The Australian National University

National Institute of the Arts

School of Art

Visual Arts Graduate Program

MASTER OF ARTS (VISUAL ARTS)

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REPORT
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MASTER OF ARTS (VISUAL ARTS)

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ABSTRACT

Dialogues*:* The result of research into a significant form to describe this new space in which I find myself.

The work explores the surface embellishment with terra sigillata as well as its behaviour after post- firing reduction.

A study taking the form of studio exhibition of ceramics exhibited at the Canberra School of Art Gallery from June 14 to 18, 2002 which comprises the outcome of the Studio Practice component, together with the Report which documents the nature of the course of study undertaken.

CONTENTS

ACKNOWLEDGEMENTS

I would like to thank all the staff in the ceramics department, Janet DeBoos (Head), Greg Daly, Anita McIntyre and Michael Sainsbury.

I am especially grateful to Janet, Greg and Anita who have been my supervisors and mentors throughout the two wonderful years of my masters, without whose generous support and guidance it would not have been possible to produce this body of work.

A particular note of appreciation goes to my coordinators, Helen Ennis and Anne Brennan for their enthusiasm and encouragement throughout this venture.

To Nigel Lendon, my gratitude for being a wonderful convenor.

Equally important was Alan Watt, for his tips and inspirations on black firing.

To all my studio partners and friends – Rebecca, Chan, Graham, Daven, John, Paul and Chris, I am grateful for those great time we have had together especially for your kind assistance.

My brothers, sisters and especially my beloved mum – for your faith in me.

My beloved wife Fazillah and loving daughter Rulqaeyda – for your unending inspiration, constant support and love.

BACKGROUND

My root is in Malaysia and going abroad makes me appreciates it all the more.

Nature has always been a most important influence in me. It must have been a natural thing happening in me because I was brought up in Rajang, Sarawak in Malaysia, a small fishing village surrounded by rainforest, mangrove swamp and sandy beaches. However, the greatest influence in my present work is the study of the 'Banksia seed pod' form – the natural found object indigenous to Australia. My work is a mixture of influences and appreciation of art and my excitement and observation of nature. I would like my form to be linked somehow, with nature.

Marea Gazzard asserted that, 'Potters can be divided into two groups: form people and glaze people'.1 Just like her, I belong firmly in the first category too.

Fig.1

It seems like I had this passion with form ever since I was a kid. I had this habit of collecting small grotesque objects such as tree roots, twigs, dead branches, seed pods, rocks and bones into the pocket of my trouser to the disapproval of my mother when she hand washed them. Being tired of the 'nonsense collections', she finally had all my pockets sewn up, but nevertheless this habit is indeed very hard to break...until today. Probably this act is simply a pleasure of being with nature.

SEARCHING FOR A FORM

Before my arrival to Australia, I was very determined to do something different which I had not attempted to do and discover.

Being keen for a new beginning, I took the opportunity to change my direction –a decision intending to equip oneself with new skill and knowledge to be imparted upon my return to Malaysia. I was in need for exposures, which will help me continue developing as a contemporary ceramist as well as to further enhance my individual practice in teaching.

Hence, my early days at ANU were a total journey of explorations and experimentations. I was engrossed with the productions; volume of various forms made through various techniques, using different clay bodies and embellished with heavy surface decorations. These works was further fired in different respective kilns. See Fig. 2,3,4 and 5 for the samples of this early work.

Fig.2

Fig.3

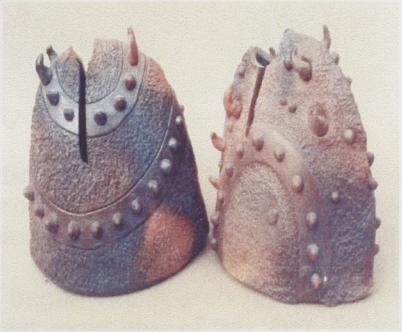


Fig.4

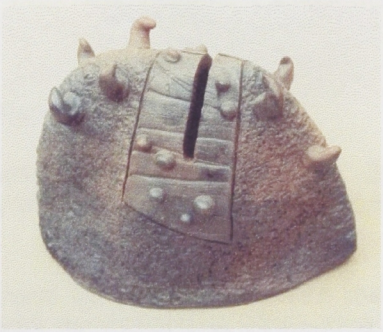


Fig.5

This array of work was made possible due to the new exposures to the rich resources found in the library, freedom of choice offered, varieties of clay bodies available and above all, the wealth of facilities provided.

The idea to come up with a much simpler but meaningful form was not an easy task considering that I had always been obsessed with work characterised with 'noisy' surface elements.

The productive exercise also reflects my deep interest in searching to capture a significant form – an identity to my new space.

Later, during the weekly review with Janet, Greg and Anita, in the second part of the semester, they constantly reminded and advised me of a much simpler form. On my complex surface activity work Janet commented that my forms are being 'too noisy and trying to say too many thing at one time'...to which I agreed openly. She helped me to see that less is always more. Fig 6 and 7 are good examples of this work.

Fig. 6

Fig.7

That 'wake-up call' was a turning point in my body of work. It provided the opportunities for me to explore and develop the earlier pieces into its present sculptural form.

I began the search for my particular form by investigating into the vast examples of the then finished pieces for something interesting, which I could utilise. One particular reason for doing this was that I had felt a strong sense of belonging to these created objects.

Exploiting any possibilities at every single feature, I was struck by the popular decorating elements found on most of the pieces – the protruding Banksia's seedpod. Again the magic spell – " a pleasure being with nature" took place. See Fig. 8 and 9.

Fig.8

Fig.9

Thus, the search for an identity that captured something of my presence in Australia was over. I had finally found a form to mark my new space. "This use of the indigenous is a response to the particularity of place".[2]

DEVELOPMENT OF MY SEEDPOD FORM

Like most artists, I too would like my work to be unique in its own ways. I had to develop my form in a style, which is my own, and am totally true to oneself.

