against acid and alkaline migration and against moisture damage in picture framing, the protection of documentation on the back of pictures as well as the protection of documents and manuscripts in temporary exhibits and storage by encapsulation. It is also used in restoration and laboratory work, in particular for supporting fragile documents during deacidification and cleaning operations.
Note: In certain circumstances its properties as a moisture barrier may be disadvantageous.
Rolls 40" x 250 feet long (263).
Identical to Melinex, the ICI product.

LS-160-SL Archival Quality Record Sleeves
Library weight text paper. 10" and 12".

LS-159-BX Archival Quality Storage Boxes
Come flat. 12½" x 10¼" x 5.

Mending Material

Some training iis necessary before these materials can be used safely without risk of damaging the object being treated.

LS-153-NW Promatco Neutral pH Mending Tissue
Long fibre tissue, high wet strength.
Rolls 47" wide x 500 yards.

LS-119-NW Process Nylon Laminating Tissue
May be used in conjunction with LS-133-AD, impregnating with acrylic adhesive or paste for laminating papers to strengthen textiles.

LS-133-AD Promatco Heat Set Tissue, Acid free
Adhesive in tissue form. Good for bonding laminating tissue to paper and backing textiles to nylon tissue. Acts at 94°C.

LS-149-AD Promatco Mounting Tissue
Heavy version of LS-133-AD.
Acts best with photos, posters, etc at 120°C.

LS-151-SU Silicone Release Film
Silicone coated polyester.
Excellent for use when heat setting, e.g. with LS-133-AD or LS-149-AD. Releases at up to 175°C.

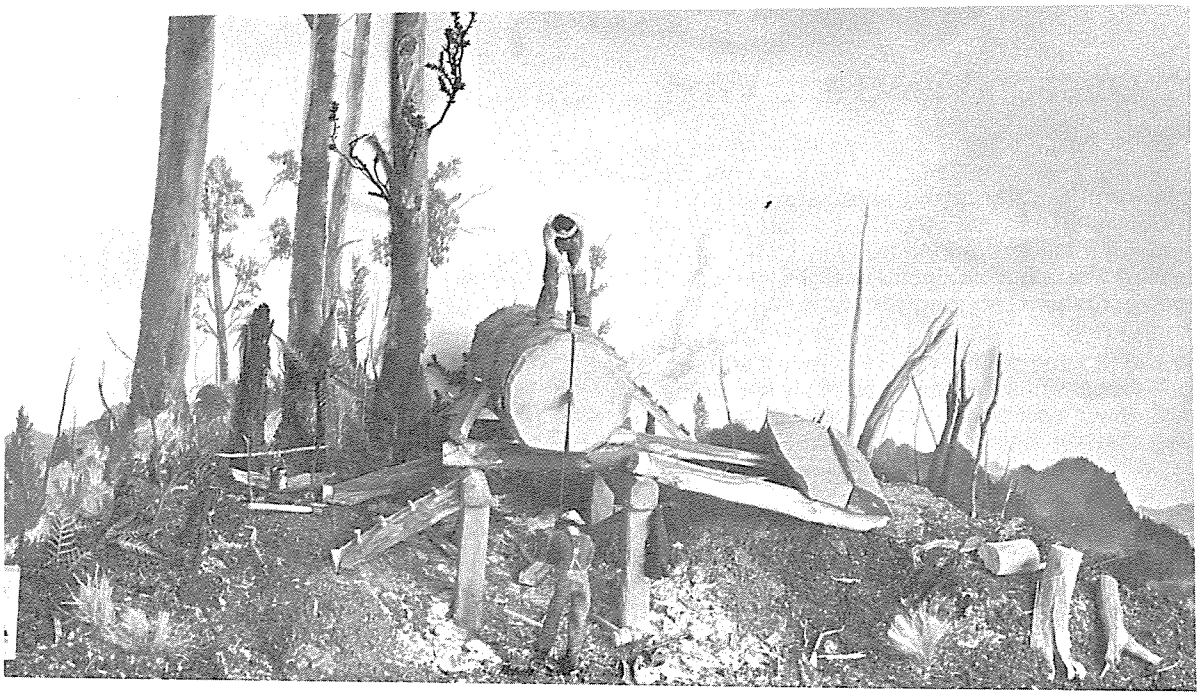
LS-152-PA Neutral pH Blotting Paper
Rolls 50" x 100 yards.

LS-140-NW Promatco Reinforcing Paper
Latex impregnated rope fibre paper. 5 pt caliper.
Suitable for: Blacklining material for bookbinding; Reinforcing substrate for paper and textiles; Lining material for maps, poseters and broadsides; Heavy duty hinging in picture framing.
Rolls 47" wide x 100 yards long.

Another item from a different range is the Franklin 'Saf-T-Stor' Transparency Slide Holder. Anyone considering how to store photos should approach Ransons to see one of these.

ICOM GENERAL CONFERENCE

The 12th General Conference of ICOM will be held in Mexico 25 October to 4 November 1980. This is an opportunity to visit Mexico and to meet museum personnel from all parts of the world. General Conference is held every three years. The last conference was in Leningrad and Moscow in 1977. ICOM General Conference will never be closer and you have the opportunity to visit a country rich in archaeological and artistic treasures.
ICOM membership is open to *all AGMANZ members.* Inquire from AGMANZ Secretary or Treasurer or Campbell Smith, Waikato Art Museum, PO Box 1382, Hamilton.



EARLY DAYS IN THE FOREST
~ PITSAWING ~

The use of small dioramas in museums

**by S. Waterman, Education Officer,
Museum of Transport and Technology**

Well constructed and thought out dioramas have a tremendous impact on all age groups. They are not expensive to make and last indefinitely. They can be used in many ways with all kinds of exhibits and need a minimum amount of labelling. Usually one bold heading is sufficient to get the idea and the message across.

Good dioramas provoke immediate response and discussion from onlookers. Skillfully placed in a museum they can direct flow of traffic to an area which is related to topic in the diorama but which could be missed by the public.

Dioramas made on the round with a painted background give greater depth to the topic under study.

A series recessed in the wall can show the development of an idea or technological advances over a period of time.

They are an excellent visual aid to show facets of early pioneer life in New Zealand. Over a period of years a diorama wall can be built up beginning from the past to the present on a specific topic.

The larger museums provide a good service to schools with dioramas which fold up into a case and are sent out to schools on a circuit.

In Great Britain a scheme has been started where children in the upper secondary schools and those who have just left school and are unable to find a job are given the task by a museum of making dioramas for school and museum use.

Education officers in museums will find small movable dioramas an excellent teaching aid both for themselves and students on Section at the Museum from teachers' colleges.

When setting up a diorama it is important that it can be seen by children and is at their eye level. This enables family groups to come together and discuss the diorama together. 'Activity' dioramas like men using a pit saw or bush felling are excellent for family viewing.

An open diorama is better than one glassed in but it needs to be placed inside a barrier because the natural instinct for the younger age groups is to pick up and handle small pieces that go together to make up the complete picture. Large exhibits which relate to the diorama and are able to be handled should be placed close by. This will get rid of the frustration of wanting to handle the miniature versions, instead the public are handling the real thing. Being able to touch and handle exhibits gives the ultimate satisfaction to most people. Note how shiny the prow of a Maori canoe is in a museum, or the statue in the art gallery. The majority of people are usually satisfied when they are allowed to feel an exhibit and test its weight if they are able.

Displays of dioramas are easy to arrange. They can be used to show comparisons, technology, past, present and future. If well lit they are eye catching and can 'run' for several months. With a little thought and ingenuity they can make up a part of many other displays.

Conservation Views and Workshops

by L. C. Lloyd

The National Conservation Laboratory

The proposal contained in the QE II report prepared by the Conservation Working Party in 1974 has with the passing years become quite unrealisable due to changed conditions, although the basic needs remain the same.

Briefly the recommendations of the report stated that a National Conservation Laboratory should be established with six professional staff. It was believed that the initial cost of setting up a National Conservation Laboratory (in an existing building) would be —

	100,000
A mobile conservation unit	20,000
Salaries	118,366
Grants and Subsidies	20,000
Capital Equipment Grants	40,000
	$298,366

It can only be conjectured what a National Conservation Laboratory would cost now that five years have elapsed.

