

THE STUDIO
POTTER

DECEMBER 1990
VOLUME 19 NUMBER 1



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COVER

Warren MacKenzie and his pottery. Photograph by Gerry Williams.

IN THIS ISSUE

Warren MacKenzie: *Potter's Potter* is the feature article of this issue. Long admired for the purity and simplicity of his pottery, Warren MacKenzie also has influenced and inspired several generations of potters with his articulate commitment to functional pottery during times of aesthetic change in our field. Warren was interviewed at Haystack School of Crafts, Deer Isle, Maine, in August 1990 while he was teaching a session there. We are grateful to Mary Nyburg for facilitating the interview. All photographs of MacKenzie's pots were provided by Warren MacKenzie.

Deep Nature is the major theme of our magazine. The title "Deep Nature" was suggested to us during a conversation with West Coast sculptor John Roloff. Deep ecology came into our consciousness quite precipitously one afternoon at Penland School in North Carolina while attending a seminar on environmental issues led by potter and author **Paulus Berensohn** who described his seminal meeting in Australia with philosopher **Warrick Fox**, writing and teaching in Tasmania on deep ecology. Paulus' enthusiasm for the subject challenged us to devote our next issue to the subject of deep ecology. We invited him to be guest editor to help us do the job.

Paulus Berensohn is that rare individual who practices what he preaches: his lifestyle is consistent with the level of his aesthetic sensitivity. A former dancer, author of *Finding One's Way With Clay*, teacher and potter, Paulus brought wide intellectual and personal relationships to this issue, which he generously shared with us. **Douglass Rankin** and **Will Ruggles** live near him in North Carolina and they conferred closely on their article. **M.C. Richards** is a longtime friend and collaborator of Paulus Berensohn, as are **George Kokis**, **Jane Kessler**, **Nick Joerling**, and **Shirley Tassencourt**. **Graham Marks** of Cranbrook Academy has articulated strong environmental concerns both at NCECA and through direct personal action. **Gary Snyder** is a leading spokesperson for the environment; his *Turtle Island* was an early and powerful polemic on behalf of ecology. **Barbara Gonzales** came to our attention through a conversation with Susan Peterson. **Rod Fujita** is a scientist with the Environmental Defense Fund in New York and was introduced to us by Carol Eddy, who is a ceramic artist in New York, works for the EDF, and is a Studio Potter board member. During his 1990 workshop tour in this country, David Leach informed us of his son **John Leach's** activities on behalf of the environment in England, which have received much press coverage there. We invited John to be included here.

Richard Zakin's article is adapted from his *Ceramics: Mastering the Craft*, published by Chilton, as is the article by **Robert Tichane** from his book *Ceramic Bodies*.

We wish to acknowledge our grateful thanks to **Skutt Ceramic Products** of Portland, Oregon for their generous grant to cover the school teachers in this issue.

We also acknowledge with deep thanks a grant from the **National Endowment for the Arts** to assist with production expenses on this issue.

THE COMING ISSUES

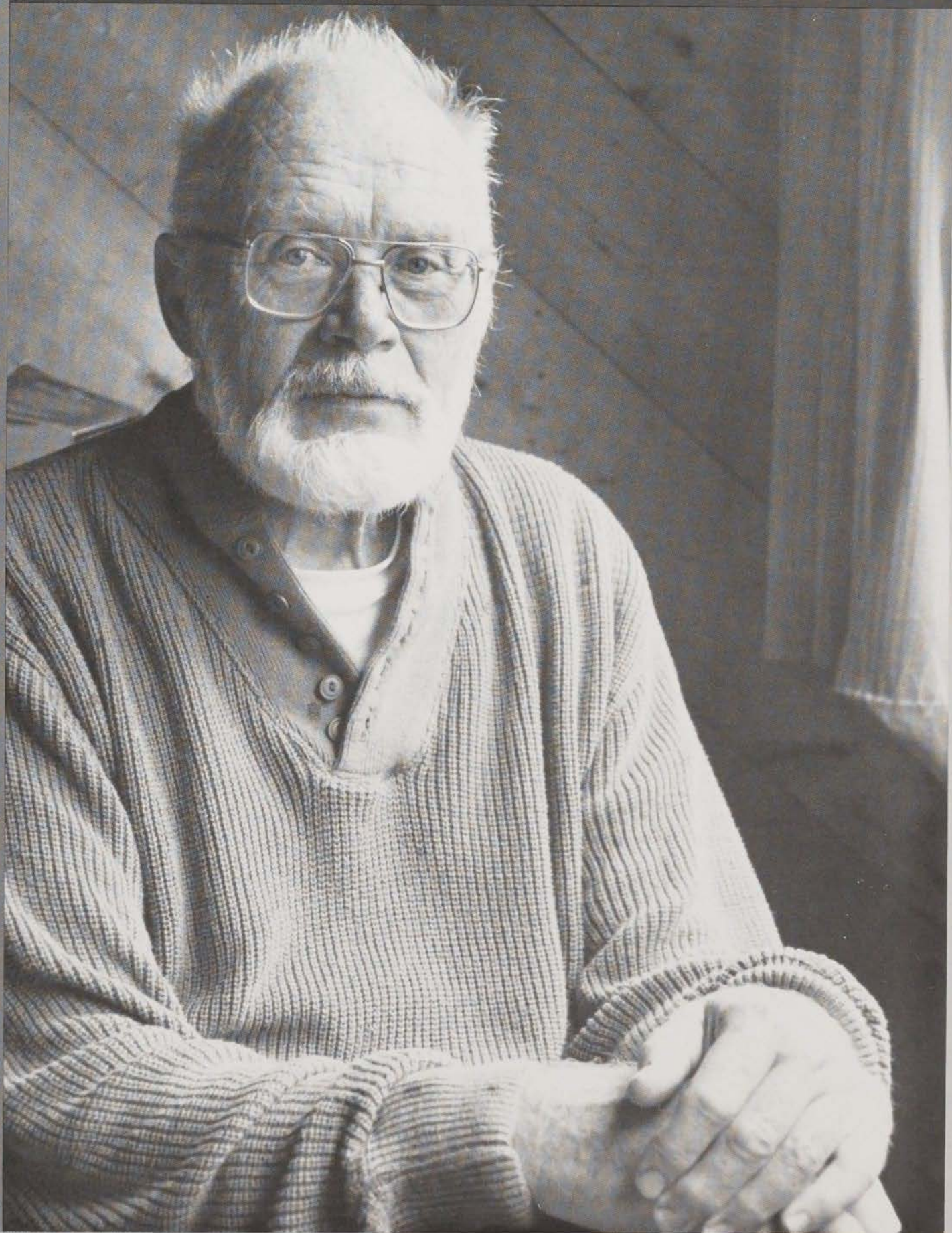
The life and work of Franz Wildenhain, his papers, drawings, and photographs from the American Archives of Art. Structural elements of classical pottery No. 2: The Lip. Potters of Indiana. Monograph on the Cowan Pottery from the collection of the Cleveland Museum of Art. Women and Clay: a survey of the work and thoughts of women clay artists, guest edited by Clary Illian.

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Warren MacKenzie: Potter's Potter

An Interview

Bernard Leach stood and looked as we showed him samples of our pottery and photographs of our work we had brought to promote our request for apprenticeships at his St. Ives pottery in Cornwall, England. For a long time he said nothing. Finally, he straightened up and said, "I'm sorry, we're all filled up."

My wife Alix and I had saved enough money to travel to Europe during the summer of 1949. We had read Leach's *A Potter's Book*, and knew that we desperately needed apprenticeship training. We had written to Leach and told him we were coming, to ask if we could discuss apprenticeships with him.

We secured a room in town and told Bernard we would be in St. Ives for two weeks. Did he mind if we visited the pottery to learn from observation? He said, "No, that was quite all right."