Equipped with the newly found subject of seedpod, I began sketching and making maquettes to expand it into various sculptural approaches. Fig 10, 11, 12 and 13 are good examples of these sketches.

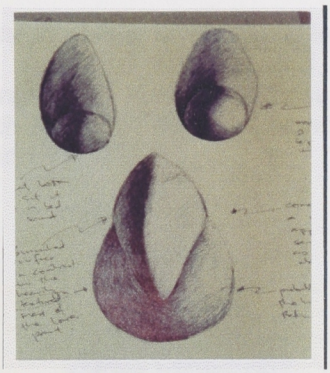


Fig.10

Fig.11

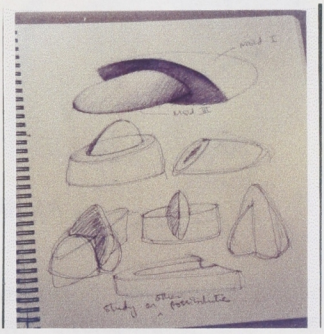


Fig.12

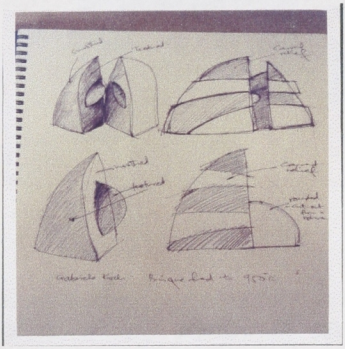


Fig.13

Afterward, the investigations into this sculptural form in the second semester had transformed into something interesting for me to investigate further.

'Sculpture should always at first sight have some obscurities, and further meanings. People should want to go on looking and thinking; it should never tell all about itself immediately'.[3]

This led me to the abstraction and simplification of the form to look simpler. I had started to employ a negative attitude toward ornamentation in my piece – influenced by the popular ceramist affinity for the 'less is more'.

Working within that parameter, I finally came up with an 'inverted elliptical' form visually reminiscent of Banksia seedpod natural profile. It embarked a distinctive weight that is closer to that of the spectacular Ayers Rock.

To me it was a very strong form at least...visually. It has fitted the true sense to express and address my subject of 'confidence, strength and stability'. These are the required state of mentality, which I desired most for being away in a totally new space. See Fig 14 and 15.

Fig. 14

Fig.15

Obsessed, I developed and manipulated this new form further and to my excitement, the exercise revealed to me additional new qualities to exploit:

Firstly, to enhance its aesthetic quality, I employed organic linear parting between the elliptical shaped form. See Fig.16. I was happy for being able to exploit this element because it provided the essence of 'freshness' into the form. I am fond of creating dynamic form, not just pleasing profiles. In addition to that, the line also helped to draw the viewer's eyes from bottom to top or vice versa/ from end to end (depending on the size of the respective form).

Fig.16

"Gentle distortion, makes the tension between volume and profile more intriguing. The eyes works to understand how deep and round the vessels are'.[4]

Secondly, I exploited the solid-looking form by splitting the piece into halves and hence the birth of my 'Dialogue' series. That body of work was an attempt to portray two sets of values by employing conflicting elements of 'positive and negative' on the opposite sides, suggesting a struggle to fit as one unified unit. Fig 17, 18, 19 and 20 are good examples of this work.

Fig.17

Fig.18

Fig.19

Fig.20

Thirdly, to display additional 'freshness', I embellished the whole form with surface activity – rough textures and pierced holes. An important note on these holes – next to acting as decorations, it greatly expedited the drying process of the form.

Fourthly, inspired by the works of renowned ceramist such as, Pierre Bayle, Gabriele Koch, Magdalene Odundo and Duncan Ross to name a few, I have decided to embellish my surface with 'terra sigillata' – traditional decorating techniques which I am still fond of exploring and investigating (details on this subject is found in my other part of the report). That was one particular interesting technique, which I would like to introduce upon my return to Malaysia. See Fig 21, 22, 23 and 24 on the samples of these artistes.

Fig.21 Canope by Pierre Bayle

Fig.22 Vessel by Gabriele Koch

Fig.23 Untitled, Magdalene Odundo

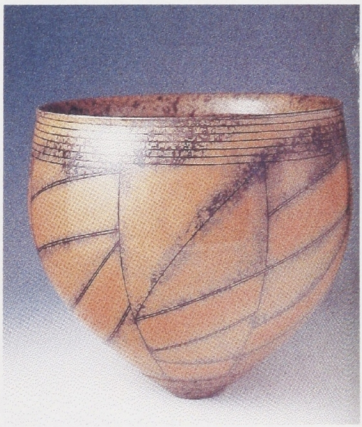


Fig.24 Bowl by Duncan Ross

I AM READY

I considered the third semester as my 'focussed zone'. After a year of tremendous exercise with explorations and experimentations, I had finally felt comfortable and confident with my practical ability based upon knowledge. The laborious activities had provided me with a framework in which to make significant contribution to a body of knowledge.

Works produced during the time were getting fairly bigger of a medium scale. I treated that production as an act of furnishing and building on the previously acquired skills.

At that stage, I had already found confident with the press moulding process, comfort in handling raku clay body, burnishing and firing them, and felt highly confident with my forms. I was absolutely ready to execute my true potential and individuality. I anticipated my most ambitious artwork for the final semester to be realized with this energy inside me.

WORKING METHODS

Hand building is the oldest method of clay working, probably beginning at least 30,000 years ago. [5]

In my earlier works, I had experimented with approaches such as slab building and coiling but found press molding suited the desired outcome most. The techniques enabled me with the ability to reproduce similar as well as multiple objects quickly and conveniently.