What the functions of the lab were to be, were not clearly stated but should be similar to the criteria laid down in the WERNER report in 1970 commissioned by the Australian Government.

Briefly, this report included the following specific tasks:

To provide analytical facilities for conservators in other museums;

To conduct ageing tests on materials;

To conduct routine quality tests on conservation materials;

To conduct authenticity tests on particular items for museums.

A central research laboratory could stimulate improvements in conservation standards in many ways, including training and advisory services to conservators. Desirable as a Central Laboratory might be, its establishment is most improbable in the foreseeable future. With a staff of six and 'six other fully trained technicians in other conservation laboratories within NZ' the impact on the national conservation backlog would be minimal.

The National Laboratory was based on the concept that it could 'be co-ordinated with the work of smaller regional laboratories throughout the country' and emphasis on the smaller regional laboratories appears to be the only logical solution to the national problem.

The two laboratories at Dunedin and Auckland should be developed without delay.

Conservation Direction

When the establishment of a National Council for Conservation eventuates, it should have as its primary responsibility the Conservation of National Collections and a wider responsibility for the care of New Zealand's cultural and historic resources. Aligned with this National Council should be an Advisory Council to deal with general conservation policy. The members should be composed of practising professionals in the field of conservation of cultural materials, providing a bank of expertise from which the National Council could draw on for technical information and advice.

The present official policy of subsidising advisory visits to institutions by a conservator does nothing to come to grips with the problem. Custodians themselves are usually only too well aware of the conservation requirements in their collections; their concern is to have the work carried out.

As must be well known AGMANZ does have a funding allocation available to institutions applying for a conservation grant, and advantage must be taken of this from the approved centres who attend to conservation needs. Any temptation to deal with those needs within the institution should be resisted.

Training Facilities

Lastly, training facilities for conservators should be available providing practical and theoretical courses on a selected apprentice-like system. These could be provided by a local technical college in conjunction with the conservation laboratory — which is the system employed by the Dunedin Public Art Gallery's Conservation Laboratory.

This laboratory, which operates a three-year diploma course, is essentially a practical one. The selected annual intake is limited to five at present and for the first year the student has to be self supporting; in subsequent years a bursary can be expected which is provided by Internal Affairs.

As a further encouragement to specialisation, scholarships and travel grants from central government to selected overseas institutions should be established for all advanced students. At present one student is to travel to London next year and this has been due largely to that person's own initiative and wish for specialisation.

Experienced tutors on two- or three-year teaching contracts are needed for diploma courses in Conservation, whose salaries should be government subsidised. Short-term engagements such as this are more likely to attract overseas professionals than expecting them to forsake their country of origin to make a new career for themselves in New Zealand. They would additionally have to reconcile themselves to working with inferior collections here.

IIC NZ Group

The number of workers in conservation is slowly increasing and with it the need for a professional body, not only to promote the general objectives of the group, but a body to form the basis for recommendations to government on budgeting needs for conservation.

The proposal to form an IIC NZ group has been submitted to the Secretary-General of the IIC in

London, and an enthusiastic reply has been received.

All those working in the very varied fields of conservation will appreciate the advantages which an affiliated group would have in the profession.

This may be an appropriate opportunity to invite those interested to write me, giving their particular conservation area of interest. They will then be contacted regarding progress of formation as it becomes effective.

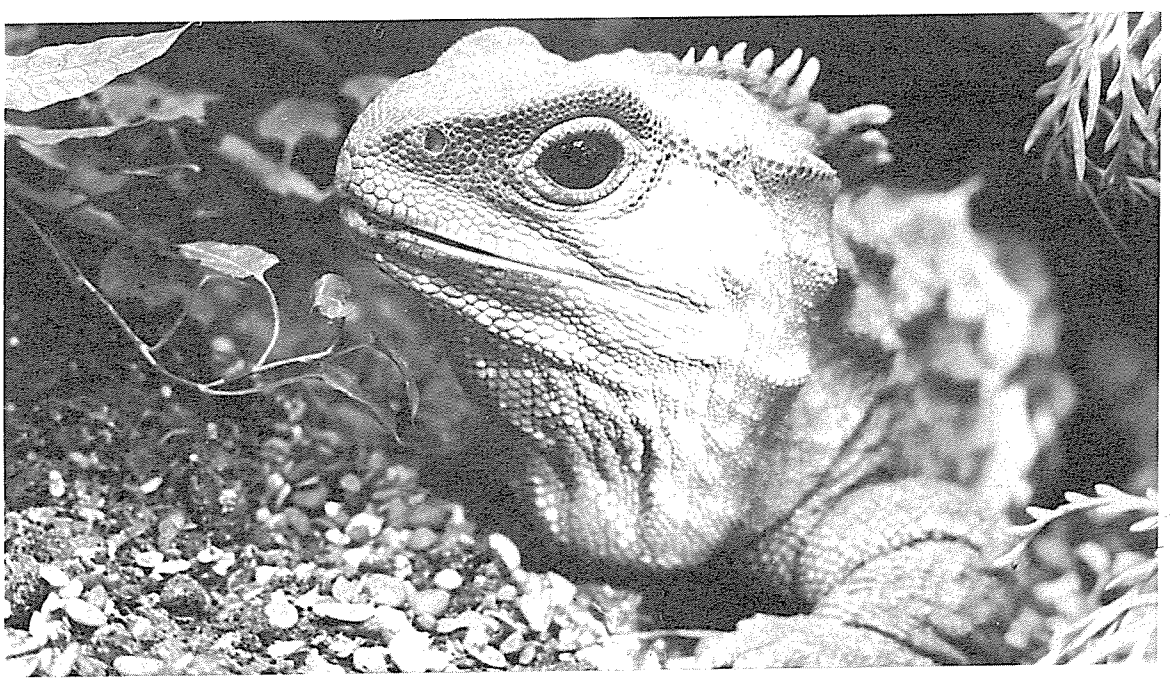
Three-day Workshops

To allow a better understanding and recognition of deterioration and other problems associated with the care of pictures, this Art Gallery's Conservation Laboratory is proposing to hold brief workshops.

The purpose is to acquaint staff with elementary aspects of conservation, recognition of problems, materials and first aid treatment which may be safely used, and some practical work will be undertaken by those attending.

Problems which are the result of natural decay, accidents to canvases or the result of that leaking roof, would be dealt with. Pictures on paper and documents similarly can sustain damage perhaps taking the form of bacterial or insect attack, also there is the perennial need for mounting.

Some indication is required by this Art Gallery of those who would be interested in participating in the workshops, and of the individual needs. If sufficient interest is shown we will circulate details of dates, accommodation and costs. Write giving particulars of your needs to Conservation, Dunedin Public Art Gallery, Box 556, Dunedin.



The Tuatara 'Henry', (aged 75 years).
Southland Museum and Art Gallery.

International Museums Day

Southland Museum and Art Gallery

The Southland Museum's afternoon programme for International Museums Day, 1979, was centred around one pair of live tuataras.

Lindsay Hazley, the Tuatara Keeper, spoke with slides about their anatomy, habits, and natural habitat which he observed whilst on St Stephens Island, Cook Strait, late last year. After his visit it was discovered that in captivity here, fed on high protein mice, the tuataras had gained three times more weight than their wild counterparts. They were subsequently put on a crash diet of insects.

May 18 was the day of reckoning. 'Henry' and 'Stephanie' were woken from the early stages of hibernation to be displayed for the 'weighing-in' ceremony. Surprisingly, it was found that there has been an increase, rather than the expected decrease, in their weights. We await a satisfactory explanation for this.

Museums Day attracted 400 visitors, of whom approximately 200, both children and adults, heard the lecture. Radio, newspaper and national television coverage contributed in passing on the information about two of Southland's most well-known pet animals.

J. Cave, Southland Museum and Art Gallery

The Psychological Effects of Steam Power

by Ivor Marsh

A paper read to the Auckland Medical Historical Society

Even to a mid-twentieth century man, the size and beauty of the Kew Pumping Station, built in 1845, which delivered 5,000,000 gallons a day, comes as a shock. Large pumping engines had been used in mines for 100 years previously, but everyday contact with water supply had for most people been either by hand pump or well, where a few gallons had been obtained laboriously every minute or so. The direct physical effects of this improved water supply are easy to see — clean water for drinking, washing, flush toilets, and the possibility of larger towns. But how did the ordinary individual feel when suddenly presented with such power, power under control, but beyond his own control as his own body was, in reaping or furling the sails of a ship, where the size and weight of the sheaves or sail was dictated by his own strength, alone or with companions?

