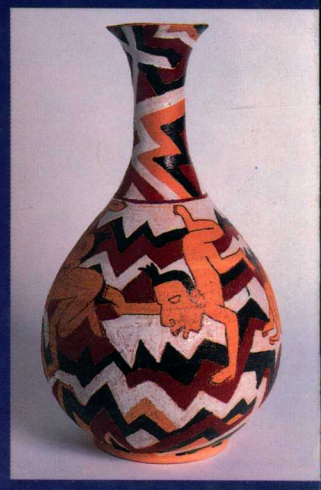
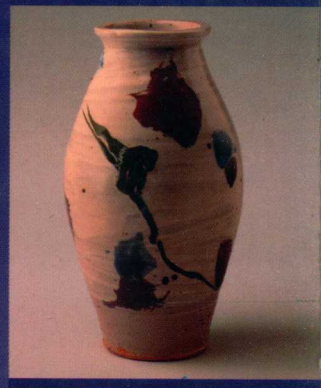
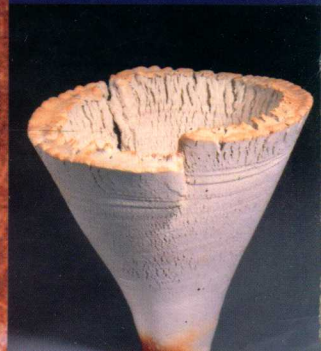
WORKING WITH CLAY

An Introduction

Susan Peterson







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Susan Peterson

Professor Emerita, Hunter College at the City University of New York

Laurence King

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FRONT COVER (*main picture*) A clay pot in the wet state by Susan Peterson; (*insets, top to bottom*) Aztec bottle by Michael Frimkess; Hakami pot by Warren MacKenzie; detail of Helen Slater's wall piece; porcelain vessel by Fritz Rossmann

BACK COVER (*left to right*) Traditional coiled pot; carved celadon lidded jar by Elaine Coleman; black pot by Maria Martinez, 1935

FRONTISPIECE Hand-built coiled pot, burnished, bonfired, and coated with piñon pitch, by Alice Cling, Navaho potter

TITLE-PAGE Detail of Jun Kaneko's stoneware plate showing his technique of "striking", a process of reducing the kiln atmosphere on the cooling cycle of the firing at 1300°F to produce the copper red line

CONTENTS PAGE 5: *left* Village potter, India; *center top* Floor vase by Susan Peterson; *center below* Lucy Lewis' fine-line pot; *right above* Kirk Mangus, "Dead Soldier"; *bottom right* Detail of wall by Robert Sperry

CONTENTS PAGE 6: *top left* Ernst Häusermann's pyramid sculpture; *bottom left* Robert Brady's 5 ft tall coil sculpture; *center* Bruria Finkel, "Introspection"; *right* Delft plate, Holland, c.1500

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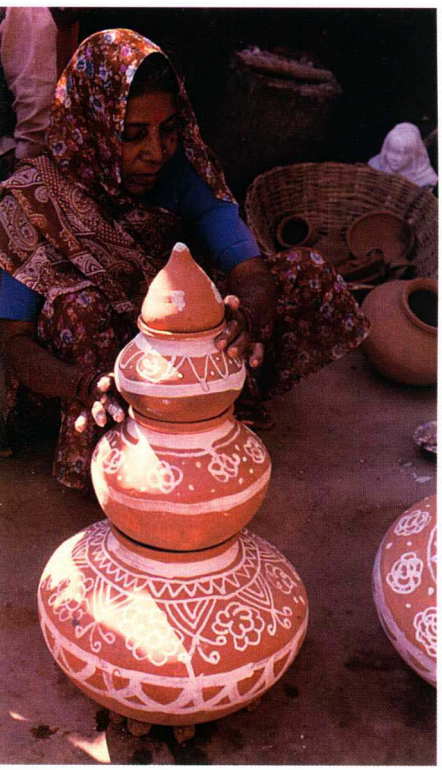