I used a number of different molds depending on the nature of the desired finished form.

My wall pieces are press molded in a one-piece mold whilst press molding in a large-scale two-piece mold undertook the massive 'Growth' form.

The 'Dialogue' series was made out from two different molds – a one-piece and a two-piece mold respectively. The press-molded forms was later combined and assembled in stages to create the finished individual work.

All the molds were made from paper-plaster - executing the knowledge gained from the workshop I attended with a Canadian visiting artist for the distant diploma, Trudy Golley.

The advantage of paper-plaster mold to that of the conventional mold is that, paper-plaster is very much light weight, durable and economical especially for the size of my work.

Basically the process required two coatings on the model namely: a slush coat (first coating) and the paper-plaster for the final coating.

The proportion for the slush coat is:

Warm Water : 1 (1000gm)
Plaster : 1.3 (1300gm)

The proportion required for the plaster is as follows:

Warm Water : 1 (1000gm)
Plaster : 1.3 (1300gm)
Cellulose Fibre : 3% of the above total weight

ILLUSTRATIONS ON THE WORKING METHODS

Fig.25 Making the entire model out of the recycled clay.

Fig.26 Attaching a shim made from clay slab for the parting line; the mold must separate along the line.

*Fig.27*Placing a clay coil around the model about one half inch away from the form. This distance indicate the actual thickness of the mold.

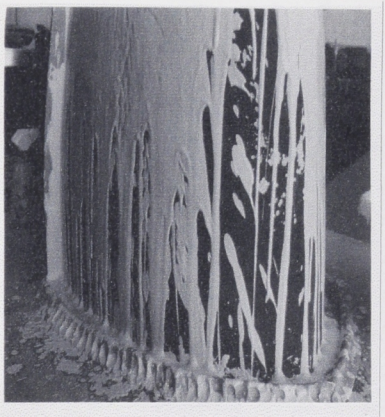


Fig.28 Dripping, painting or throwing the liquid mix of slush coat onto one half of the model.

Fig.29 Placing strips of burlap dipped in slush slip onto the surface to reinforce the strength of the mold.

Fig.30 Preparing the paper-plaster mix for the final coating.

Fig.31 Applying the paper-plaster by hand on the dried slush coat.

Fig.32 When hardened, remove the clay shim, cut notches and repeat the previous process for the other half of the mold.

Several days later, the mold has been completed, the pieces have been taken apart, the model removed, and the two parts of the mold allowed to dry.

Fig.33 Strapping the two-piece mold together after drying and bracing it firmly.

Fig.34 Making clay slab from a slab roller machine, the most convenient and a tremendous work saver.

Fig.35 Pressing the layer of clay slab over the entire inner surface.

Fig.36 To avoid creases in the surface, I used plastic rib and a wooden beater to ensure the clay is forced into every corner of the mold.

Fig.37 Attaching the interior structure called 'webbing', that keeps the walls from buckling. The webbing should be curved, since a curve can respond to stresses by bending.

Fig.38 Stuffing the interior with crumpled newspaper to hold the form from sagging.

Fig.39 After attaching the base for footing, sand is sprinkled to minimize shrinking cracks during the drying process.

Fig.40 Strapping a specially made board at the opening which acts as a base for the form to stand on when flipping the mold over to release the press-molded object.

Fig.41 Once released, the form is allowed to dry to a leather-hard stage before texturing.

Fig.42 Texturing the entire surface with found objects such as tree branches and rocks.

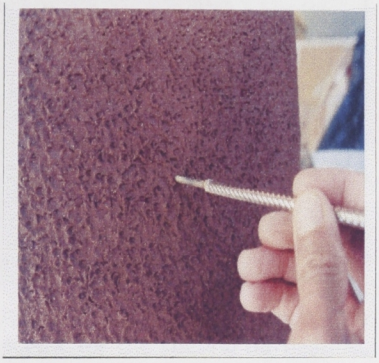


Fig.43 The surface is further pierced with sharp steel rod. beside acting as decorative surface element, the holes also helps in expediting the drying process.

Fig.44 Painting white slip as the first coating.

Fig.45 Brushing terra sigillata onto the entire surface of the form.

Fig.46 First burnishing is carried out by using the back of a spoon.

Fig.47 Using spoon wrapped with plastic for the second burnishing, this greatly brings out the shine on the surface.

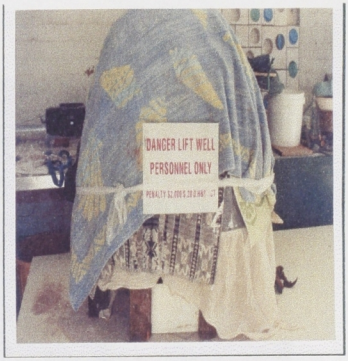


Fig.48 The finished form is wrapped with cloth and allowed to dry.

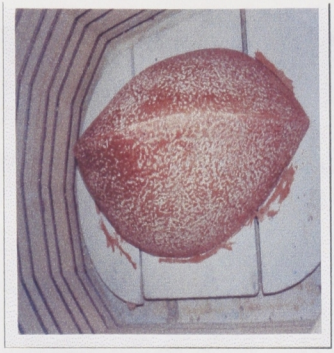


Fig.49 Once dried, the form is fired in the electric kiln to cone 06.

Fig.50 Placing the bisqued forms inside the black firing kiln, ready for the reduction process.

Fig.51 Sealing the lid of the kiln with clay slurry.

Fig.52 Firing the kiln with gas fuel.

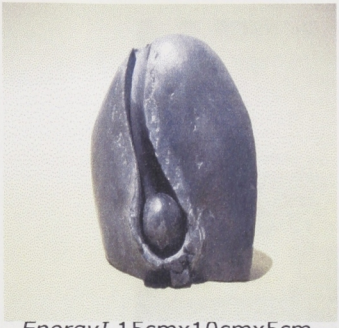
Fig.53 The kiln is fired to 800ºC, upon reaching this temperature, the gas burner is turned off.