So we walked up the hill to the pottery every day and hung around and asked questions. Toward the end of the two weeks, they fired the large oil-burning kiln in use at that time. Leach was still sitting a kiln watch during these firings, and his watch came on between one to four in the morning. He said to us, "Do you want to come up and talk on this last day you will be here?" We answered, "That would be wonderful, we appreciate that."

We caught a quick nap and at midnight trudged up the hill to the pottery, where we sat and talked with Bernard. We talked until eight in the morning about the state of the world, about politics, economics, social issues, history. In the end Bernard said, "Well, I've changed my mind. We're all filled up now, but you can come back a year hence and become apprentices."

We were disappointed at his initial rejection. We had thought we were passable as prospective apprentices, but much later realized that his first judgment was made on the basis of our work, and the second was made on the basis of personal contact. He was looking for someone who could fit into the pottery group, adapt to its strange circumstances, and who might have concerns for larger interests.

Alix and I returned to the United States for a year of teaching, but, by the spring of 1950, Leach had himself come here to tour around the country doing a series of workshops and bringing an exhibition of his work. At one of his stops, he spent a week at St. Paul, Minnesota, and we made arrangements to go back to England on the same boat with him in June. This was before air travel was common.

The slow trip across the Atlantic with Leach was marvelous. We sat and talked and read together for seven days. When we arrived in Southampton, Bernard asked, "Do you have a place to stay in St. Ives?" We said, "No, but we'll get a bed and breakfast some place." He said, "Would you like to stay with me?" He had just separated from his second wife, Laurie, and was living alone. We said, "Of course, we'd love to share your house!" And we did.

I believe Bernard truly liked to interact with people. He was a sociable person, and that was probably why we were asked to share his home. He couldn't stand going back to an empty house, and it worked out nicely for us.

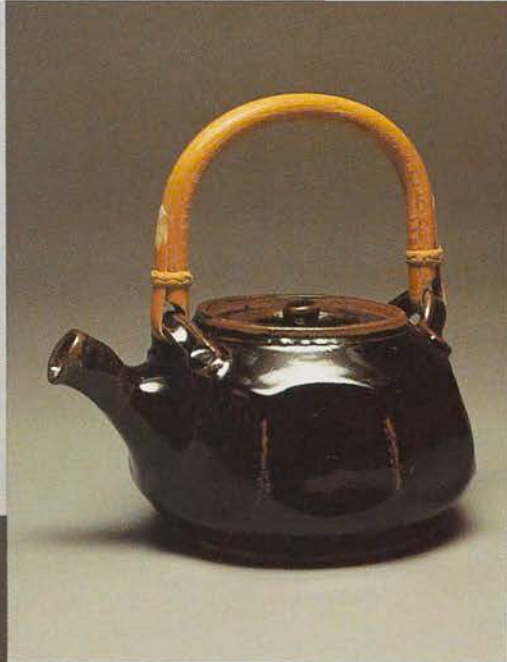
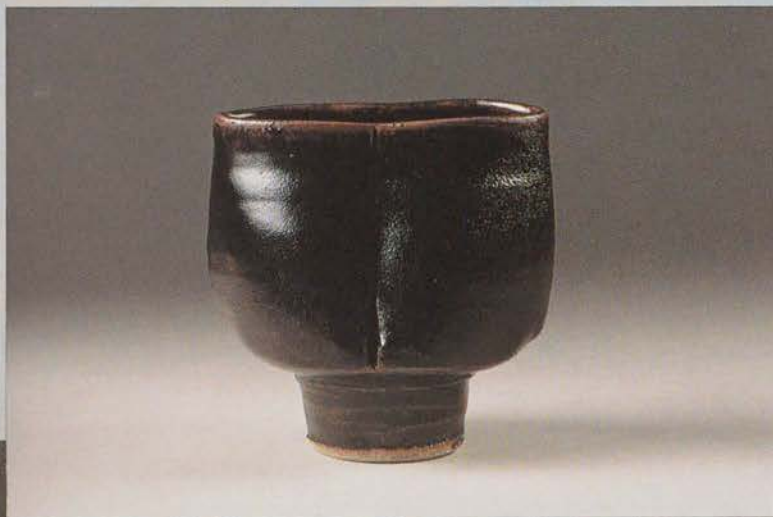
We shared his house and worked in the pottery for two and a half years. It was a marvelous experience. We were very young—I was twenty-five, Alix twenty-six—but Bernard treated us as people who had some worth. But more than that, we interacted with him on a daily basis and, by living with him, lost the awe of the master common to most apprentices. We were able to disagree and argue with him, sometimes quite violently, about the way things were going at the pottery. We were Americans and had firm ideas.

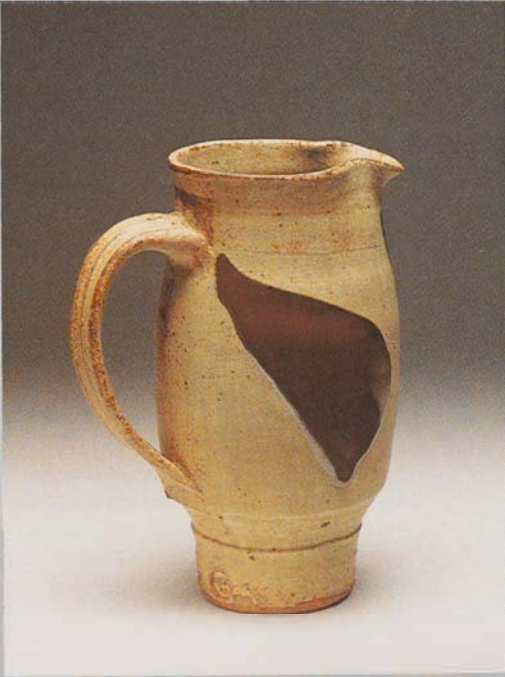
Bernard was a wonderful, sympathetic person, and his thoughts centered around pottery, which was his whole life, and which is probably why his marriages failed. It must have been difficult to be married to a person who thought, talked, and drew pots eighteen hours a day. He would sit down at breakfast, eat, and upon finishing, push the plates to one side, reach into his pocket, pull out a little scrap of paper and begin drawing ideas for pots. He just could not sit there doing nothing. One of his tragedies was that he was an incredible draftsman and could delineate three-dimensional form on paper with a simple stub of a pencil, and stick them into his pocket, pulling them out when he wanted to make a pot. But he solved all his creative ideas in his drawings. The creative act had already occurred.

Bernard was also a Victorian gentleman. He could move anywhere in British society with ease. He was proper but not stuffy and never took off his tie. In fact, Janet, his third wife, once said she had seen Bernard, dressed in tweed jacket, gray flannels, heavy shoes, white shirt and tie, playing with his grandchildren at the beach. As the day wore on, his shoes and socks came off, then his jacket, his sweater, then he rolled up his pants to wade in the water with the children. But his tie never came off.

He was an amazing person. When I was in England just before he died, I found he could not see, could not hear very well, and certainly could not pot. Yet we had a marvelous time talking together. While I was there he received a request for a short magazine article. He thought about it for perhaps an hour, then turned on a tape recorder and dictated the article. His secretary typed it up, and when it came back, he changed only about two words in the whole article. He had a talent for speaking in whole sentences with a continuity that expressed exactly what he wanted to say.

I happened to be in Kansas City, Missouri, the day I was born, February 16, 1924. My parents were second-generation Scotch, and I admit to inheriting certain qualities of thriftiness and frugality as well as a flamboyant need to spend money on things I really wanted.





We moved to the small Midwest suburb of Wilmette, just north of Chicago, when my father was transferred from Philadelphia. My two brothers and two sisters and I all went to the excellent high school there and were essentially too immature to know how good it was. The art instructors taught us art history, musicology, ethnic music, painting, and printmaking, and although at the time we thought it was all just crazy, somehow it stuck with me for the rest of my life.

I had decided to become a painter because that was what you did if you were an artist. My family tried to dissuade me, but fortunately one of the high school instructors persuaded them to let me go ahead and be an artist because "he's going to do it anyway, so stop arguing." As a result, my parents became supportive until some time later when I decided to become a potter. Being a painter was O.K., but to push clay around was not too good.