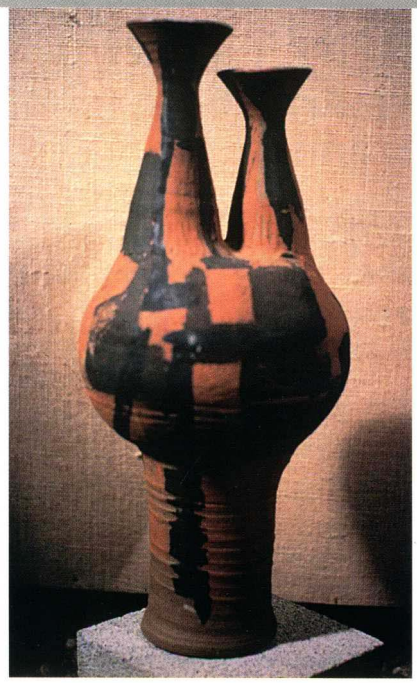

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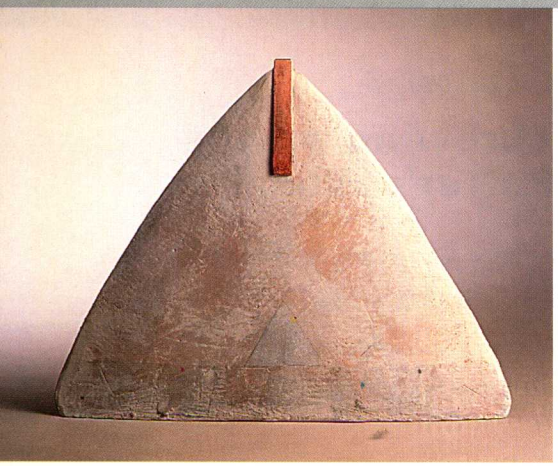

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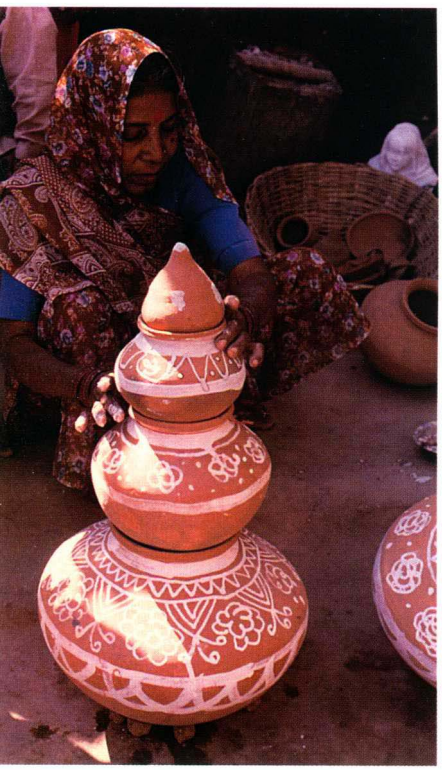

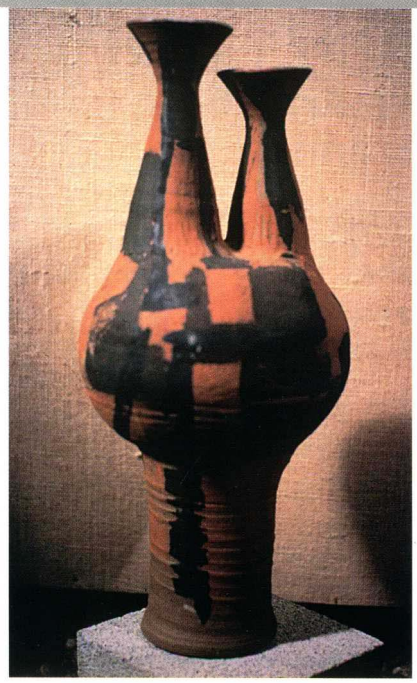

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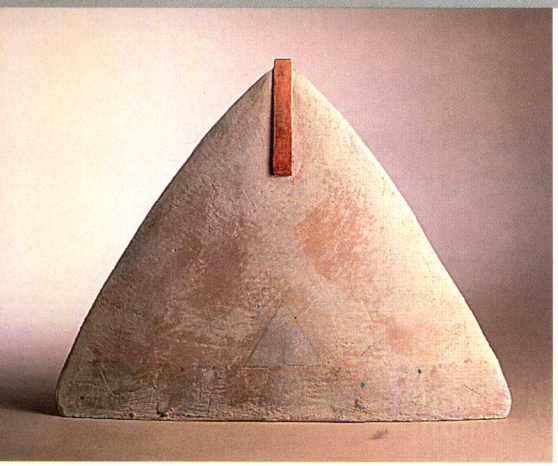


PREFACE

I have written this book to inspire and to teach the beginner about working with clay through colorful photographs and anecdotal descriptions of the various processes involved. I also aim to appeal to the collector, who can make use of this analysis to gain an indepth perspective on historical and contemporary ceramics. The practical photographs are set off by copious illustrations of what can be achieved, from everyday items such as plates and bowls to international examples of the potter's art such as sculpture and site installations. Beginner students and all those who appreciate the art of ceramics will find many illuminating insights into this endlessly fascinating world.