Man has always sought to extend his own power. In primitive societies the greatest proportion of activity and the expenditure of the greatest energy must go to food production. Early man had two sources of power — slaves and animals, which also have to be fed. A good horse in good harness can produce about 15 times the energy of one man, using a collar which enables the horse to push with his shoulders. Prior to this invention of the Middle Ages, various breast straps and other arrangements had been tried, but these almost invariably compressed the horse's windpipe and reduced his efficiency to the equivalent of only four men. In medieval times, a man could look at the horse and say, 'Well, he is only worth four of me' — he could hardly have said that of the Kew Pumping Station. And in terms of cost, feeding a horse is five or six times as expensive as feeding a man, so men are more economical than horses in poor harness.

When one of the Popes in the thirteenth century wished to move Caligula's column, the methods used were exactly those used some twenty centuries earlier, when it was brought from Egypt in triumph to Rome — 600 men, 200 horses, numerous windlasses and winches, ropes, derricks — and a public executioner! The presence of the executioner paradoxically confirms man as the central element in this pageant. 'It may be unpleasant to be executed, but at least I'm important enough to merit this special attention.'

The story of the medieval and eighteenth-century revolutions is the story of man's never-satisfied pursuit of power. The Roman Empire, although administratively efficient, was unable to grind enough grain to feed its standing army in Northern Europe without power other than from slaves, and an imperial mill was built near Arles in the third century. This water wheel, or rather cataract of 16 wheels each driving 2 stones, and fed by a reservoir and special aqueduct, ground 3 tons of grain an hour, sufficient to feed a population at least eight times that of Arles. But despite this demonstration, little use was made of water power for another century, until a shortage of labour led to a spread of these mills in Northern Europe, so that when the Normans invaded England they were able to take over 6,000 water mills. These mills, and the northern type of windmill, develop something less than 10 horsepower, a size which a man, or a man and his apprentice, can feed and service alone, carrying and dumping the grain into hoppers and carrying it away as flour. They were built solidly and well, with the large working parts exposed and visible. A man could see how they moved, and feel the relationship of their pieces.

Then there was the development of new gearing mechanisms and the use of cams or tripping levers so that the rotary motion could be converted into reciprocal action working the bellows and hammers that became the power base of the medieval industrial revolution. The man humping flour was still involved with his work — the size of these mills still enabled them to fit in a human dimension. Nowadays with massive automated plants, vacuum lifts and bulk haulage, an employee in a flour mill has no contact with the grain or flour produced. The scale of the machinery has gone beyond him, because of the power that became available, initially from steam. I remember the pride with which older men at Moerewa Freezing Works described their ability to do all the jobs from slaughtering to final dressing, and their very intimate contact with the beast as they skinned and otherwise prepared it. Now this source of pride is lost, mechanical devices distance them physically from the beast with which they work.

This question of scale is relevant to the anthropomorphological aspect of tool design. The famous English long bow was superb just because of its simplicity. Archery was hardly 'taught' — children were brought up with the bow so that it became an extension of themselves and a fulfilling thing to use. The supremacy of English archery sprang from the method of drawing, or rather, 'leaning the weight into' the bow, apparently learnt easily as one grew up with the bow, but only with difficulty later in life. The essence is the scale — a long bow was made to fit a man's physique and power, as were scythes, pitchforks, rakes, spades and the other tools of hand labour. I read once the complicated directions for setting a scythe to a man. There must have been a dozen or more measurements — distance between handles, their height above ground, angle to the blade, set of the blade to the shaft and the precise twist and bend to the shaft were all expressed in relation to the build of the man for whom it was made. Nowadays industrial designers seem to have made a 'standard man' round which things are built. Man must now fit his tools, and not vice versa. And the massive crude machinery of the mills was made in relation to man — the inch, foot, yard, fathom — each divided

by eye into halves, quarters, eighths and so on, which the practised eye could do with sufficient accuracy for that type of construction, and which made the man part and parcel of his machinery.

However, at the same time, during the seventeenth and eighteenth centuries, existed an aristocratic interest and investigation into things scientific, which led to beautifully made and highly detailed fine precision instruments and clocks. In France particularly there was a great interest in mechanical toys of incredible ingenuity which danced and moved often to the accompaniment of a musical box. The people who made these things seldom seem to have put their talents to a wider use. In fact there seems almost to have been a scorn of the 'practical' and although their toys were made to fine tolerances they were to an individual part. A bit was made to fit another bit rather than abstract measurements. Investigations into atmospheric pressures which began in the early 1600s culminated in the formulation of Boyle's and Charles' laws. In 1690-95 Papin in Italy made a model of a sort of atmospheric engine where steam drove a piston to the top of a cylinder when it fell back by gravity. This does not seem to have been followed up. Neither was a device described by Roger North in Charles I's reign, of a Y-shaped arrangement of tubes and plungers which were driven up by steam and which in falling under their own weight drove a wheel through a rack and pinion device. Presumably at a time when labour was not particularly scarce, as it had been after the Black Death, these aristocratic investigators and their close associates, the clock and instruments makers, had no need to apply their experiments to industry, and there seems to have been a sort of contempt for the practical provincial tradesman.

However, their researches began to filter through society, and in England and Holland probably more than elsewhere, particularly through the dissenters, who seem to have valued learning and knowledge. Very little is known of Newcomen, a Devonshire tinsmith and ironmonger, except that he was a dissenter, and probably had connections with people in Norfolk who passed on to him these new ideas about the atmosphere. In him combined the aristocratic investigative toymaker and the practical tradesman. Around 1700 Thomas Savery had taken out a patent for a system of pumping, using steam to fill and then by condensation evacuate, a vessel into which water was drawn, later to be expelled by steam pressure. This does not seem to have been very successful despite the elegance of the concept and it is probable that Newcomen had something to do with servicing and maintenance of these engines in Cornwall. It is known that he was experimenting with models of engines in the early 1700s, and the Apocryphal story goes, that he was using a cylinder and primitive piston which was driven up and down by alternating steam pressure and condensing it inside the cylinder by spraying water on the outside to create a vacuum, when suddenly the cylinder cracked and water sprayed into the cylinder, causing a rapid condensation and greater efficiency by far. Newcomen took more than scientific theory from the toymakers; on his models he perfected a series of levers and trips connected to the main beam that worked his engine automatically and more effectively than could have been done by hand, so that when his first full-scale engine was erected in Staffordshire at Dudley Castle in 1712, it was fully fledged and complete. Newcomen engines were thermally grossly inefficient but they were, like the mills which preceded them, enormously robust and reliable and despite the improvements of Watt Trevithick and others, continued to be built and used for many years.

Newcomen's marriage of the practical and the theoretical, the workhorse and the exquisite toy, inevitably led to the improvements and sophistication and a new need for measurement in everyday life among the practical people. No longer could the craftsman build to sufficient accuracy with a ruler and square using hand-held tools. No longer could he trust to his eye — measurement had to be not in quarters and eighths of an inch but to thousandths or fractions of a thousandth of an inch. Some very accurate work was still done by hand, however. The large textile flywheels were customarily run as fast as safety permitted, the peripheral speed sometimes 5000 ft/min (near enough to a mile a minute). Such wheels were made with the boss arms and rim sectors as separate castings, machined then hand-scraped to a continuous metal to metal contact wherever they fitted. Unless this was well done, trouble soon developed as the rim pulled on the spokes. The largest of all, at the Pear Mill, Bradbury, had 73 rope belts from its flywheel transmitting nearly 50 hp each and ran for 50 years with no attention. Such hand-finished fitting was the peak of the engineers' craft.

The men could not but have been proud of their craftsmanship — surely they regarded themselves as some sort of aristocracy. Yet they were not honoured or treated as such by society. They were just 'fitters' or 'millwrights', not 'engineers', the term which began to be applied to the great designers. This difference between a man's understanding of his own worth and his standing in society has, I suggest, had unpredictable psychological effects. The need for great accuracy of construction brought with it the need for machine measuring and the inevitable distancing of the artisan from his material, as well as a forced reliance on a machine rather than his own senses. One wonders too, how he felt to be the producer of such power yet to be politically powerless in the land made prosperous by his skills. Perhaps the engine driver at these large cotton mills felt both exhilaration at the power at his command when his opening of a valve could set this vast complex in motion, and frustration at being low down in the social pecking order.