Fig.54 Dripping of the sump oil from a tank placed beside The kiln. The entire kiln is sealed further with slurry to ensure total reductio.

Fig.55 Samples of objects after the firing. Notice the flashes on the surface of the form.

Fig.56 Samples of works after burnishing with bees wax.

ILLUSTRATIONS OF SOME EARLIER WORKS

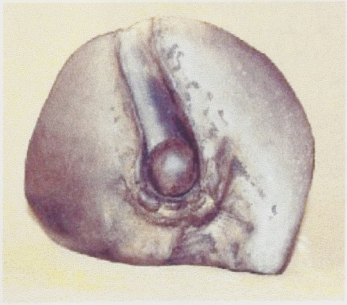


EnergyI 15cmx10cmx5cm

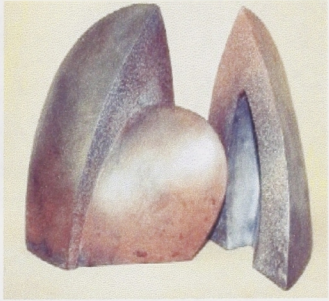
Dialogue VII 60cmx30cmx35cm

A group of black fired pieces

Dialogue VIII 60cmX35cmx35cm



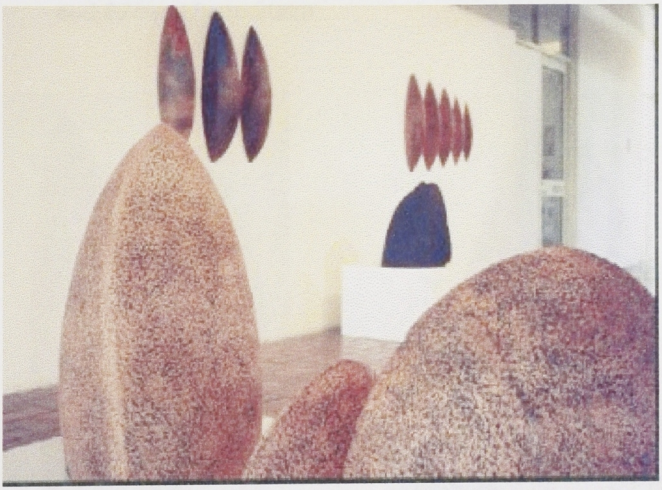
Energy III 20cmx20cmx8cm



Dialogue X 30cmx25cmx20cm

ILLUSTRATIONS OF WORKS EXHIBITED AT THE FOYER GALLERY

▪ View of the exhibits from the entrance



▪ View of the exhibits from another angle

- **WALL PIECE I**

Wall Piece I 82cmx18cmx20cm, 85cmx20cmx20cm and 82cmx18cmx20cm

View from a different angle

Details of flashes on the piece caused by ashes from the seaweeds.

• WALL PIECE II

Wall Piece II 75cmx18cmx17cm, 72cmx17x16cm, 69cmx16cmx15cm, 66cmx15cmx14cm and 63cmx14x13 ㎝

Details of pieces as seen from the side.

- **SPLIT FORM @ DIALOGUE SERIES**

Dialogue Series XIII 60cmx40cmx40cm

Dialogue Series XIV 84cmx30cmx44cm

• GROWTH FORM

Growth Form 95cmx95cmx45cm, 92cmx62cmx45cm and 78cmx36cmx43cm

The view of the exhibits from a different angle

CONCLUSIONS

I am satisfied with the outcome of the study and investigation into low technology ceramics. I believed that my engagement with the newly acquired practical knowledge had sufficiently equipped me to plough new ground for the ceramist in Malaysia to venture and exploit further.

Throughout my study, my main concerns have always been focussed with surface treatment as well as its related firings. I used my displayed objects as a vehicle to execute the outcome of the study and investigations.

I am glad that this opportunity had provided me to gain a new foundation of knowledge, skill and experience for a profession in the art and art of ceramics. I had achieved a new understanding of what is possible, to carry with me throughout my life career.

Hence, suffice to say that the whole experience enabled me to define my career path, which had revealed new ways of working and new qualities to exploit after the duration of MAVA