I enrolled in the Chicago Art Institute, but World War II came along and I was drafted into the army where I worked in a graphics studio, printing charts. Later I was shipped out to Japan where I was attached to a printing plant in Yokohama. The Japanese ran the plant and produced beautiful color reproductions with abandoned and primitive equipment they had refurbished. All the Americans needed to do was keep their hands off and let the Japanese run things.

What a lost opportunity Japan was to me because I was still not interested in pottery. When I was discharged from the army in the spring of 1946, I returned to pick up my schooling at the Chicago Art Institute. All the painting classes were filled so I started out in the ceramics class.

I will be frank with you: it was a terrible class. Looking back, I realize with horror that never once did we discuss aesthetics or the quality of work. Our instructor, who had studied with Charles Binns at Alfred University, could handbuild, but she could not throw on the wheel and left it to her assistant to demonstrate throwing. Her assistant couldn't throw either because she had learned from the previous assistant. We spent six weeks coiling and scraping a six-inch handbuilt pot. It was ludicrous.

Fortunately, in my class were a dozen young people who, for various reasons, had drifted into ceramics from painting. One day one of them discovered *A Potter's Book* by Bernard Leach and brought it into class. When we read it, it made much more sense than what we were doing. We began to sneak into the studio on the days when the instructor was not there and attempt to do what Leach told us we should be able to do. Of course, we couldn't and made a mess with some terrible pots, but we did begin to get a sense of the possible.

My wife Alix was a year ahead of me—in fact, she was the assistant who taught us to throw—and we were married before we left school. She taught third-grade while I finished up my schooling, and then we looked for a job together. The only job offer we received was from the St. Paul Gallery and School of Art in St. Paul, Minnesota. We were hired to set up the craft program and I taught painting and design, while Alix was to teach ceramics and drawing. We worked in the studio on the days when we were not teaching and, because of my army experience, began to make and sell silk screened fabric designs.

It only took us six months to realize that we were really not qualified to teach ceramics and run a pottery because our

training was inadequate. We could drag up the wall of a pot and passably push it around, but the work was pretty unformed. Not only that, we were diddling around with painting, diddling around with fabric, jewelry, in addition to pottery. We had to make up our minds what we wanted to do and settled on ceramics. Since we were not well trained, we also decided to seek further training elsewhere.

W

e were the first American apprentices at the Leach pottery; the others were from England, Scandinavia, Germany—all over, but no Americans. When we first arrived, Bernard and David, his son who was running the pottery, talked together when we first arrived, and must have said to each other, "Well, these Americans, they've gone through art school training in the States, they've been teaching for two years, they've run their own pottery, surely they know how to make pots."

Accordingly, they assigned us to what was called the Making List. Every thrower in the pottery had a list of the pots to be made for the next firing. These were standard shapes worked out over the years, for which there was a drawing, the weight of clay it took to make each piece, and the size when wet. Since we were new to the shapes, we were given a very short Making List and an easy selection of shapes.

I will never forget my first assignment: fifty half-pint beer mugs, fifty open soup bowls, and fifty what they called squat jugs, little flat jugs. I started off on the beer mugs and made several boards of what I thought was the correct shape. I took them to Bill Marshall, the best thrower in the pottery, who was assigned to oversee our training, and said, "Bill, how are these?" He looked at one and said, "Well, that's too wide in the mouth," and put his finger through it; "that swoops too much," and put his finger through it; "and that's too stiff and upright," and put his finger through it. There was something wrong, of course, with every one of them. I made six hundred beer mugs before forty or fifty were allowed to pass the minimum quality standard. We had not been trained, either in school or by ourselves, to observe accurately, and to put the clay where we wanted.

It was a shock to learn we had much simple, technical training to go through before we gained some degree of confidence and ease. Gradually, our Making List increased, as did the complexity of forms we were assigned.

If we had not been living with Bernard, I think we might well have opted to leave St. Ives at the end of six months. By that time we were essentially working in a production pottery and we began to get into some rather intense battles with Bernard over our perception that the pottery we were working on was not the pottery he had written about in his book, which was why we had come to England. In his book he had talked about the creative act and individual expression, whereas in the pottery that simply didn't exist.

Looking back on it, I now realize why it couldn't exist. They had to have a certain income to sustain the people working in the pottery. Apprentices were coming in periodically from year to year; a dozen people worked in the pottery, only five of





whom were throwers, the rest were in administration. All were salaried in a socialistic manner according to need, not skill. For instance, the man who made clay and packed all the pots got the same salary as Bill Marshall, who was the best thrower in the pottery. Bill was unmarried, Horatio was married and had several children, so there was a need for Horatio to have a decent salary. Also, profits were divided up and shared according to each person's salary.

This meant that the throwers had to produce salable items in response to mail order requests from shops which expected a certain quality of work. Just anything would not do. That was the reason for the tightness in controlling production.

Two years later, at the end of our sojourn at the Leach pottery, we attended an international conference of potters and weavers at Dartington Hall in Dedham that had been organized by Leach. His friends from Japan, Shoji Hamada and Soetsu Yanagi, had been invited to attend and were there with him.

When we arrived—after a month's holiday in Wales—there were greetings and hugs all around, and the first thing that Bernard said to us was, "Hamada agrees with you." "What do you mean, Hamada agrees with us?" we answered. "Well," Bernard said, "Hamada came down from London to St. Ives and went right into the pottery. He walked around and picked up all the pots, turned them over, handled them, didn't say a word, just circled the pottery. Finally he looked up and smiled

that big smile only Hamada can give, and said, 'Bernard, the best thing that should happen to your pottery, it should burn down.'"

Of course, Hamada could say that to Bernard because they had been the greatest friends from time immemorial, and Hamada had always been completely honest with Bernard. Still, Bernard did not know how to envision a change for the pottery.

When we were on the boat returning to the United States, Alix turned to me and said, "You know, these were the greatest two years of our lives, but we will never run our pottery that way." And we never did.

We returned

to the United States in 1952, the same year that Bernard Leach, Hamada, and Yanagi made their famous trip across America giving lectures and workshops. Actually, it was Alix's idea that since they were on their way to Japan, they might cross America doing a series of workshops. They said, "We'll do it if you arrange it." So she did. The first venue was at Black Mountain College, the second at St. Paul, the third at the Archie Bray Foundation, and the fourth in California.

I was sent by our school to Black Mountain for their two-



week workshop because it had been decided to publish a narrative of all four workshops. At the end of the two weeks there was a critique. I remember it was a beautiful October day, and all the pots brought by participants in the workshop had been laid in a field of grass to be set up on a table and critiqued. Bernard picked up the first pot, looked at it, studied it, then analyzed it, and spoke about its strong or weak points. Pot after pot went up on the table. Finally, someone turned to Hamada and said, "Mr. Hamada, you have not said anything." There was a rather ordinary-looking pot with an uninteresting turquoise-blue glaze on the table, a soft, amoeboid shape without much structure that Leach would have criticized heartily. Hamada looked at it for a long time and finally said, "In Japan there are many pots that are much worse than this."

It was an example of the difference between Leach and Hamada. Bernard was an intellectual whose analyses were of great value to us. He taught us ways of looking at three-dimensional forms and at pots as expressive things. Hamada worked from his gut. I don't know whether he communicated with the Japanese in his home territory, but he was certainly reluctant to do any more than make pots in America.

At the time of their tour, the impact on Americans was tremendous. Since then, however, Leach has become downgraded if not denigrated. Most people who do so forget that their current work is based to a large extent on the work

started by Bernard Leach in the 1940s. I myself would not be doing what I am doing now if it weren't for *A Potter's Book*. When I attended school, it was a time of secrets; nothing was revealed. Leach's book told all, in a frank and open manner, the formulas, procedures, and practices that went into pottery. I still enjoy reading it. It's ancient, and we've gone far beyond it; yet there is not a thing in it that is irrelevant to what we do today.