The spread of steam power was rapid. The single firm of Bolton and Watt built 496 engines between 1775 and 1800, which was coincidental with the changes in man's attitude to man that followed the American and French revolutions. It might seem man valued man more; perhaps the most obvious value of a man was his labour and therefore devices that conserve labour were highly valued?

Public health measures were being enacted under the influence of Chadwick and Snow. Rudimentary social welfare was seen as a national responsibility with the passing of the Poor Law Act of 1834, and the most grievous abuses of women and children were being, albeit slowly, controlled by the Factories Acts. The great cotton famine of 1861-5, when the North blockaded the export of cotton from the Confederate States of the South, threw thousands of families in Lancashire out of work, and promoted an unprecedented wave of public sentiment, both local and national, with the raising of relief funds sufficient to prevent starvation among the unemployed. Society saw them not so much as rather second-rate citizens who had drifted away from their true work as farmers or farmworkers, but as highly prized industrious makers of the national wealth, who used steam power for the benefit of all.

If the spread of steam into industry was rapid, it was relatively slow to be adopted as a means of transport. In 1802 Trevithic (the Cornish Giant) ran a steam carriage in the London streets with eight-foot diameter wheels at 6 to 8 mph, but this was not even mentioned in the press of the day. In 1808 he built a circular railway roughly on what is now the site of U C H and charged two shillings entrance fee to ride on this monster — but nobody came, or so few that his takings barely covered his expenses. It was not until the Napoleonic wars, when the cost of fodder increased, that iron horses came into their own.

The great father and son partnership of George and Robert Stephenson brought about another change in man's appreciation of himself. In 1712 a coach ran from Edinburgh to London on alternate Saturdays. It took 13 days and 80 able horses to do the journey, and it cost £4 10s. By the end of the century, the Daily Mail from London to Bristol took 16 hours and it was possible to do the 100 miles from London to Cornwall in one day. That also cost £4 10s. This of course was the heyday of the turnpike, but even so, at least for short distances, a man could run as fast as the coach and 100 miles is only three or four days' walk. But man's view of the world began to change. Hardy's Jude the Obscure in his youth had his world delineated by the horizon of the field from which he scared the birds. It was definable and reachable — he could walk to it. But, he could also walk to the railway, and move out into a wider unknown and unsafe world at speeds so many times greater than his walking and over distances incomparable in real terms to his day's march. The railways opened up the world for him — yet brought home to him is own inferiority, his own minuteness. And these machines were built by man.

The early development of railways was at a hectic pace mechanically. Speeds of 60 mph were reached by the middle of the century and vast freight trains were being hauled. Yet second class carriages before 1850 had no padding in their seats, and third class carriages had no sides above waist height. Not till 1863 could a six-foot man stand up in a carriage and corridor trains were not introduced until the 1800s, so that no lavatory could be provided for the ordinary traveller. Essential human needs were ignored by the engineers, who show a devotion to the engine and a disregard of the passenger — acceptance of the mechanical challenge and rejection of the human one?

A Cornish GP, Richard Quiller Couch, observed the boom in mining in the mid-nineteenth century, when water power was still the main source of energy for pumping and drawing the ore. However, nearly 150 years after steam power had been introduced to industry, the 'man engine' to lower men to the workings, and raise them, was only just being introduced. The commonest method of descent and ascent was by 'laddering'. Some mines were 600 fathoms (3,600 feet) deep, and it would take three-quarters of an hour to descend and one and a half hours to ascend. It is amazing that the use of mechanical power to relieve this sort of drudgery was so long delayed. What sort of psychological processes could have been going on in the minds of mine captains, and how did the miner feel, knowing there were great engines to pump water and lift ore from deeper and deeper and more dangerous mines, to make it just possible for him to be sent down to work in them?

For all my picture of estrangement and depersonalisation, the steam engine is still more akin to man or animal than electric motors or enclosed internal combustion engines. The movement of rods and cranks with their regular harmonic motion is beautiful and rhythmical in itself, they feel like massive arms and legs, which fascinated men then, and still do. Both Tolstoy in *Anna Karenina* and Noel Coward in a short play, *Still Life* (which became the film *Brief Encounter*) used steam to symbolise human passion.

REPAIR MATERIALS

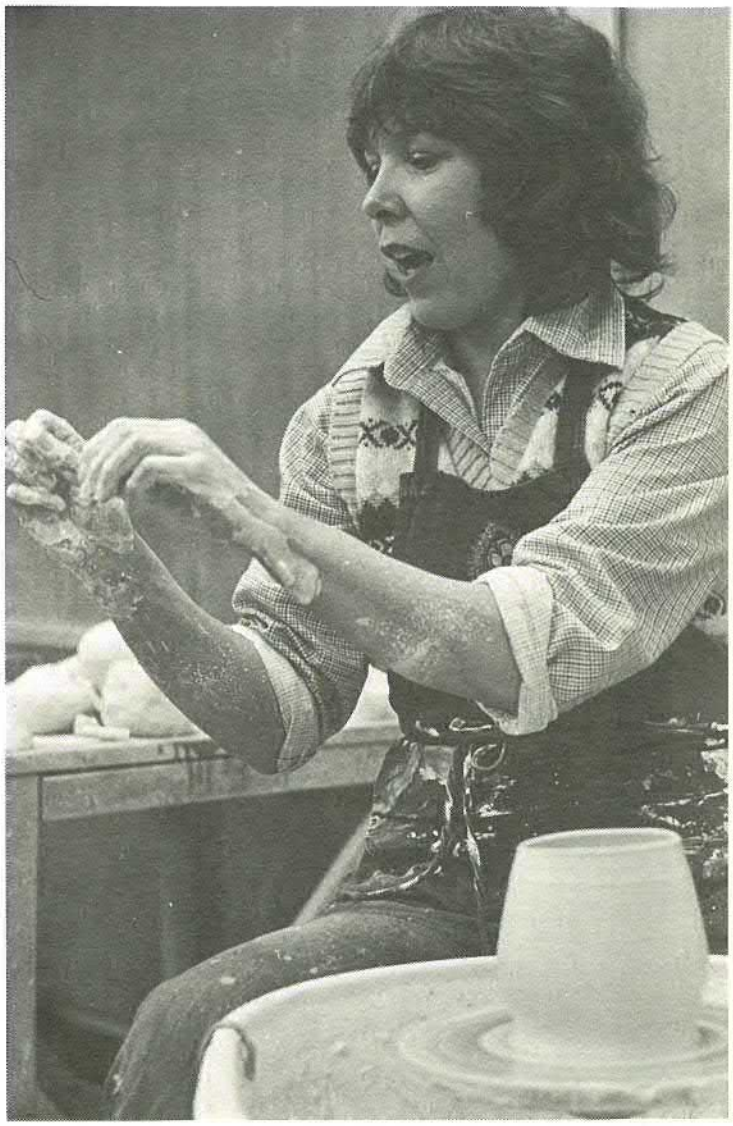
B. J. Ball Ltd announces that they are now official agents for Bareham Green & Co Ltd, Hayle Mill, Maidstone, Kent, England.

Bareham Green manufactures handmade papers for document conservation and bookbinding. Initially it is proposed that four grades will be imported: lens tissue for pasted tissue and Florentine (heat-set tissue) repair; Bodleian 22 lb paper for paper repair; Dover 20 lb dark-toned paper for paper repair and for end-papers for fine bookbinding; Multisarb wet-strength.

Please address initial inquiries to Rosemary Collier, Secretary, Archives and Records Association, P O Box 6162, Wellington.

Casting Pearls: A consideration of the worth of expert visitors from overseas

The following is extracted from a report by Ken Gorbey, Director, Waikato Art Museum, on the visit of English potter Deirdre Burnett to New Zealand in 1978. Ms Burnett's tour was organised by Waikato Art Museum and funded by the British Council.