ENDNOTE

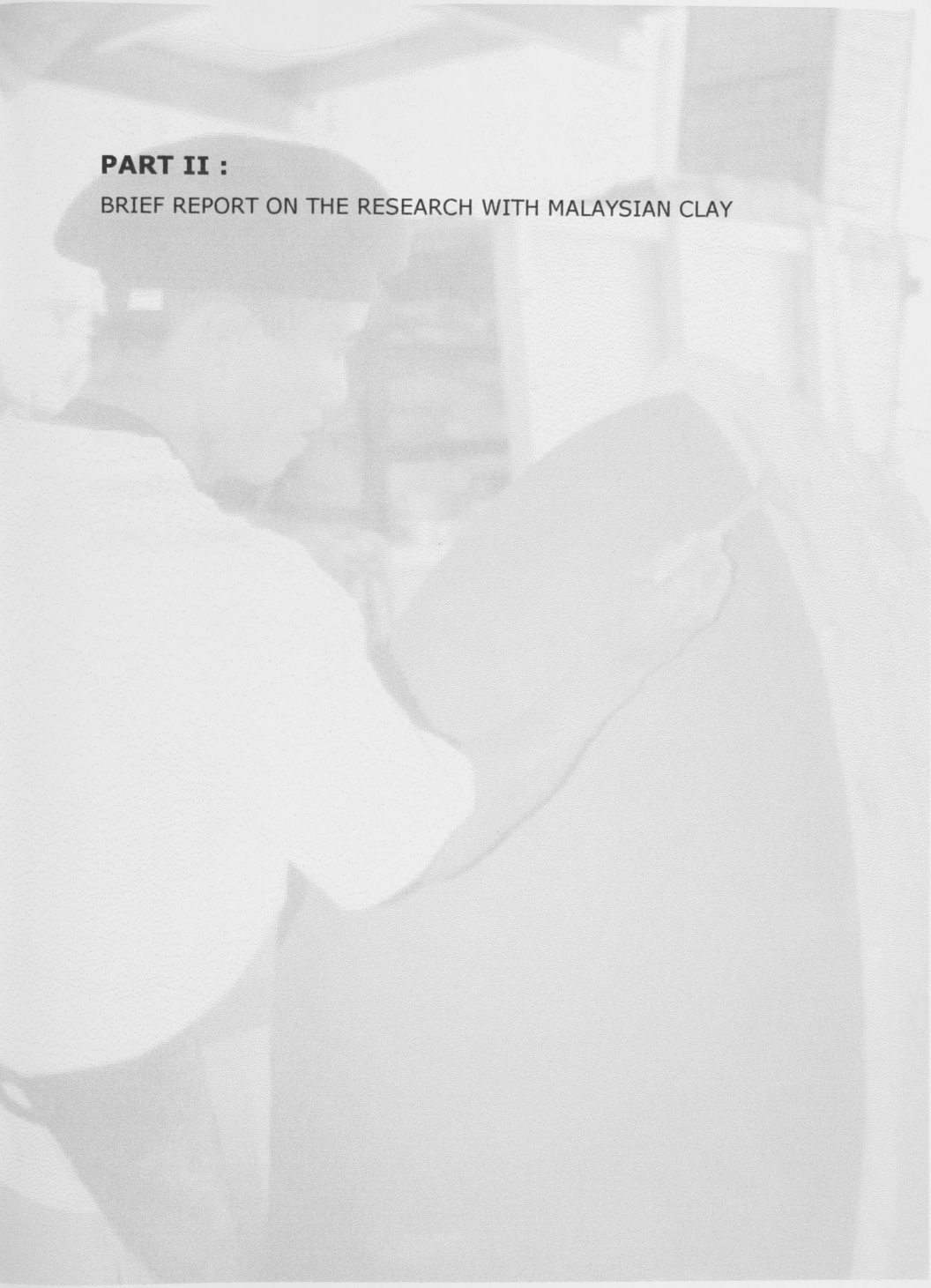
1. Hood, Kenneth and Garnsey, Wade, 1972, Australian Pottery, Macmillan, South Melbourne and North Sydney,p.64

2. De Waal, Edmund, 1999, Design Sourcebook-Ceramics, New Holland, London, p.64

3. Moore, Henry, 1974, Energy in Space, New York Graphic Society, Connecticut, p.9

4. De Waal, Edmund, 1999, Design Sourcebook-Ceramics, New Holland, London, p.31

5. Peterson, Susan, 1998, Working With Clay: An Introduction, Laurence King, London, p.29



PART II :

BRIEF REPORT ON THE RESEARCH WITH MALAYSIAN CLAY

CONTENTS

INTRODUCTION

My intention in writing this report is to document my experimental research activities with *terra sigillata* prepared from clay brought from Malaysia. These were prepared, applied and burnished on selected local Australian clay body and subjecting the burnished pieces to various low technology reduction firings. This activity is designed in response to my deep interest with low technology ceramics, particularly in identifying the potential of the existing clay I used in Malaysia for making terra sigillata upon my return.

Most of the techniques employed are adapted from the available information published in numerous ceramic journals, magazines and books to illustrate the multiplicity of approaches to preparing, applying and firing terra sigillata burnished work. Some of the techniques were specially chosen because they illuminate the basic or 'standard' version, others to illustrate variations on the approach.

Although the techniques are tried, tested and proven through the test pieces as well as through the finishing on my sculptural forms, there is no guarantee others will obtain exactly the same results.

It is my earnest hope that artists, teachers and student particularly in Malaysia will find value in the pages of this report.

TERRA SIGILLATA

Terra Sigillata, Latin for 'sealed earth', is one of the most attractive, yet simple, low temperature surface finishes which can be achieved on pottery. It is an ancient technique whereby uniform slurry of ultra fine raw clay is applied to a leather-hard to dry pot by brushing, spraying or dipping. When the moisture has partially evaporated from the wet paste, this surface may be burnished if desired to a high polish. After the pot has been fired, the high lustrous surface is retained. From time to time something may go wrong and the lustre disappear. Understanding the science behind the process may help prevent such an experience for those who wish to exploit this technique.

Terra sigillata consists of a suspension of the smallest particles of clay. It is obtained by mixing dried natural clay or earth with quantities of water, blunging, with a deflocculant if necessary, to reduce it to a thin pouring consistency. This raw mixture is allowed to stand, sometimes for several days, and this permits dense coarser unusable sand and silt fractions to settle. Then, excess clear water is syphoned from the container and the top layer of superfine colloidal clay is decanted or syphoned off and reserved. Water is allowed to evaporate so that the mixture, which is applied to the pot, has thickened to a brushing, dipping or spraying consistency.

Because terra sigillata is prepared from the smallest of the particles, which remain after rocks, and minerals have been weathered and transported to their final resting places on the crust of the earth, it is a substance of indeterminate composition. Depending on the origin of the material chosen for the production of the suspension, it may contain all or several of the following minerals: kaolinite, illite, sericite, biotite, muscovite, montmorillonite, silica, hydrated iron oxides and feldspar. When they come in contact with water, the majority of these finely comminute minerals have the ability to become colloids. In this condition, such sub-microscopic particles are able to attract other dissolved materials into their sphere of influence, a function designated 'cation exchange capacity'. Some of these soluble materials are well-recognised fluxes and include ions of magnesium, calcium, potassium and sodium. Furthermore, sodium may have been introduced through additions of deflocculant to ensure dispersion of the clay in water.