I do not have a degree from any college or university. I have a diploma from the Chicago Art Institute, but at the time I thought it foolish to take a degree, as I wanted just to work in my studio and who needed a degree for that. However, the person teaching ceramics at the University of Minnesota in 1953 was leaving and, since the head of the department could bring in the people he wanted at that time, I was hired because he liked what we were doing, even though I had no degree. I'm certain our experience with Leach was helpful.

Meanwhile, we looked for a place in the countryside in which to establish our pottery, and found a farm about twenty miles outside St. Paul, near the little town of Stillwater. The

price was right, and I thought the barn could be converted into a studio. We were able to move right in in 1953 and established our pottery.

I started teaching two classes part time at the university. (I did not go on full-time for several years.) Alix, meanwhile, was at home with the first of our children, born in January 1953, taking care of the baby and making pots. We had tremendous cooperation from our St. Paul friends, who cleaned the tons of manure out of the barn. We erected walls, put up insulation, tightened things, bought bricks, and built a kiln.

There were no potters in the area when we first moved there, but gradually more and more people began setting up potteries. I think that teaching at the university created a flow of young people who began to approach pottery as a way of making a living.

It has been said that I have a strong influence on other people's work, sometimes referred to as the *mingeisota* school. This is mostly legend. I am a person trained in the '40s and '50s, and certainly getting on in years. Young people today have completely different backgrounds and are exposed to other influences. It would be wrong of them to make pots like mine, but we can certainly talk together about ideas and about an approach using the functional pot as an expressive form of work. That is what I encourage and what I teach.

I may have shown also that it is possible to earn a living as a functional potter and not be bored with what you're doing. If that encouraged people, I'm happy. But there is no one around where we live, as far as I know, or any former student of mine, making pottery like mine. Some base their work on utilitarian pottery, that is true, but many others have abandoned the pot form completely in favor of purely sculptural work.

I make the same pots today that I always have: pots for people to use in their homes. I make vegetable serving bowls, baking dishes, teapots, pitchers, mugs, drinking vessels, vases, and storage jars. I have an aversion to casseroles, partly because some of the loveliest casseroles are hidden away in storage until they go into the oven. I would rather make a deep baking dish, and, if you want to use it as a casserole, just put tinfoil over it. Otherwise, use it as a fruit bowl.

Most of my work is in stoneware. I use very little porcelain because I am not comfortable in porcelain. It does not produce the gesture I want, that offhand quality of potting. When I do work in porcelain, I usually wedge about ten percent stoneware into the porcelain, to give it an opaque, slightly irregular appearance. This gives a warmth that pure white porcelain does not have.

I mix clay in a big, old dough mixer and store it in plastic barrels. Presently my clay mixture is 100 pounds of Hawthorne Bond fireclay, 100 pounds of Cedar Heights Goldart, 50 pounds of ball clay, 25 pounds of feldspar, and about 80 pounds of extremely fine natural silica sand. I emphasize "natural" because it has a round grain as opposed to crushed silica that has a sharp grain. There is also a small amount of yellow ocher, for a warming color.

Five years ago I bought a Venco de-airing pugmill, and it was the greatest purchase of my life. I spent too much time waiting for the clay to age after using the dough mixer (which aerates the clay), and then wedging it for use on the wheel. Now I mix clay in the dough mixer and can the same day put it through the pugmill, and, if I'm careful, it comes out in a throwable condition. It saves my wrists and shoulders great strain.

I use the same treadle wheel bought back in the '50s in England that was developed at the Leach pottery. It's ideal for the kind of pots I make. After a while you forget the trouble of coordinating foot and treadle as the hands shape the pot. It provides a source of constant power, as opposed to a European-type momentum wheel that coasts to a stop, and I can change the speed at will, depending on what happens under my hand. It is powerful enough to center and throw 25 to 30 pounds of clay without much effort, which is all I use at one time.

Ten or twelve years ago I rebuilt my kiln from the two-chambered one that Alix and I had built originally. The kiln was not wearing out; I was. I had to stoop over while carrying pots or a heavy saggar full of pots, and my back just wouldn't stand it. I decided to make a car kiln and increase its size so that I wouldn't have to fire so frequently. (I don't really like firing that much.) Wanting a car kiln, I had to arrange to pull the car out of one side, since I wanted a second chamber to be used for biscuit. The flames were to go up the front wall, across a long arch, then down the back and out the exit flues.

The first time I fired the new kiln, the flames had cooled considerably at the end of their long traverse, and I found I had cone 14 in the front and only cone 2 in the back. I haven't rectified it. I make use of the temperature differential by using lowfire glazes on my stoneware in the coolest part of the kiln. I'm quite fond of transparent, glassy glazes that look like those with lead. I have gradually improved the firing, and now have a cone 12 to cone 5 differential.

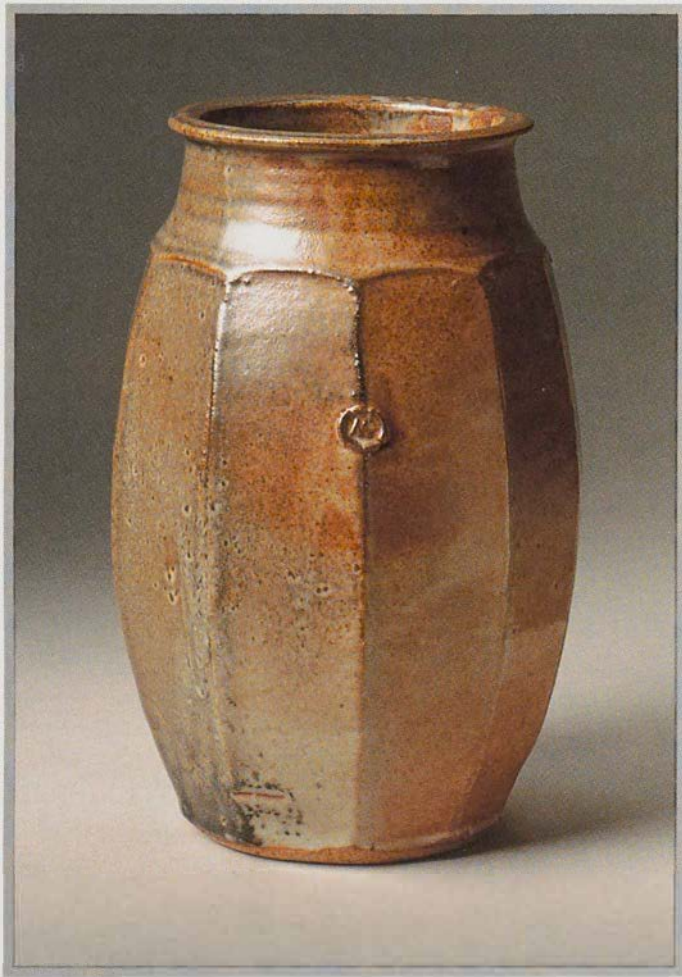
I use a tenmoku glaze, a shino glaze, and several celadon glazes. I don't do an excessive amount of glaze experimentation, feeling that I'm still faced with so many interactions of the glazes I do use that I constantly make new discoveries. When Alix was alive, I grew to depend upon her as a decorator. When I made a rather dumb pot, she would simply pick it up and take a brush with a little iron oxide and draw on the surface. She had a great ability to relate her decoration to the form of the pot in her hand.

When she died, I was faced with having to solve my own decorating problems, and my way of solving them was to rely more on a richness of surface form. I try, therefore, to use glazes that reveal form by changing color where they run thick or thin, or by being transparent to reveal what is taking place on the clay surface beneath.

Essentially I can say that I look for a richness of three-dimensional form that implies an interaction between the concave/convex, curve/angle relationships. I look for light and its shadow on the surface of the pot. The rhythm of the parts of the pot as one plays against the other is important to me. And tactile values are essential: each pot should be comfortable to pick up, and invite being passed from person to person around a table.