Deirdre's report to the British Council is a most complete document and I do not wish to simply duplicate it here. Instead I wish to address myself to a question put to me by Mr Ralph Turner, Exhibitions Officer with the Crafts Advisory Committee during a visit I made to London in September 1978.

Mr Turner's question or questions, revolved around just how worthwhile were the visits of 'overseas experts' to countries such as New Zealand and how were these visitors received and regarded by the visited.

I have now been involved in organising the visits of four visitors from overseas (all but one, Deirdre Burnett, outside the field of ceramics) and have had the opportunity to observe from close quarters numerous others. Some, such as that of Ms Burnett, have been rousing successes. Others seem to have failed dismally. Wherein lies the difference? To consider the failures first, it would seem that the outstanding characteristic of individuals in this group has been their inability to work with people. On the whole they have preached from afar with the front of the lecture hall being to all intents and purposes as removed from the class as the visitor's home country. Such a lack of real human contact between visitor and visited is most unfortunate. Two tours that could generally be termed most disappointing featured gentlemen with a disinclination to mix on a one-to-one basis. Both wished to preach rather than discuss. Both proved overly discouraging in the type of comment made about local work and one was downright rude. Both seemed to lack any form of enthusiasm for the sujects they were supposedly so famed for.

On the other hand two most successful visitors organised by Waikato Art Museum who came to New Zealand were as much students as enthusiastic teachers. Both had the ability to put the visited quickly at ease. A human quality was immediately evident that endeared the visitors to their audiences so that the flow of information from one to the other was uninhibited by any feeling of superiority-inferiority, any feeling of the great casting pearls before the muted swine.

These last two were Deirdre Burnett and more recently Robin Wade, Museum Designer, London, whose tour to New Zealand was organised by Waikato Museum with the financial backing of Queen Elizabeth II Arts Council of New Zealand. To these two go my congratulations. They managed to enthuse their audiences, to set people thinking and reconsidering what they were doing. They offered a direct link with ideas from afar that could only be gleaned from books prior to their visits.

In the case of Deirdre Burnett the letters I have from hosting societies all describe her visit in glowing terms. The influence she has exerted on some potters was indeed very obvious in the 21st National Exhibition of the New Zealand Society of Potters held in Hamilton only four months later.

To answer Mr Turner's question; yes, the visiting 'expert' is a most helpful agent in further stimulating local workers in particular fields. Without these visitors the New Zealander would feel even more isolated than he does when considering the cost of the airfare to take him anywhere.

Much of the stimulation necessary to breed the new ideas and experiments that will shape new directions in our life style must come from an interaction with people from other nations. The visitor is a most important person and one to be welcomed.

However, the important word is 'interaction'. Without a free mixing of ideas the stimulation will not come. The visitor who comes only to lecture and demonstrate is giving little more than can be read in books. When, however, the audience feel that they are in an open situation of exchange and discussion the simple learning process can grow into a complex environment beneficial to the growth of new ideas.

It is very obvious that I am not so much addressing this last section to the British Council who have demonstrated their skill in choosing the right person to tour in Ms Burnett, as to my New Zealand colleagues. I would therefore propose a list of basic questions with which the suitability of a visitor can be judged:

Is the potential visitor a leader in his field? This requirement is most basic. We do not want to be importing a talent that is not of top quality.

Will the visitor under consideration, be able to materially advance some aspect of a particular field? Some visitors, whilst leaders in their fields, might be working in areas already well advanced within New Zealand. Surely the need is therefore to extend this field by introducing people who can offer new possibilities and opportunities.

Has the potential visitor the ability to interpret his field of expertise in such a way as to stimulate his audience to explore new ideas, medium, etc? This last question is perhaps the most important and it is my experience that the organiser or organising body *must* have some personal experience of the visitor to assess his ability in this area. It is very possible to read and see a person's works and decide that he/she is a leader in his/her field. It is not possible to deduce from this that that person can project his skills, enthuse his audience, mix with people and just take all the hard work involved. This only comes with a personal contact with the potential visitor. Therefore we should not be inviting blind. We should not base an invitation on the quality of a person's work alone. If protocol demands that so-and-so should be invited by so-and-so is not suitable, then protocol should be ignored. The visitor should be known to be able to teach — to project and enthuse.

It is my belief that if we apply these questions to our potential visitors the quality of the experience will be enhanced greatly.

ANTHROPOLOGY IN MUSEUMS

In February 1979, a four-day conference (11th-14th) was held in Melbourne on the subject of Anthropology in Museums. The Conference was attended by 23 curatorial staff from Australian museum departments of anthropology and included a number of outside participants from the Aboriginal Arts Board and the Australian Institute of Aboriginal Studies. In addition there was one participant curator (Roger Neich of the National Museum) from New Zealand.

The Conference was made possible by a grant from the Aboriginal Arts Board of Australia Council and was held at Ormond College in the University of Melbourne and at the National Museum of Victoria. The discussions covered a number of aspects of the subject of direct concern to curators — ranging from the resolutions of the 1978 Unesco Regional Seminar in Adelaide to data access, research, exhibitions, publications, the return of collections, and the greater involvement of Aboriginal people in decision making within museums.

The Conference agreed on a number of joint pilot projects (in documentation, minor exhibitions, etc) that are expected to be completed during 1979 and also appointed a Steering Committee to oversee these. For further information on the Conference, its projects and future activities, please contact Dr Jim Specht, Australian Museum, Sydney, or Professor Barrie Reynolds, Material Culture Research Unit, James Cook Univesity of North Queensland, Douglas.

Archives and Records Association of New Zealand Forthcoming Events

19-23 August: NZ Historians' Conference (Christchurch)

Inquiries should be addressed to Mr G. C. Dunstall, c/o History Department, University of Canterbury, Christchurch 1.

24-25 August: ARANZ Annual Conference (Dunedin)

The full programme for the Conference is yet to be finalised, but seminars on the care and custody of archives in small non-specialist institutions, sources for transport history, and goldfields history, are projected. It is proposed to circulate Conference brochures with the Annual Report. The Conference will be organised, on the Council's behalf, by the Otago-Southland Branch.

Late August (date to be finalised): **Storing and Recalling History: An Archives Seminar (Hamilton)**

The programme is being organised by the University of Waikato Centre for Continuing Education, in association with the Waikato Branch of ARANZ. Inquiries should be directed to the Centre.

September (date to be finalised): **From Idea to Printed Word — Tools and Techniques in Historical Research (Welllington)**

The Wellington Branch of ARANZ is negotiating with the Victoria University Extension Department with a view to conducting this seminar. Further information will be made available as it comes to hand.

19-23 November: Introduction to Archives Practice — A Training Seminar

Functional Exhibitions and Museum Ethics: A Provincial Case

**by David Butts, Deputy Director,
Manawatu Museum, Palmerston North**

Introduction

Museums are institutions which can provide a stimulating service. The nature of the service provided by individual institutions depends on the motivating ethics of the individuals controlling that museum's activities. Factors which temper the application of those ethics include facilities, financial resources, staff interests and public demand. Without suitable institutional resources any museum-based programme is at a disadvantage. Without public demand for the service (after some effort has been expended to create such a demand), the programme is at best defectively designed. Museum-based programmes cannot afford to be merely recorded as historical oddities. This paper outlines the ethics behind the operation of one functional exhibition at the Manawatu Museum, Palmerston North.

The Manawatu Museum came into existence in 1970 following a period of consolidated effort by the Manawatu Museum Planning Society. In 1975 the collections were rehoused in the present premises provided by the Palmerston North City Council. The size of the property on which the museum stands is sufficient to house an early colonial cottage, a printery and a one-room wooden schoolhouse. The main structure is divided into a main gallery, teaching gallery, and a storage area, as well as connected outbuildings which contain a conservation laboratory, a smithy, and some storage space. The functional exhibition discussed below is the Museum Printery.