CLAY

There is of course, no one type of clay that will work best for applying terra sigillata and for the various types of low-temperature firing. Some potters use porcelain for the whiteness; others use a buff clay for a little extra colour.

For me, red clay as most desirable; such as *Walkers* fine terracotta, red stoneware and red raku. A raku-type clay (both red and white) may be appropriate, if the firing will be quick, to reduce firing losses. Though pit, barrel, black and saggar firing are all low temperature techniques, it does necessarily follow that low temperature clay is best. You will want to select the clay according to the type of firing you plan to do, and the effects you want to achieve – though if you have a favourite clay, it may be equally appropriate to experiment with a variety of firing methods to find the one that suits the clay best.

For desirable colour development, white or light-coloured clay is best. Red clay will not show the subtle colours from copper and salt. In order to develop darker oranges and reds, it is preferable to use a buff to tan clay body.

Darker clay is best for smoke firing without added colorants. Smoke markings on red clay can look very dramatic, though white clay will show a greater range of greys and browns from the smoke. Just as for the pit firing, stoneware clay bisqued between cone 012 and 06 will pick more colour than clay bisqued to maturity.

I use both terracotta and raku clay (red and white) for burnishing and reduction firing (sawdust and black firing) because it is easy to hand build, is durable even when fired to quite a low temperature, burnishes considerably well, and reduces to a rich black colour. Clearly there is some room for experimentation and personal preference - though high-fire white clay or porcelain is not the best choice if a reasonable fired strength is desired.

For the best results when black firings, pots should be unbisqued or bisqued to a very low temperature such as cone 018. In general, to blacken pots completely, it is preferable to separate the pot from the combustible material so only the smoke reaches the clay. Thus the pot does not reach the intensity of temperature of a pit fire, where the pot is nestled directly in sawdust.

If a pot has been bisqued fired at a temperature much higher than that attained in the black firing, it will not be receptive to the smoke. Therefore, your choice of clay needs to be influenced by the fired strength of the clay at such a low bisque temperature. In my experience, white clay is not quite as strong as red one, and a low-fired clay needs to be fired close to maturity – certainly higher than cone 018 before it achieves sufficient hardness. Thus stoneware clay will tend to give better results than low-fired clay, because it will be less vitrified after bisque firing.

Though it is not necessary to burnish a pot before blackening it, burnished pot will appear blacker than an unburnished pot. If you do want to burnish, your choice of clay will be determined in part by ease of burnishing and the degree of shine attainable with the various clay available. Clay bodies vary greatly in this regard but it is safe to say that a smooth body will be easier to burnish than a coarse one. Having tried to burnish many clay bodies, I have found that due to the non-clay materials added to lower their maturing temperature, low-fire bodies (earthenware) tend to be soft and chalky and difficult to burnish without scratching.

PREPARATION OF TERRA SIGILLATA

Terra Sigillata means 'earth seal'. Quite simply it is a slip; a mixture of water and clay where the particles of clay are separated into large and small and the larger, heavier particles thrown away.
There are many theories on the best ways of making it and most imply that 'there is nothing to it' while at the same time sounding really dogmatic. On and off for three semesters of trial and error with numerous clays, I too have had to become very exact about the method I find best.
This is the gist: Mix clay and water and a deflocculant; let the mixture settle; pour or siphon off the top layer, to use. Discard the bottom layer.
Now consider the details:

Clay: Use very dry powder and weigh the amount carefully. Any clay can be used and rough dugs clays are highly recommended. Refined clays like china or porcelain do not work as easily. For the purpose of this investigation, I employed iron-bearing yellow clays from Malaysia, which perform well and give good colour as well as the white Malaysian clay powder.

Deflocculants: These are alkali, which are added in very crucial amounts. Gram scales are a must. There are several deflocculants available to choose from and here is a list: *Calgon* water softener, sodium silicate, soda ash, Epson salts, caustic soda, sodium bicarbonate, sodium hydroxide, washing soda and lye.

The mixing container: A glass jug or cylinder is definitely the most useful because you can see the sediment and other layers easily after settling.

The method: Mix the correct amount of clay and water thoroughly in the container. Add the deflocculants and mix thoroughly. What happens is that the electrical charges in the particles are neutralised and the particles separate, the larger heavier ones falling to sediment at the bottom. The very fine particles float. This is the 'sigillata'. Watch the surface of the mixture as you stir the deflocculants – it exhibits stirring aluminium paint. This is a positive sign that the mixture is working well.

Settling: Within ten minutes there should be dense heavy sediment at the bottom of the container. Leave it overnights – it seems to take several hours to deposit all the heavy particles. Then pour or siphons off everything except the heavy sediment, which is thrown away. Let the mixture stand again to settle then siphons off again. And then again I try dipping a green ware shard to see how it looks.

Application: The slip should have a slightly sticky, slippery feel on the fingers. The consistency is usually quite thin, but it can be thickened by evaporation. It can be applied to leather-hard or dry green ware by brushing, dipping or spraying. When dry it should look shiny and very light buffing with a clean cloth can enhance this quality. This surface may be burnished if desired to a high polish with a smooth object such as polished stone, water worn pebble, steel spoon or plastic wrapped objects, as in my case – wrapped stones and spoon.

Firing: A normal bisquit firing to 970°C is necessary to seal the slip onto the clay surface. Hotter temperatures tend to lose the characteristic shine of terra sigillata.

Colour: I have successfully used red iron oxide, black iron oxide, copper oxide, copper carbonate and cobalt oxide to colour the sigillata. For best results, terra sigillata should be grounded in a ball mill. A serviceable white or red clay terra sigillata, that does not contain additional oxides, can be prepared without a ball mill. It is worth mentioning that, added oxides or stains tend to be of too great a particle size and weight to be successfully incorporated into an unmilled terra sigillata but again this exercise is worth exploring for those interested with colours.