Gesture is extremely important as well. Gesture is the relationship of the speed with which your hands rise on the sur-





We resolved to make affordable pots. Our pricing philosophy began there.

Over the years, people have said, “Well, MacKenzie only prices his pots low because he draws a university salary. Which is true, but when I had a sabbatical at the university, I never used the half-salary that we got as support. I always lived off the pots I made. So I knew it was possible to do this even though I wasn’t a very good potter when I was younger.

The thing about pricing is that I price pots so that I can earn a living. If I make a lot of pots, I can sell them inexpensively. My friend in England, Lucie Rie, makes very expensive pots. Lucy’s standard refrain, when we visited her, was, “I know you think my pots are too expensive.” One day, in exasperation, I said to her, “Lucie, I’ll wager your income and my income from the pots I sell”—I was teaching full time then—“are about equal.” We compared incomes, and I was not quite right: she earned perhaps two thousand dollars more per year from her pottery than I did. The point was her method is different than mine. She works them for a long time, and does a lot of decoration, and has a tremendous loss in firing because of pots splitting and cracking, requiring refiring. While she sells a pot for \$1000, I sell the same sized pot for \$10. I make more pots than she does, and it works out that I make a good living.

You have to figure out what you need to pay the expenses of running your pottery, amortizing your kiln, paying for gas, chemicals, the mortgage, insurance, clothing, plus putting a little away for retirement.

What is the essence of the pot? I would have to say that when I am working in my studio, I think about the use a pot will be put to in someone’s home, and that starts me off. If it is to be a vegetable bowl, I try to provide a sense of scale. A bowl for two people is smaller than a bowl for eight. In both cases I am dealing with a container that has an internal or negative space.

Often, in trying to think of new shapes for pots, one must go back to the original function of the pot. Is it a conveyor of liquid from one place to another if a drinking vessel? Does your mouth realize that sense of liquid being conveyed into your mouth? That already locates you in terms of the sense of the pot—not the exact shape but the sense of the internal space. It reveals itself by acknowledging the presence either of a spoon, or of a place to pour, or of an edge to put against your lip. In addition, through time we ourselves change, and thus we change the emphasis of the pot. For instance, some years ago a customer purchased some wine cups, and recently he called to say that he wished to buy some more like them. I told him I still made wine cups, and to bring one of the originals over. I found it was completely different from what I now make—and had thought they were the same wine cups. The cup hadn’t changed; we had changed.

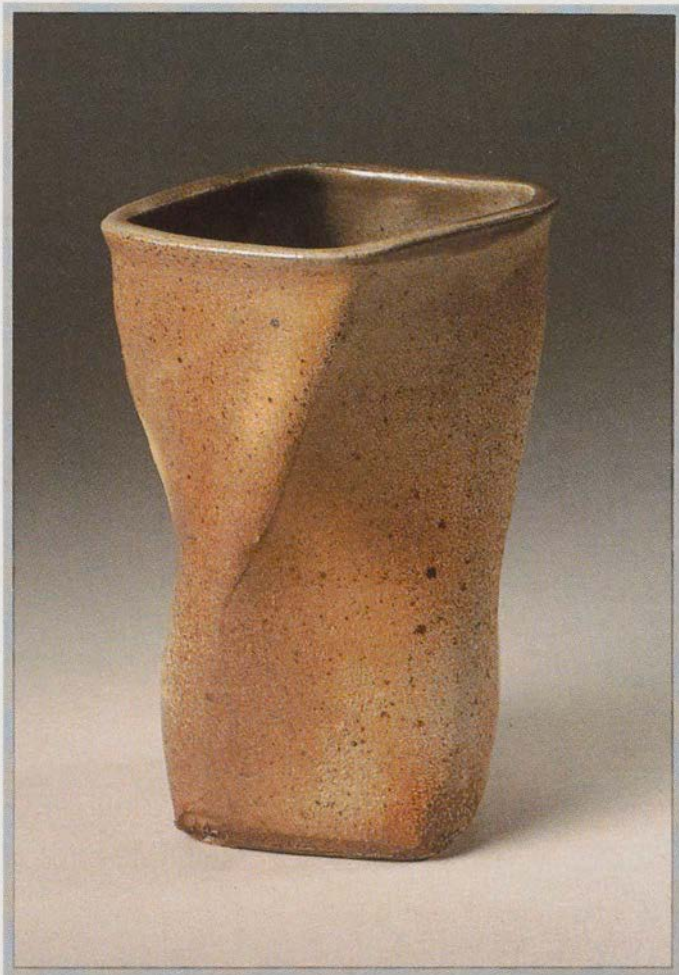
Often, when I unpack a kiln, I find only a small number of pots truly have the quality and vitality I am looking for. You can talk about quality all you want, but it is usually recognized only when you see it and often much later.

The spirit of the pot should reflect the spirit of the maker in an unself-conscious way. In other times and cultures it may have been possible for this to occur but it is difficult to do that now. I mean, we’re not simple potters; we go to school, read books, look at photographs. Our best hope is to stop thinking when we sit down at the wheel.

face of the clay to the speed of the wheel: where there is a pause, where there is an intersection, or a compression of clay under your fingers—all becomes critical. This compression is different from shaving the clay with a steel tool when half dry, and the difference can be exploited. I learned this watching Hamada work; he enjoyed creating a textural break.

When Alix and I first started making pots, we made two observations: first, when we went to various museums in the Chicago area—especially the anthropological museums where there might be seventy pots in one case at a time—we found we responded to those pots of whatever culture that were made for daily use. The minute, however, we got into collector’s pots, or forms for religious or royal use, they interested us less. Our observation was that if this was true for the pots of other cultures, it should be true for our own as well. Those were the strongest pots we saw, and that was what we would stick with. I’ve never been sorry we did.

Our second observation was made as we visited galleries and noticed that the pots we truly wanted to own were those we couldn’t afford to buy. This irritated us and made us unhappy.



A wonderful

story is told about Hamada. When he wanted to make important ceremonial tea bowls, he would often invite a friend or two over to sit and chat while he made the pots, so that he would not be too conscious of what he was doing. It was a clever device because Hamada couldn't go back to becoming a simple, country potter; he was an educated man.

The eye of the beholder selects those things it can relate to and hence relate back to the maker. In our home we have very few of my own pieces, only some chipped plates. If, in fact, the pot is to communicate and serve as a liaison between the maker and the user, it makes little sense to be talking to yourself. I'd much sooner talk to others and communicate with their ideas through their pottery. I've never understood why some potters, like some painters, surround themselves with their own work. However, I must admit I often have taken a pot into the house to use for a few weeks and acquire a greater understanding of it. The term "life-function" applies to this relationship. I own a small Hagi ware teabowl from 18th century Japan that probably started out as a rice bowl until someone along the line selected it as a ceremonial tea bowl. I

see all kinds of things in that bowl, and probably a lot more than is actually in the bowl. If someone else looks at it, it may mean nothing to him. The observer should be willing to learn the language of the pot, and from there on be aware of the poetry and meaning of the pot. For this reason, the people who buy pots are the best judges of those pots for themselves. They understand the intimate language of the pot and its meaning in their lives.