My long career as a professor of ceramic art and a practicing potter has enabled me to pass on the benefits of my experience to students and aficionados at all levels. I have five books in print, apart from this one: *Shoji Hamada, A Potter's Way and Work*; *The Living Tradition of Maria Martinez*; *Lucy M. Lewis, American Indian Potter*; *The Craft and Art of Clay*; *Pottery by American Indian Women.* I have a video in circulation from film made at Hamada's studio in 1970 when I did the notes for his book, and a series of 54 videos on ceramics, called "Wheels, Kilns, and Clay." Thanks are due to the many artists all over the world who have helped me with suggestions and by sending me their own examples. I am grateful to Laurence King, Lee Ripley Greenfield, Judy Rasmussen, Janet Pilch, and the staff at Calmann & King in London who package the book; to Elisabeth Ingles, my editor, and Karen Stafford, who designed the book; to Craig Smith, who photographed the process shots of me working in my studio, to Bud Therien at Prentice Hall, and to Overlook/Viking. I also acknowledge the help and encouragement of my three children, Jill Peterson Hoddick, Jan Sigrid Peterson, and Taäg Paul Peterson, plus five grandchildren, Annah Gerletti, Kayley Hoddick, Alexander and Calder Peterson, and Augustus John Gerletti.
I would not have got so much done without assistants Nori Pao, Judith Schreibman, and Tony Mulanix.

Finally, a fond remembrance and deep gratitude to my deceased parents, Iva and Paul Harnly, and my late husband Robert Schwarz Jr.

SUSAN HARNLY PETERSON
Carefree, Arizona, June 1998

THE SAFETY ASPECT

It is important to be aware that there are potential hazards involved in creating ceramics. Common sense is essential.

▲ *This symbol is used in the Table of Contents to indicate potential hazards in the processes described.*

1. If you have allergies or respiratory problems, wear a mask when handling or working in the same room as powdered materials and clay dust, and while mixing glazes or spraying. Have a respiratory check every few years if you work in ceramics regularly.
2. Wear surgical gloves if you have skin troubles.
3. Keep all working areas well ventilated, preferably by opening windows. Gas or oil-fired kilns are best set up out of doors.
4. Never light a closed kiln, only a partially open one.
5. Do not use electric tools or switch on electric kilns with wet hands, or if the tools are damp for any reason.
6. Some glaze formulas are highly toxic. Take great care with glazes that have cadmium, chrome, barium, and lithium in the formula; treat lead-based glazes with extreme caution or, better still, substitute non-lead formulas. Do not brush face or handle food until you have thoroughly removed all trace of glaze from your hands, and do not bring food or drink into the studio. Dispose of toxic mixtures sensibly; do not pour them down the drain where they will contaminate water supply (this is illegal anyway).
7. Remember that toxic fumes may be given off during firing; excessive reduction in a kiln produces the deadly gas carbon monoxide, and requires good ventilation.
8. Take basic precautions around all machinery; watch for sharp edges; keep hair, long sleeves, and so on, tied back.

1

THE WORLD OF CERAMICS

CLAY AND POTTERY

The art of the potter dates from the beginning of humankind. From earliest times people knew that a certain kind of "mud" could be molded into any shape and would retain that shape on drying. Some time later in pre-history the potter understood that fire would harden the clay shape so that it was no longer fragile and would hold liquid. For 30,000 years or more, the working properties of clay and fire, and the necessary processes and tools, have been directed toward specific functional needs such as pots and water pipes in most traditional societies of the world.

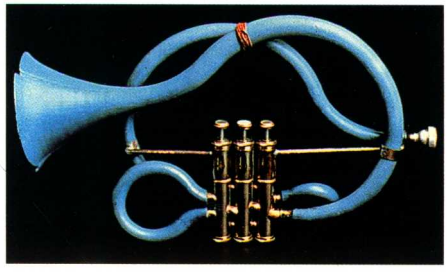
Today these age-old concepts and methods are still valid. The artist-craftsperson or anyone who explores clay-work uses the same materials and techniques as our long-ago ancestors. To work in ceramics is to know the whole world and to learn about all times and cultures.

In recent years scientists have discovered new elements to be added to the atomic table, and have reexamined old ones. The new knowledge has expanded our understanding of what constitutes ceramic products. In addition to the familiar brick and flowerpot of low-fire ceramics, called "earthenware," the utilitarian jugs and heavy clay products produced in "stoneware," and the fine, dense, sometimes translucent clay body termed "porcelain," many new products exist today of even higher-fired ceramics made of non-clay refractory materials.

The space age is the ceramic age. Computer chips, airplane parts, machine components, submarines, and space vehicles are routinely made of high-temperature ceramics. We live in the age of ceramics, no longer in the age of metals. Ceramic materials are the materials with the highest melting point known on the face of the earth.

The potter works in a temperature range of 1300° to 2500° F (700° to 1370° C), and space scientists, with their esoteric ceramic materials, probably (it's classified information) use several thousand degrees of temperature higher. Here we are concerned only with the potter's range.

Geological types of natural clays and the temperatures to which they are fired in kilns are the two determining factors that produce the common coarse brick or the delicate piece of porcelain. A brick will never be a piece of porcelain because the type of clay is different, and usually the firing temperature is different too.