Museum Ethic

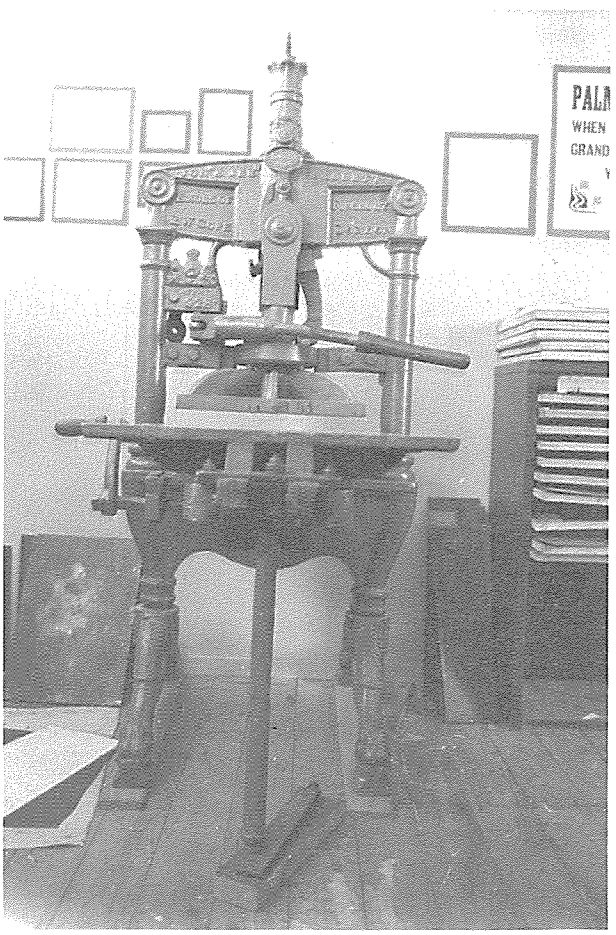
The staff of the Manawatu Museum have formulated a programme of museum activities designed to enhance their motivating ethics. Ethical standards are centred around the five major areas of the museum staff's responsibilities: Conservation, Storage, Exhibition, Education, Research.

The order in which these are listed is not indicative of the order of priority; no such constant set of priorities can be maintained throughout all the activities of the museum. The Museum Printery is an exhibition which is involved in each of these aspects of the museum programme and therefore is reflective of the ethical stance of the staff involved.

Museum Printery

The Museum Printery was established in its present building in 1977. Mr John Brebner, an art teacher at Intermediate Normal School (of Homepress) is the Manawatu Museum Printer.

Conservation: As new additions are made to the printery they are assessed as to their conservation requirements. New type is cleaned, sorted and stored, ready for future use or for permanent storage. As each new press is added to the collection its working parts are examined and an assessment made of the repairs required. Those presses currently in the collection range from hand-operated printing presses, and treadle-operated printing presses through to motor-operated. During the summer vacation of 1978-79 a student working at the museum under the S C S P scheme, dismantled the 1836 Albion Flatbed hand-operated press. He thoroughly cleaned down and repainted all parts and reassembled the press. This project took several months and was a clear indication of the time and effort required for the routine conservation of large artefacts which are incorporated in functional exhibitions. The time spent caring for the type and presses by John Brebner, the Manawatu Museum Printer, is also considerable. Type must be cleaned at the completion of each printing period.



Storage: The Manawatu Museum Printery is a small wooden building which can house only a small number of pieces at any one time from the large printery collection. The Palmerston North City Council have provided long-term warehouse storage facilities. This is not ideal for the storage of museum

collections especially when the warehouse is also used by other people, such as contractors. Dust and movement are prone to damage the artefacts. In planning for a new museum the Printery Collection will receive particular attention, both in exhibition and storage requirements. The Manawatu Museum Printery Collection is as important as any in New Zealand.

Exhibition: The exhibition of printing presses requires practical demonstration. To make the exhibition dynamic is to bring it alive. The visiting public cannot see the printing presses working on a regular basis except on museum live days and when volunteers operate the presses during visiting hours. The major exception to this is when members of the visiting public are fortunate enough to be present when the educational programmes are functioning. The printery exhibition currently includes the Albion Flatbed; a Cropper Platen (*circa* 1916) which is a treadle- or hand-operated printing press; and a Vendercook Proof Press which is a hand-operated composing room cylinder made in Chicago, patented 1914. As well as the presses there is a hole-punching machine and a perforating machine on display. Large wooden cabinets containing trays of many different types of wooden and metal type are also available for use. Almost all of the basic exhibition labelling for the museum can be done in the museum printery. The exhibition in the printery includes data relating to the presses and examples of the range of printing tasks undertaken by adults and children.

Education: The Manawatu Museum teacher, Mr William White, has incorporated a printery unit into his range of teaching programmes, predominantly for primary school children. Children are taught to set type in galleys and fix it with the required furniture. This setting is generally done in the teaching gallery and then selected printing is taken and printed in the printery. This experience has many advantages for the children as a practical educational exercise. The children learn to appreciate the time taken to set print, to ink the print and hand press each page. They also become aware of the technical difficulties of producing a high quality job. The result of the exercise can be taken away by the child and the experience is talked about and results shown to parents. Consequently it is true to say that the use of this exhibition in the museum education programme actually gives the children an appreciation of the fundamentals of a craft technique, it enables them to express themselves in poetry and narrative as well as artistically, and it finally and very importantly can give them a sense of accomplishment through personal participation. It has also been noted that children who have difficulties with spelling have made marked improvements after a period of work in the printery.

Research: In order to document and exhibit intelligently the Museum Printery Collection, it has been necessary to research the history of the various items in the collection. This is an ongoing process which will continually add to the information folder planned to accompany the collection and to be available eventually for sale to members of the public. Very little research has been undertaken into the history of the printing industry in New Zealand. Thus at present the information we have about items in our collection centres on function, age, and location of usage. Eventually it is anticipated that this will fit into an overall picture of the development of the printing industry in New Zealand, with a detailed coverage of the Rangitikei-Manawatu-Horowhenua region.

Discussion

From the above outline of activities based on the Manawatu Printery Collection it is clear that small functional exhibitions, run on a small budget and with limited facilities require consideration of all aspects of museum ethics. The concurrent usage of the collection for educational, exhibition, conservation, and research purposes require the formulation of explicit policy about the use of individual items. It has been decided in this case that all purposes can best be served by having a mimimum number of artefacts on display at any one time so as to enhance visual appreciation from an exhibition point of view and at the same time provide a spacious facility for undertaking printing tasks. Children have access to only a limited range of replaceable type so that any accidental damage will not restrict the range of the collection. Using collections, as is essential from the educational point of view, does put the equipment at some risk and causes some wear over a long period of constant usage. It is considered that this will not damage the presses to any substantial degree and a careful policy relating to the use of type should ensure its conservation. The educational programme of the Manawatu Museum is activity based in all aspects including Maori studies and Early Colonial studies. In the near future a programme of adult printer training will be offered for members of the Museum Society and this may be extended if successful.

Conclusion

The Manawatu Museum has a working printery which can be enjoyed by young and old, either as an exhibition or as a place where practical involvement can give hours of satisfaction. By having all professional members of staff in this small provincial museum consider the implications of the use of exhibitions from their own particular perspective, a caring attitude has developed which has allowed the development of a balanced and stimulating use of a functional exhibition without compromising the basic ethical standards to which such an institution must adhere.

Robin Wade, Museum Designer

What do the following have in common beyond being manifestations of good museum work?
Fishbourne Roman Palace Museum
The Turner Exhibition and Recent Archaeological Finds from the Peoples Republic of China, both at the Royal Academy, London.
The Fox Talbot Museum (Pilgrim Trust Award 1976).
The entrance halls and bookshops, Greek and Roman Galleries and Egyptian Sculpture Gallery, all at the British Museum.
Ironbridge Gorge Museum (Museum of the Year Award 1977 and Museum of Europe Award 1978).
The Wimbledon Lawn Tennis Museum.

The answer is that all have the same designer, Robin Wade.

The list above is, of course, a very selective one, for Robin Wade and his associates have completed many projects and studies in the United Kingdom and recently in the United States, Venezuela, Australia and New Zealand and in doing so have built up an international reputation for superb museum design.

I met Robin Wade at the Museum's Conference in Bradford in 1977. In discussion it soon became apparent that we shared common beliefs about the role of museums in society. The following two months I searched out as many of his projects as possible and visited the pratice on a number of occasions.