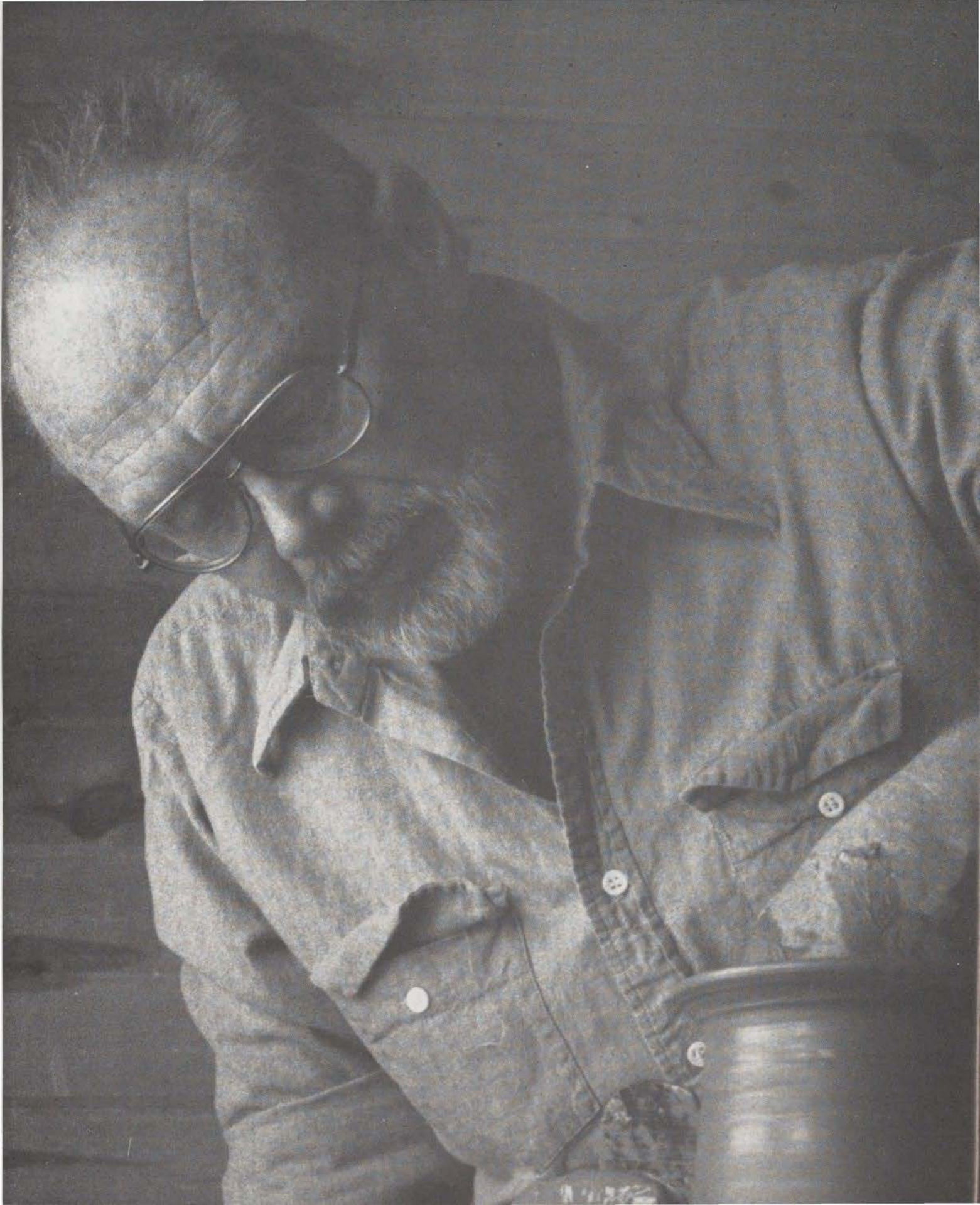
Beauty, in its broadest sense, is unimportant because it is only the beginning of that understanding. You have to go beyond beauty. In the film that David Outterbridge made of Bernard Leach and Hamada, Leach put it succinctly when he said that some things never hit the bull's-eye by aiming right at the bull's-eye. When you try to be good, you look like someone trying to be good, and the result is that no one believes in you. The problem is to deal with these things without becoming hyperconscious or overintellectual.

Tradition, in and of itself, is not a justification for making pots. People have long made traditional pots by rote, without any real reason or passion. A once powerful form loses vitality and strength as it is traced farther and farther from its origin. Eventually it is only a weak shadow of its original form.

In 1952 Yanagi gave several lectures at the Dartington conference where he spoke in favor of a tradition that is passed on and remains a power behind continuing work. As an example, he cited the case of the teapot decorator, Minigawa, who was said to have worked with great rapidity and could decorate a thousand teapots a day. This was incredible because these decorations were not simple patterns but complex landscapes. Yanagi showed slides of her teapots, and they were truly lovely and charming bits of country pottery. Then he made the mistake of showing a slide of the original patterns made many generations previously. The second slide had such power that Yanagi's audience gave a loud gasp. Yanagi was challenged but refused to acknowledge the power of the original and was blind to the difference. He couldn't give up the idea that tradition and repetition created a better pot.

Some potters in this country build their work upon early American pottery while others try to pick up inspiration from the Native American pottery. To a certain extent, it is true that we do have a tradition, if one accepts that it was passed on to us from the French, German, or English and flourished in the eastern and southeastern United States, gradually being carried westward. Probably it can also be said that we, today, eclectically choose to follow a culture we like through looking at books, photographs, and films. This is completely different, mind you, from churning out copies of early American salt glaze. This is not creating anything, just unfortunate reproduction.

People say I am influenced by Oriental traditions. But if one examines my pots beside oriental ones one is immediately aware they are not the same. When we lived with Bernard Leach, the young apprentices would challenge me by saying, "Ah, MacKenzie, you're just too influenced by the Japanese." One day a Japanese connoisseur came to visit. A little pot of mine was on the table, and Alix pointed to it and asked, "Do you think that looks like a Japanese pot?" He just glanced at it and said, "Absolutely not, absolutely not." He could tell immediately that it wasn't Japanese and that it was a Western pot by 13





a Western potter. I am strongly influenced by the Orient, but I am certainly not an Oriental potter.

I believe there is a difference between being an artist and a craftsman. To say you are an artist is foolish. Not all painters are artists. We are painters, sculptors, weavers, potters, or whatever. And those who are artists will be selected somewhere down the line and in a manner yet unrevealed.

The artist who has influenced me in my life more than any other person is, of course, Bernard Leach. Not as a potter but as a person who lived a full life and was dedicated to an ideal. He never gave up his ideal of creating pottery, and his passion never flagged.

A culture that has inspired me is that of the Yi dynasty of Korea. Potters in Korea made pots that were wholly natural, without ego or artifice, with great skill yet without showing off their skill. This offhand method of pottery making is something I have admired and have attempted to emulate without even coming close. The Japanese thought the same apparently because they brought Koreans back with them as prisoners of war and established them in Japanese cities to make pots. I often think of my little Hagi tea bowl, and that it was probably made by a Korean potter, or a descendant of a Korean potter. Perhaps that's why I feel so close to them.

I have taught all my life because I really like to teach. At first, perhaps, I saw teaching as a way of earning a living—even though I was not completely earning my living through teaching at the time—but very quickly I became fascinated by the interaction between instructor and students. It's a two-way street, and I've gotten as much from the students as I have been able to give to them.

Teaching is not for everybody. I know some who teach just for the money and hate it in the process. They're just holding down a job instead of being good teachers. This irritates me when I see that a good teacher should be there instead.

I'm inclined to believe that the short-term, intense session, that may run from one to five weeks in length, is more valuable than a graduate program. First of all, you select your instructor because she or he is doing something you are interested in or has a philosophy you subscribe to. Second, your achievement is far more important than grades or academic requirements. Unfortunately, teaching is one of the few avenues open to people who want to engage in art, and for this, a graduate degree is usually required.

Essentially, I encourage students to find themselves and expand their expression. At the beginning of some of the three-week sessions I have taught, I set out four general projects or areas of investigation and give demonstrations. I try not to indoctrinate them in the process, but sometimes it is difficult. In a recent session, I proposed a project wherein separate units were to be made by whatever means and then assembled into a finished form—the obvious example being a teapot, but one also could think of a high-footed bowl or a vase form, and so on.

I demonstrated a teapot as a model for the project because I love to make teapots. Now, I told the class, go on with the assemblages. They all made teapots. I raised objections with the class, asking why no one had tried anything different, but they countered by saying I hadn't shown them how. I told them I purposely didn't show them how, that it was ludicrous just to copy something, and that I wanted to leave their options as wide open as possible.