Samples of the test pieces that underwent through the smoke firings.

Here are the two recipes, which works well for the two Malaysian clays:

Recipe 1:

Water	4000gm (four times of clay)
Clay powder	1000gm
Washing Soda	0.5% (by weight)

Recipe 2:

Water	70
Clay	30
Washing Soda	0.3% (by weight)

- These two clays produced a fairly good volume of terra sigillata through the above recipes. From 2kg of the clay powder used, I collected about 1 litre of the required colloidal slip.

The followings are list of recipes made by well-known artistes in this field:

a. Richard Hirsch – White Terra Sigillata:

Ball Clay	200gm
Calgon (deflocculant)	10gm
Water	800ml

b. Richard Hirsch – Red Terra Sigillata:

Ball Clay	50gm
Red Iron Oxide	50gm
Calgon	5gm
Water	400ml

c. David Macdonald:

Red Clay	1500gm
Water	112 fl. oz (US)
Calgon	0.5%

d. Duncan Ross:

Clay	11.5kg
Water	30 litres
Deflocculant	7.5gm

METHODS

I executed the following methods for my work to investigate variable results:

Prepare numerous test pieces from
- White hand building clay
- White raku clay
- Red raku clay

⇓

- Apply with natural terra sigillata (from Malaysian clay)

- Apply with natural Malaysian clay terra sigillata that has been mixed with the respective oxides: copper oxide, copper carbonate, red iron oxide, black iron oxide

⇓

Bisque fired to cone 06

⇓

Apply oxide washes using: red iron oxide, black iron oxide, copper oxide + copper carbonate and Manganese dioxide + red iron oxide

⇓

Fire to cone 06

⇓

Subject the fired pieces to 3 different post reduction firings: sawdust, enclosed bucket within a raku kiln firing and black firing

POST-REDUCTION FIRING

I subjected all my test pieces strictly to three types of low technology reduction firing: sawdust, metal bucket within a raku kiln and black firing.

The range of secondary reduction materials encompasses much of the vegetable kingdom: sawdust, wood shavings, straw, grain, fruit skins, leaves – all of these can be fresh or dried. A number of these materials have been employed actually in contact within the work in the kiln, and the vapours held in place by a ceramic container: a saggar. The simplest saggar is a sawdust kiln.

• Sawdust Firing

Often this box is not actually fired inside the kiln itself but as a freestanding structure. The temperatures achieved are relatively low and so it is possible to use a metal-walled vessel or a brick structure. The main problems that I have found are:

a) It is hard to ignite the sawdust in the first place.
   Solution: place crumpled newspaper and kindling on top of the sawdust, or use the liquid barbeque lighting fuels.
b) Flaring, as the wind takes hold and caused the clay to crack.
   Solution: Tighten up all the loose gaps in the structure that had been left to allow sufficient draught for the sawdust to be ignited.

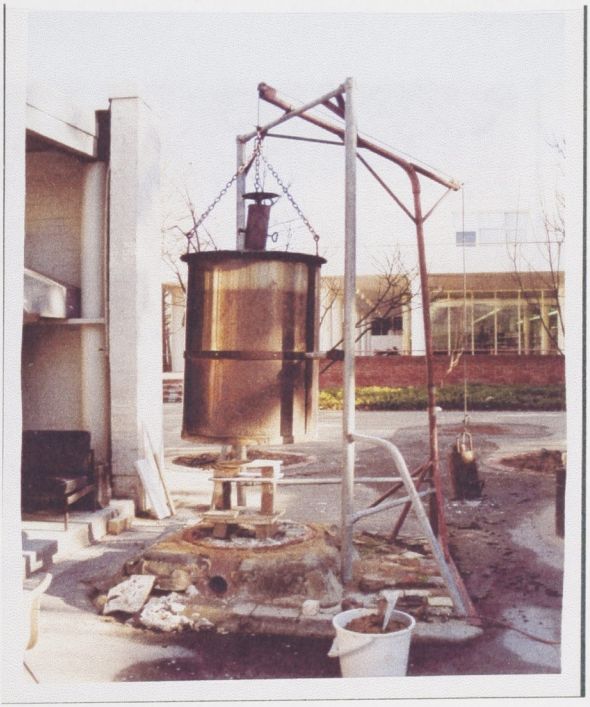
You must allow the kiln to cool sufficiently before removing the blackened objects.

Sawdust firing in a brick chamber.

Sawdust firing within a large metal bin.

- **Metal Bucket Firing within a Top Hat Raku Kiln**

This low technology firing requires a non-galvanised metal bucket to cover the work prior to firing. Many fuels work in this firing and for this reason, I achieved good results in a gas-fired kiln. A 1-to 2-inch bed of sand serves as a base, which helps seal, the metal bucket to create a reducing atmosphere. Well-dried cow manure and sawdust is placed 1 to 3 inches deep on top of the sand. (It is best not to have the pieces touch the dung or sawdust because it sometimes causes blistering or undesirable flashes). Stack the work on kiln furniture or metal grates on brick stand. Cover the structure with the metal bucket and then fire to cone 012 in 30-45 minutes and cools within 2 hours. The black coloration of a fired work is achieved by virtue of carbon impregnation. As the firing chamber heats up, the internal fuel (dung and sawdust) ignites, liberating carbon. The fired work has an even black or matt black finishing.



The picture of the particular top hat kiln used.