It is difficult to describe the feeling of those few small rooms above a shop in Richmond, Surrey. It is a busy place with a pleasant air of directed chaos. Everywhere work stations are loaded with exciting plans and illustrations. Groups of people form and reform around different stations. Obviously while one designer might be carrying the burden of a particular project his fellows assist in a most democratic manner. It is a most infectious atmosphere and I don't feel half as bad about the state of my office any more. Nor do I hassle staff so vigorously about conditions prevailing in working areas. Just keep the fire risk down.

At that time Robin had been offered work in Australia so one of the projects I undertook on returning to New Zealand was to organise and fun an extension of his journey across the Tasman to New Zealand. As a working designer he required commissions to make this worth his while but these were soon forthcoming from the Friends of Waikato Art Museum, National Museum and Robert McDougall Art Gallery. The Queen Elizabeth II Arts Council of New Zealand supplied his airfare both external and internal and to that body goes my very sincere thanks.

After difficulties with the weather Robin Wade arrived in New Zealand and was able to address the Art Galleries and Museums Association of New Zealand Conference in Gisborne. He then spent a

day in Hamilton gathering material for a publicity pamphlet the Friends of Waikato Art Museum are to issue on the need for a new art museum and lectured that Sunday evening to a large gathering. Further work took Robin Wade to Wellington and Christchurch. Those who heard his talk at Gisborne would agree he added a great deal to our Conference. It was a pity he could not have stayed longer.

***CURRICULUM VITAE* — ROBIN WADE**
Was born and educated in Australia and served an apprenticeship as a wood carver and cabinetmaker.
Graduated from the Royal College of Art, London, 1955.
Worked for Professor R. D. Russell on a wide range of furniture and interiors, London, 1957.63.
Associate of the architectural partnership Russell, Hodgson and Leigh, London, 1963.67.
Fellow of the Society of Industrial Artists and Designers.
Private practice since 1967.

Ken Gorbey
Director, Waikato Art Museum

US Museums Visits, May 1979

**by S. Waterman, Education Officer,
Museum of Transport and Technology**

CHICAGO MUSEUM OF SCIENCE & INDUSTRY

About four million people visit the museum a year (average daily attendance 11,000) which makes it Chicago's leading tourist attraction. It must rank as the liveliest museum in the States. Visitors come from all over the world to see the 75 exhibit halls with over 2,000 exhibit units that demonstrate scientific principles, technological advances and industrial applications, and how they have contributed to the American way of life. Most people come by car, but there is a good bus service from the city. This museum is unique because it is specifically designed for visitor participation. Visitors of all age groups can push buttons, turn cranks, lift levers and become involved in dozens of ways in a unique learning experience.

The day I visited the museum there were thousands of people inside its doors, including school children who had come from all over the United States, Canada, and Mexico. Some groups had left at 2 am by bus to be at the museum by 9.30 am. Other groups chartered planes and block booked hotels and motels for overnight visits.

What impressed me most at this museum was the almost total involvement of both children and adults in the exhibits on display — family groups gathered around an exhibit and complete strangers dicussed things they had seen or were seeing.

Many of the exhibits are presented as a public service by industrial firms, trade associations, professional societies and government agencies, while others are developed by the museum staff.

An example of people participation is the exhibit 'The Human Heart'. This five-metre walk through a replica of a heart was built by two Chicago heart specialists. As you walk through the heart you are able to understand how the heart functions and how heart attacks and strokes can be prevented. Large, clear, bold labelling is the method used to get this information across.

Each museum has its special exhibits. The Museum of Science and Industry is best known for its working coal mine, the captured U-505 submarine, Colleen Moore's glittering Fairy Castle and the daily hatching of chicks. Among other outstanding exhibits are Apollo 8 Spacecraft that first orbited the moon, an Agrisphere showing the history and probable future of farming (sponsored by International Harvester Co), and a full-size model of the first class passenger cabin of a 747 Jet Airliner, a transparent anatomical manikin that describes the female bodily functions, a computerised and personalised nutrition exhibit. There is a simulated food shopping mall with exhibit islands for the different food groups. The packaged and plate presented 'meals' are like the real thing. People are chosen at random and participate in a food eating sequence. What they eat is noted and they are given information by the computer about their personal eating habits, be they good or bad. Your weight is noted in the process.

There is an exhibit ride that tells the story of petroleum, a spectacular circus exhibit with 22,000 hand-carved animated figurines.

Other exhibits tell the story of steel making, electricity, automobiles, photography, chemicals, machinery and physics.

The physics area is packed all day. All age groups are participating in experiments relating to physics. The physics which never made sense at school is made real and easy to understand here.

The coal mine mentioned previously is a reproduction of a Southern Illinois coal field operation. Visitors descend the shaft in a real hoist, then go by electric train to the working part of the mine. There they see old and new ways of extracting coal from under the ground.

The Money Centre is a recent exhibit and it is thronged with people all day. The Head of the Education Department of the Museum and I watched a nine-year-old Negro girl using the computers to gain information about her family's spending habits. The Money Centre deals with money, banking and the economic forces that shape our lives. The exhibit was presented by Illinois National Bank.

In this new exhibit all the questions asked about money are answered. The Money Centre is a gold mine of ideas, a twentieth century computerised arcade where visitors can browse for economic theories and test their own skills of managing money. It gives the visitor an insight into the standard of living, the value of money, the role of the employer, inflation and the role it plays and how economics relates to other aspects of society.

Finally there is a resource area in the exhibit where the computer will answer questions about banking and personal finances and clippings and articles with economic implications are displayed.

Mathematics, a subject many of us shy away from, is another exciting exhibit area. Labelled *Mathematica* it is made up of computerised exhibits, working exhibits, visual aids and visitor-operated exhibits. It is also thronged with people all day. The sight of family units clustered around an exhibit that explained a mathematical concept that previously held no meaning for them was another highlight of the day.

In general, the most effective presentation was usually based on consecutive treatment of basic

science, discovery and invention, development, manufacture, uses, social impact and potential future implications.

The museum makes available, at no charge, sufficient space for any appropriate exhibit. The exhibitor pays the cost of designing, construction and installing the exhibit. In addition, an annual fee is paid to the museum to cover out-of-pocket costs such as maintenance, utilities, guides and other services to the exhibit. The agreements normally are for a minimum of five years.

The museum has found that industrial exhibits based on sequential story development and visitor participation attract much greater interest than a mere display of isolated objects.

About ten per cent of the museum's exhibits change each year. In addition there are temporary exhibits, on such diverse subjects as prize-winning new products, foreign science and technology, architecture and things affecting the environment.

Funding

The museum is an independent and non-profit making institution and admission is free. The only exhibits with admission charges are the Coal Mine — 60c, 40c; the U-505 submarine — 60c, 40c; the Nickelodeon (early movies 10c); and the Arcade Studio.

The museum operates on a balanced budget. About 40 per cent is derived from admissions and purchases by the visiting public. The souvenir shop is a very busy place as in all the other museums in the United States.

Three other sources provide 20 per cent each. They are tax funds from the Chicago Park District, interest and dividends from a quasi endowment fund and contributions and grants from companies, foundations, government agencies and individuals.

An interesting breakdown in annual attendances shows that 44% are under 21 years of age; 28% are adult women; 28% are adult men.

School visits to the Museum

These are handled very similarly to what I do at MoTaT. Bookings, of course, are made three to six months in advance, sometimes a year ahead because of the numbers of schools visiting. There are nearly fifty people employed in the educational division of the museum. Throughout the year there are special attractions put on by the museums for schools. These are lavishly mounted and attract thousands of children, particularly in the May/June period and Thanksgiving and Christmas.

Professional actors, actresses and dancers appear at the two theatres at the museum, giving performances for schools. School groups also give performances in the theatres. All the schools are notified of the year's programme by the museum.

As with all other museums the officer visited, Dr Danilou and his educational staff at the Chicago Museum of Science and Industry, showed great interest in the parent participation scheme that operates at MoTaT under the direction of the officer. More background information to schools and work units is sent out by the Education Officer at MoTaT than most American museums with the exception of the Williamsburgh Museum. The education section there operates just about the same way as that organised at MoTaT.

When school parties arrive at the Chicago Museum they go downstairs to the school reception centre and information desk. Over half the schools visiting have pre-booked. The school reception or orientation centre is made up of eight colour coded rooms and a big dining area called the Safari Room.