I retired officially from the university in June 1990, having taught there since 1953. The university made me a Regents Professor in 1984, a rank established recently to honor faculty members for their achievements. It is the highest honor one can receive and is accompanied by a stipend. I liked the fact that the university was recognizing the visual arts, for the Regents professorship has usually been awarded to members of the science or medical faculty. The ceramics department is not a large one, compared to the size of the school, and has only three faculty members as part of the art department.

At the time of my retirement, the university museum mounted a retrospective exhibition of my work. They sought out old pots and produced a fine catalogue of the show. It also brought together for the opening many old friends, some of whom I had not seen for thirty years or more.

While I have pots in some large collections, I am aware that my pots occasionally appear in second-sales or on the auction block. There is nothing I can do about the high prices thus generated. I can only control the primary sale. Part of the problem lies in the fact that there are so many collectors today. Collecting for the sake of reputation or for the rarity of the pot does not hold any validity for me. Yet I can't really criticize galleries which are in the business to show and sell art. They have to pay the rent, utilities, and help. I am sympathetic but don't want to get involved.

Frankly, I don't follow the cutting edge in our field, and I find those who do pursue it as an end in itself not very convincing. I am far more inclined to appreciate individuals for their relationship to their work, rather than to the ceramics field.

In this context, the National Endowment for the Arts has been helpful in its direct support to artists, which is, of course, only part of its activities. I know of several artists truly on their last legs, barely able to make a go of it and ready to change careers who were sustained and encouraged to continue by

16 the award of an NEA grant.

What disturbs me in recent years is that NEA grants have become more like prizes sought after for the prestige rather than for any real need. I do not believe that those grants were originally established to give grand prizes like academy awards. In its charter, the NEA was charged with bringing art to people who ordinarily would not have it as part of their lives and to sustain artists in their formative years.

The problem is not with the NEA; it is the field that should be more self-disciplined. I believe the endowment should establish a super award in the visual arts, similar to what is given out for the performing arts. The awards ceremony could be held at Kennedy Center, be a black tie affair, and the President could present the awards. This would take care of prestige and recognition. It would cost little, and would be the highest honor in the visual arts to which a person might aspire.

Now that I am retired, I stay home making pots. Nancy, my wife, works at the university and goes off every day to her office. I go into the pottery and start working toward my next firing.

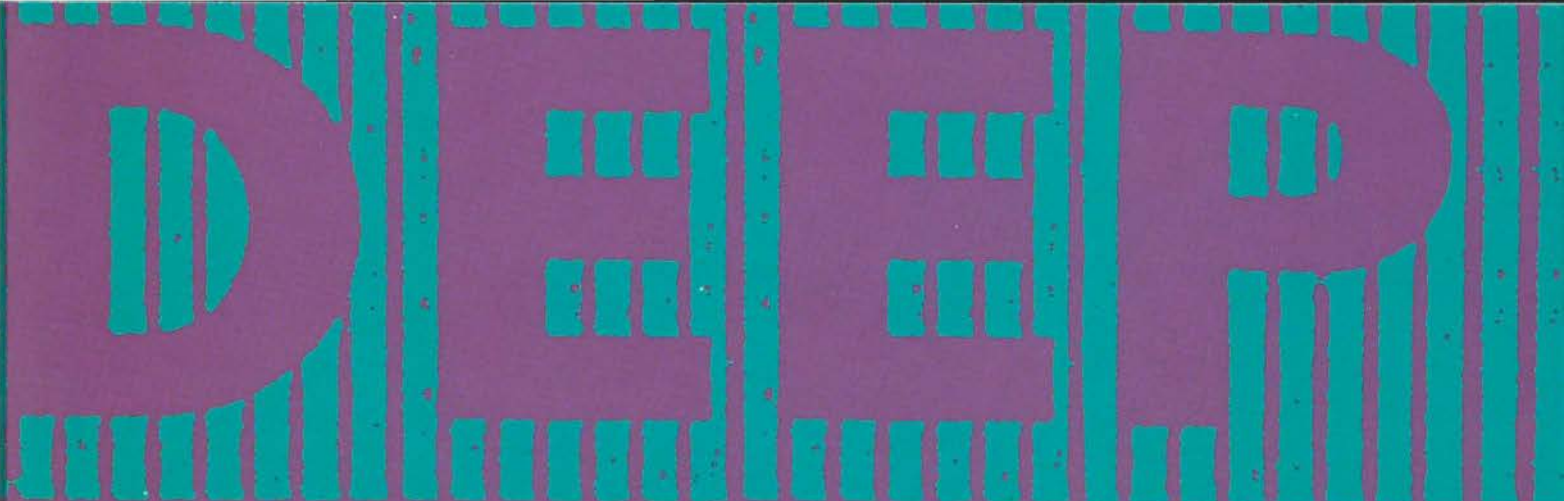
There will always be strong pots made, and such things will eventually find their way into the hierarchy of museum collections and be a reflection of the greatest expressions of our age. The challenge is to do the thing you have to do because you're in love with it and can't do anything else. Not because you want to become famous or rich, but because you will be unhappy if you can't do it. It is not something you can turn on and off.

Keeping up with fashion is the wrong challenge. The pressure of commercial art can lead to ludicrous manipulation that requires you to produce something different from last year's design, so that the consumer can immediately distinguish this year's product from last year's.

Yet I am an optimist about the future. I only regret not being smarter fifty years ago. My father lived to a ripe old age, and I hope I will, too. I get nervous and irritable and shout at people and make rude remarks if I don't make pots, and that's not good. Obviously my physical machine will wear down. But I hope it will be offset by an increase in perception as well as an enrichment of perception, and that my pots will ripen with me into old age.

This is an edited transcription of an interview made with Warren MacKenzie by Gerry Williams on August 11, 1990 at Deer Isle, Maine. Warren MacKenzie lives at 8695 68th Street, North, Stillwater, Minnesota 55082.





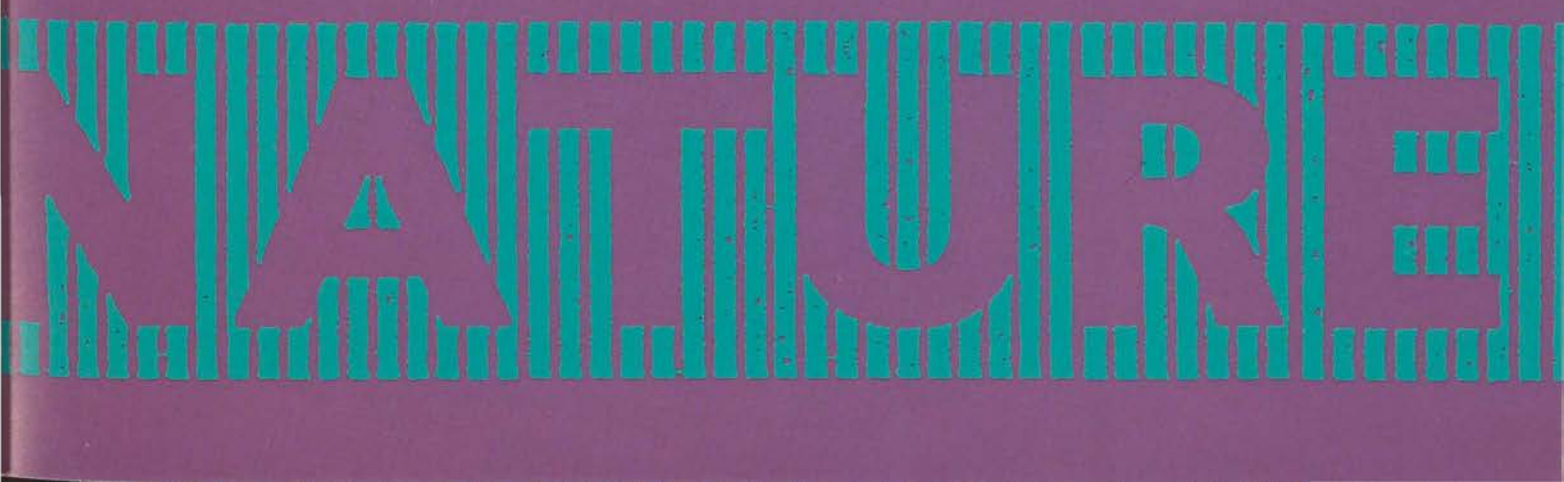
Out in our back yards, down in our streets something disturbing is taking place. The air is thickening, the water is darkening, the forests are disappearing. Our planet is suffering a crisis of temperature and disease.