- **Black Firing**

Black firing is done in a tightly sealed chamber whereby works are subjected to a gas fuel until temperature reaches 700°C. Upon reaching this temperature, the burner is immediately shut off and the kiln is sealed tightly with clay slurry. Sump oil is employed at this dramatic moment too, which create reduction atmosphere in the kiln. Thick smoke is seen coming out of the chamber and I avoid this by sealing any visible holes or else the desired reduction is not achieved. Dripping is stopped when the temperature dropped to 300°C. Inspired by Alan Watt's works, attempt was made to achieve unusual flashings by introducing soda (baking soda in my case) as well as copper carbonate into the kiln when the temperature reaches 600°C and above. I employed this by wrapping small amounts of soda and copper carbonate in aluminium foil and dropped them into the firebox as close to the hottest part of the flame as possible.

The sealed black firing kiln

FINDINGS

• White Hand building Clay

Type of Terra Sigillata	After Bisque Firing	After Oxide Wash Firing	After Reduction Firing
Natural Terra sig.	Tan	Brownish	Black
+ Copper Oxide	Greenish	Red	Jet Black
+ Copper Carbonate	Light Turquoise	Dark Brown	Black
+ Red Iron Oxide	Reddish	Dark Brown	Black
+ Black Iron Oxide	Brownish	Dark Brown	Black

• White Raku

Type of Terra Sigillata	After Bisque Firing	After Oxide Wash Firing	After Reduction Firing
Natural Terra sig.	Tan	Brownish	Black
+ Copper Oxide	Greenish	Red	Black
+ Copper Carbonate	Light Turquoise	Brownish	Matt Black
+ Red Iron Oxide	Reddish	Dark Brown	Black
+ Black Iron Oxide	Brown	Dark Brown	Jet Black

• Red Raku

Type of Terra sigillata	After Bisque Firing	After Oxide Wash Firing	After Reduction Firing
Natural Terra sig.	Light Brown	Brown	Black
+ Copper Oxide	Brown	Dark Brown	Black
+ Copper Carbonate	Brown	Reddish Brown	Black
+ Black Iron Oxide	Brown	Dark Brown	Black
+ Red Iron Oxide	Red Brown	Dark Brown	Black

CONCLUSIONS

What I like most about this research with terra sigillata and its related low technology reduction firings is its drama. I almost become an alchemist, having to know the chemistry but also retaining some extent the magic, because the chemistry is incomplete and there are so many variables. Beside this, of course, is that I am working with the basic elements of earth (clay), fire and water. With a simple firing, I could transform the pots into something unique and wonderful. I have to strike a fine balance between being a master of the firing and its slave as well. It is fascinating and all-embracing situation, which no other form of making, for me anyway, can match.

The unpredictability of it all makes unpacking the kiln even more exciting. You just do not know what is in there: you feel incredible elation if it is right and acute depression if it is wrong. But you can always refire depending on the type of reduction, which the piece has been subjected to. I could also still produce more, to rectify mistakes or to capitalise on a new triumph. The best pot is the next pot; the best firing is going to be the next one. If one is clever enough, you must have learned from the last one. If half a dozen people, using exactly the same materials, fire their kilns exactly in the same way, there will always be a different pot from each firing, because the flames never touch a pot in the same way: every pot is unique. Each firing is a new and different experience. This is what I find so attractive about terra sigillata and the low technology reduction firings.

WORK PROPOSAL

Aims/ subject of the proposal

As teacher, I wish to develop a module for teaching:

a) To develop methodology appropriate for use upon my return to Malaysia
b) Interested to explore 'Low technology' relating to:

- Method of firing especially, black firing and pit firing
- Decorative surfaces appropriate to the above firings: such as Terra sigillata, soluble colorants and colour oxides

c) Series of form fired under the above-mentioned condition with different surface treatment

Research / working process

There has been a number of writing on various low technologies firing probably but none make comparison between them. I intend to evaluate the success of each firing method with respect to specific surface treatment. I see my research being a specific use for potter artist and my student in Malaysia. I greatly hope it will help to invigorate or revive local traditions in a way appropriate to contemporary practitioners.

The methodology, if not the materials are replicable to artist everywhere herewith to work with low technology ceramics.

Methods and Materials

I will prepare a series of work using red raku clay body, subjecting them to low bisque, refired with washed oxide. I will also fire some of these refired pieces through black firing method.

I will research materials further from articles and writings on contemporary low technology as well as historical examples of this kind of work.

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Malaysia
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Education

2000-02	Candidate, Master of Arts (Visual Arts) - Coursework School of Art, National Institute of the Arts, ANU
1984	Diploma in Arts and Design - Ceramics Institute Technology MARA, Shah Alam Selangor, Malaysia

Selected Exhibitions

2001	Made in Canberra, Back to Back Galleries, Newcastle
2000	Passion, Chancellery Hall, Universiti Malaysia Sarawak
1994	Melanau Spiritual Images, Holiday Inn Kuching, Sarawak
1993	Malaysian Textiles, National Art Gallery, Kuala Lumpur
1993	Distant Dream Revisited, Holiday Inn Kuching, Sarawak
1992	Anthromorphic, Holiday Inn Kuching, Sarawak
1984	Diploma Show, School of Arts and Design, ITM Shah Alam

Professional Experience

1998-00	Teaching, Faculty of Applied and Creative Arts, UNIMAS
1994-98	Running a ceramics studio, Kuching
1989-94	Designer, State Economic Development Corporation, Sarawak
1988	Art Teacher, Miri, Sarawak
1987	Free-Lance Artist
1984-86	Studio Manager cum Designer with a publishing firm, Kuala Lumpur

Grants

2000-02	Pursuing MAVA at ANU, SLAB - Jabatan Perkhidmatan Awam (JPA) Malaysia

Special Project

1992	Public Sculpture (5 units), Kuching City Garden

Public Donation

June 2002 One piece of work for fund raising auction - The Canberra Boys Grammar School, Red Hill. Part of the taking goes to the Smith Family Learning For Life Program.

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