The school party is told when it will be able to use the dining room. Three thousand pupils can be catered for by having five separate seatings of a half hour duration. Meals start at 10 am and go through until 2 pm. Some children may have been travelling by bus or plane since 3 am so they eat first. Those groups that bring their lunches are put in an area of the Safari Room at their given time. All lunches are taken away in big plastic baskets and labelled with the school's name and time it is allocated to use the dining room.

McDonalds also have a restaurant at the museum and this is kept very busy with school parties. For its size, this branch of McDonalds is the busiest in the whole of the United States.

While all the luncheon arrangements are made the teachers in charge are given out information about demonstrations, special displays or performances occurring that day and the time.

Full-time and part-time guide lecturers are there to keep the school parties moving and directed into the various areas of the museum. Some school groups might stay with a guide for a specific time. These guides are paid at a rate of about $2.95 an hour and upwards. They work in different areas of the museum, so they become familiar with the whole complex and don't become bored with their work.

Regular scheduled tours are always available at two exhibits — *The Coal Mine* and the *U-505 Submarine.* Short films are shown continuously throughout the day as part of various exhibits. The two theatres are in constant use — the larger seating 1,000 people and the more intimate one seating 250.

On the first day of my visit a huge force of

handicapped children gave a public concert to a packed house. Their acts included: rock and roll dancing, mime, plays, percussion bands, etc. Many of the people on stage were severely handicapped, some performing in wheelchairs. Some were deaf, dumb or blind. It was quite an experience. They came from all over Chicago.

The main brochure sent out to schools is called *Teachers' Guide to the Museum of Science and Industry.* It tells you how to use the guide, lists exhibits and what category they fall into, e.g. applied science exhibits — basic science exhibits — common interest exhibits and floor plans where they are found. Each applied science exhibit or any other that falls into the various categories is enlarged upon in the brochure to help teachers plan study, for example:

Coal Energy
The coal forest, how different types were created.
World Coal Fields.
Use of Coal — then and now.
Underground Mining — a film tour of surface mining, a dynamic diorama view.

The population of Chicago is the same as the whole of New Zealand. A rapidly growing section of the Chicago population are Spanish-speaking people — half to three-quarters of a million. All in all there are over 150 different ethnic groups in Chicago, so the museum has to plan for these ethnic groups and include interests for them at the museum. The schools have to do likewise.

A special programme for the Spanish-speaking people had just finished at the museum and schools participated in this programme. Next February another is planned called *Black Aesthetics* which will run for 10 days. A special effort is made to reach out to every ethnic group.

One morning I saw a group of professional black dancers performing a programme for schools called *Dances of West Africa.*

In Downtown Chicago there is the Goodman Theatre where professionals train in dance and drama. Many leading American professional dancers and actors train at the Goodman Theatre. These dancers and actors perform at the museum, for example, this week there were several dance groups from the Goodman Theatre and they were funded by McDonalds Restaurant.

In Chicago area about 8,000 schools are aware of these programmes. Brochures are mailed out from the museum, giving details of each day's programme with different dance groups. These same dancers are performing in many of the city theatres.

The normal community distance for schools to visit the museum on a day trip is 100 miles and this picks up about 15,000 schools altogether.

At Christmas time there is a festival programme called *Christmas Around the World.* One prominent feature of this festival is the Christmas tree decorated by the different ethnic groups.

The current programme for schools that was running when I was there was called *Exceptional Children's Week.* This included the handicapped children who performed as stated previously. Exceptional children include the gifted and the not so gifted and the handicapped. Each group performs for the public and the visiting schools. Vast areas of the museum were set aside for art work coming from these groups.

Stage performances last about forty minutes and take place at 10 am and 2 pm. Anything and everything is done. The children run their own show, with their own compere, bands, rock groups, etc, and it is a thoroughly enjoyable event. To many it is the climax to the end of the school year when schools close mid-June and re-open in September.

Once or sometimes twice a week Dr Danilou and heads of various departments meet over lunch. At these luncheons visitors like myself are welcomed and asked to speak to the thirty or forty guests present. There were five other visitors on some mission like myself and we asked or were asked questions. The rest of the museum staff participated in the discussion. The lunch lasted over an hour and was a stimulating experience. Ideas were exchanged and communications excellent.

Other museums I visited in the United States knew about these organised luncheons and envied the idea. It was the highlight of my visit to the Chicago Museum of Science and Industry.

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Wellington Civic Art Gallery

In May 1978 the Wellington City Council decided to establish a public gallery in Wellington. A sum of money was set aside in the Council's budget to begin work on the renovation of the Makower-McBeath (a former warehouse) Building in Victoria Street. Further finance has been provided in the current year to complete this work and a fund has been established for staffing and operation of the gallery. Hereafter the Gallery will be supported fully by an allocation from the Council's annual Estimates.

In the initial stages the Gallery has been under the direction of the Library Department and the City Librarian. The Library will continue to supply administrative and technical support, but it is expected that the Director will assume professional responsibility for the Gallery immediately upon appointment. In the current year's budget provision has been made for an assistant to the Director, or staffing up to the equivalent of one full-time position.

The Gallery is to confine its attention initially to temporary exhibitions. The Council does not have a permanent collection, and until such time as a director is appointed and the Gallery is established, the Council has decided to stand from considering the matter.

The Council hopes to present an exhibitions programme which will show to the public aspects of art and design activity in the Wellington region, and introduce to Wellington a representative range of work from other parts of New Zealand and overseas. The Gallery would run its programmes in co-operation with other public galleries, drawing from as well as contributing to the pool of touring exhibitions which these galleries organise.

The Gallery premises are very well sited, in the civic centre block, adjacent to the Library, facing one of the inner city's busiest streets and only one block from the main pedestrian thoroughfare. The floor space of the Gallery is 350 sq metres, with full wall hanging space and two side galleries suitable for hanging small pictures or presenting ceramics, sculpture or woven materials.

The floor is carpeted throughout the main gallery and covered with cork elsewhere; a dual lighting grid — general lighting and adjustable track lighting — is installed, and the space is to some degree climate controlled — the air is filtered and heated or cooled.

The Council is seeking a person who has qualifications in art and design, a good knowledge of art history and present art activity, and in particular a knowledge of art in New Zealand, and an interest in promoting an appreciation of art and design in the community.

The duties of the Director will be:

- initially, completion of the Gallery's facilities;
- planning of an exhibition programme;
- consultation and negotiation with individuals, galleries and other organisations that are to contribute items for the exhibitions;
- negotiations with organisations (e.g. Queen Elizabeth II Arts Council) and individuals who may provide financial and other assistance for exhibitions;
- design of individual exhibitions;
- preparation of publicity materials and catalogues; organising of promotional activities;
- general supervision of the Gallery;
- management, supervision of Gallery assistant(s);
- consultation with the City Librarian and preparation of reports on the organisation and activities of the Gallery.

Interested persons are invited to discuss the position with the City Librarian, B. K. McKeon, P O Box 1992, Wellington, or telephone 729529.

WELLINGTON CITY COUNCIL

Gallery Director

A position will soon become available as Director of the Wellington Civic Art Gallery. The gallery will function initially as an exhibition venue, but may develop a permanent collection.

Enquiries are invited from persons with qualifications in art or design, a knowledge of art history, familiarity with contemporary art, both in New Zealand and overseas, ability to plan exhibition programmes, assemble and mount exhibitions and promote the gallery.

Interested persons are invited to discuss the position with the City Librarian, Wellington City Council, P O Box 2199, Wellington, phone 729529.

A. J. Smyth
Deputy Town Clerk

JAMES COOK UNIVERSITY OF NORTH QUEENSLAND
MATERIAL CULTURE RESEARCH UNIT

The Material Culture Research Unit specialises in material culture research among tropical societies, seeking particularly to develop new approaches, and new ideas in the field. Research programmes focus on four key areas: field studies, both ethnological and ethnohistorical; scientific analysis of organic artefacts; contemporary craft studies; museum oriented research. Many of these studies contribute to the major N E Queensland Rainforest Project of the MCRU which seeks to record and study fully the unique material culture of the Aboriginal people of this region.

The Unit offers higher degrees by research (MA and Ph D) and a one-year Graduate Diploma. Students from both within Australia and abroad are welcome. Further details and application forms may be obtained from the Registrar, Post Office, James Cook University, Townsville, Queensland 4811, Australia.

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