FACING PAGE Ching dynasty stools, Suchow, China

RIGHT Clay can do many things, including make musical instruments that really play: Brian Ransom's ceramic flugelhorn, earthenware, mixed media

Kirk Mangus, earthenware heads, 10 ft x 12 ft installation

Nino Caruso, "Dionysos Arch with Bacchante," stoneware installation, Italy

Kripal Singh, porcelain plates with overglaze enamel painting, Jaipur, India

As any kind of pure clay dries, it shrinks and becomes hard. Clay has no real strength until fired in "red heat" (1300° F or 700° C) or above. In the firing process the clay mass fuses into a compact structure, with the glaze and decoration forever fired in, making a product of strength and durability that will never change. Because of this fact, a piece of ancient pottery appears today as fresh as when it first came from the fire.

THE AESTHETIC OF CONTEMPORARY CLAYWORK

At the beginning of the twentieth century ceramic products were much used in daily life, but objects of clay were now taking a more important place in our aesthetic lives. Ceramic vessels, bricks, mosaics, and even huts had been part of the human environment for thousands of years. The Chinese developed a porcelain clay body and glazes about 3,000 years ago; the Egyptians probably made the first potter's wheels about 5,000 years ago, and developed glass too; then came a long period during which most of the world used the low-fire rust-colored clays common everywhere for utilitarian wares, while the Asian countries used their white clays.

Marco Polo carried Oriental porcelains to Europe in the thirteenth century, which prompted Europeans to look for white clays and to try for the density and translucency they saw in the porcelain wares with cobalt blue brush decorations.

The Persians prospected cobalt and began to paint blue decorations on low-fire white clays; the Dutch and later the English took over this technique and transformed it into Delft ware. The Persians also developed luster glazes, and the Italians found that metallic oxides could be painted on top of white glazes to give fused lines or crisp drawings, a technique called majolica.

Bernard Palissy in the 1560s in France experimented, and J. F. Böttger in Meissen, Germany, succeeded in making porcelain about 1710. In 1760 Josiah Wedgwood discovered how to make a porcelain clay body from English china clay and bone ash, and to fire it to high density. These discoveries yielded varied aesthetic results according to what each country believed was important in ceramic design.

After the furious pace of mass-production resulting from the industrial revolution that was completed by the 1850s, history witnessed a period of revolt against everything looking alike. William Morris, in England, was one of the first to call for a return

of the individual craftsperson and craft techniques. In the 1860s he reestablished the "workshops" and "guilds" we had seen in Renaissance times, and craftspeople began to collaborate. In 1925 a large German workshop, the Bauhaus, inspired a revolutionary new trend in design that is still influential today; the school at Weimar laid emphasis on ceramic art among other art forms.

Before and after World War II, various countries began to investigate new ideas and to become known for their own design criteria. Scandinavian design, especially that of Sweden, promoted bright colors and simplicity of form; the ritual of the tea-ceremony emphasized the role of clay in Japanese culture; folk art, particularly ceramics, in such countries as Mexico and other parts of Central and South America, Morocco, Turkey and the like, exerted great influence on their other arts. Europe in general responded to the Bauhaus influence, while the trend in the United States was toward Abstract Expressionism in painting and in craft. All these trends continue today.

Early American ceramics came with the European settlers after 1620. From that point up to the 1800s ceramics began to be made in small potteries on the eastern seaboard: slipware, salt glaze, Delft, peasant redwares, luster, some with an aristocratic aesthetic.

Nature is a design influence:

1. Waterlilies in Saigon
2. Golden Barrel cactus, California
3. Detail of Arizona cactus

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Ceramic chemistry in the New World embraced the three types of wares already current across the Atlantic ocean – earthenware, stoneware, and porcelain.

The western coast of the United States was influenced by Spanish and Mexican earthenwares, and by the porcelains brought by early Chinese settlers. The USA became a melting pot of world clay styles and cultures, until in the early 1950s a change occurred, causing a revolution in ceramic art that still goes on.

In California, about 1953, a young Pied Piper named Peter Voulkos began to handle enormous chunks of clay in a radical manner on a potter's wheel and to alter the shapes created on the wheel by cutting them, slashing them, beating them, and combining them into large sculptural forms. Better electric wheels, able to hold hundreds of pounds of clay, were built, and fast-firing updraft kilns six or more feet tall were developed to fire the huge hollow ceramic sculptures and vessels that other artists were also tackling.

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Surfaces reflecting the design ideas of nature:

1. Detail of weave from a clay basket by Rina Peleg
2. Detail of stain drawing with hypodermic needle over a coiled, glazed surface by Bruno Lavadiere
3. Unglazed colored paperthin porcelain layers, detail of a sculpture by Marylyn Dintenfass