Ecology is the science of relationships between organisms and their environment. Its root as a word comes from house and household. Mankind's ambitions as a species have separated us from the natural life of the household. Some are predicting an environmental catastrophe that will either end us or wake us up. Despite our inclination toward denial, there is no escape from this one.

In this dysfunctional household, potters are surely part of the problem. We use clay but are ignorant of its true nature; we are dependent on glaze materials that come from Earth's industrial exploiters; we fire our kilns with petrochemical and nuclear energy; we are locked into aesthetics that perpetuate cultural egotism.

This issue of STUDIO POTTER seeks to open a door to conversation among potters about our diverse feelings, thoughts, dealings, and actions as a creative people within this ecological crisis. Can we be among Earth's potential healers through our advocacy of and love for clay's deep nature and the daily blessing of forming with it?

Paulus Berensohn is Guest Editor for this section on Deep Nature. Paulus and the editors of STUDIO POTTER invite you to respond by letter with your own comments or reactions to these assembled articles. We begin with a portfolio of clay work from around the world dealing with environmental concerns.





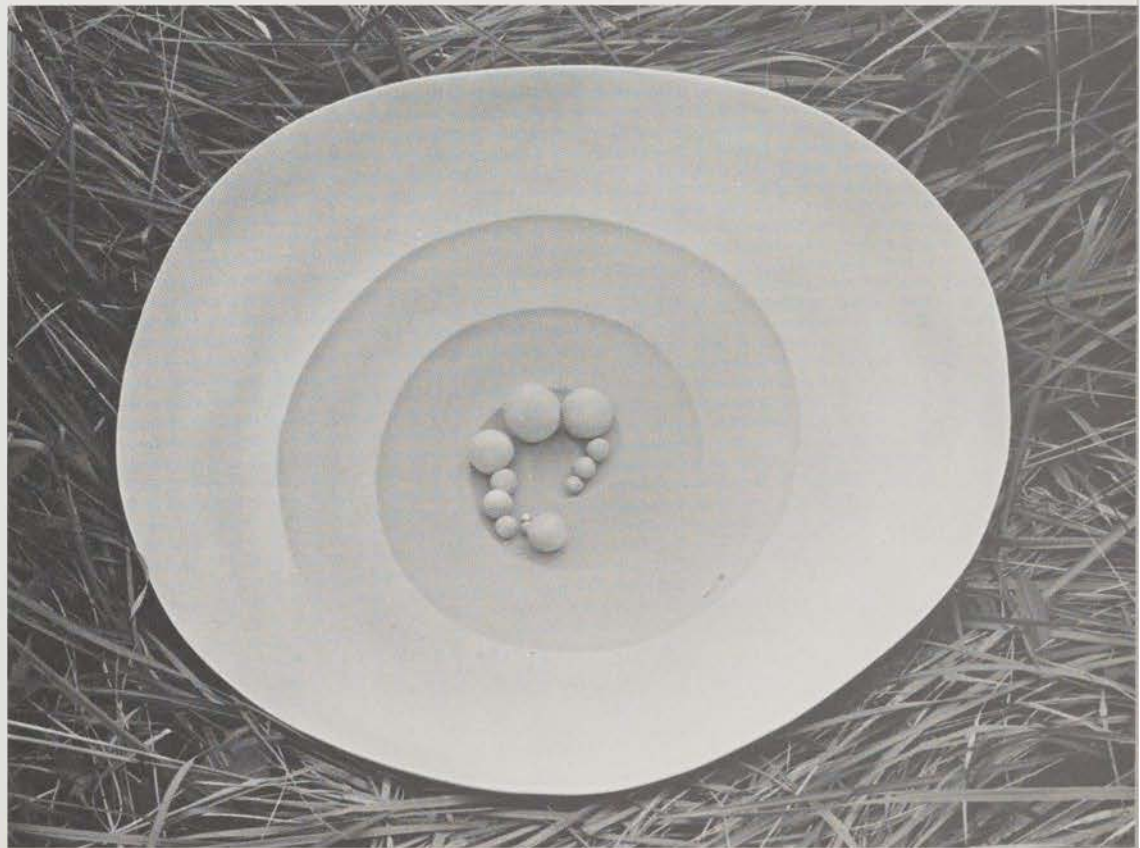
Xavier Toubes, *Exquisite Nomads*, 23 x 14 x 14 in. each.

David DeSalvo,
Mushroom Cloud,
Electroplated copper on clay,
19½ x 23 in.





Catherine Couch.





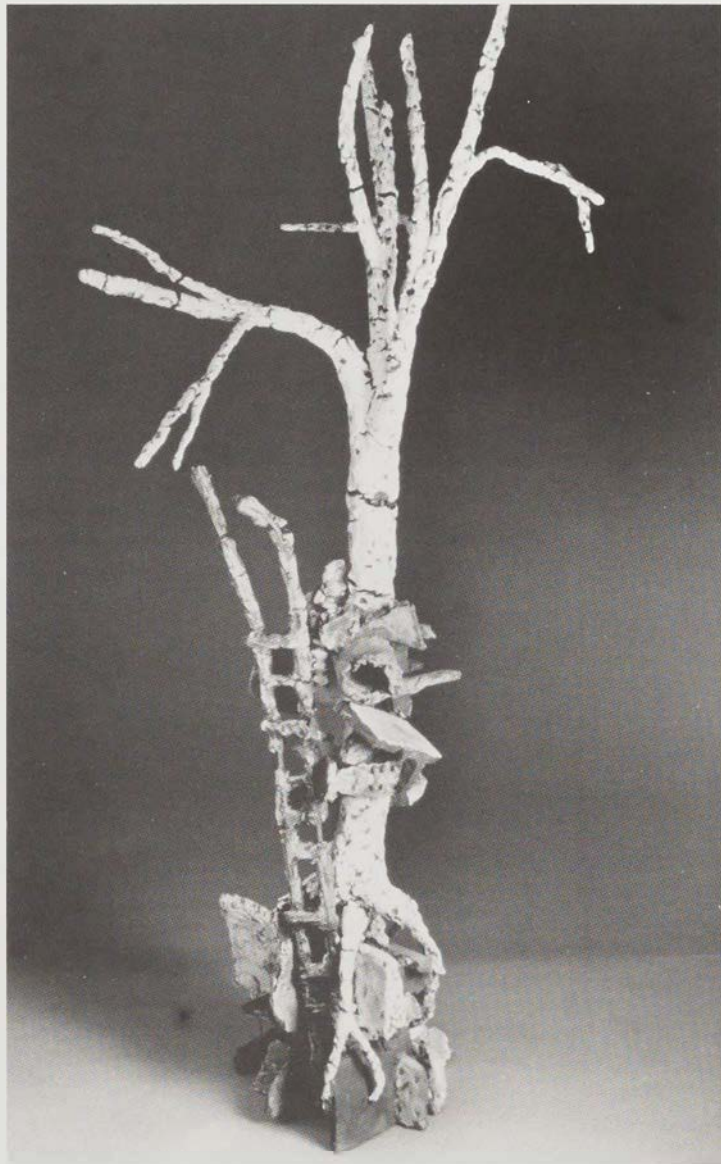
John H. Stephenson, *Earth Auger #18*, Terra cotta auger sculpture, 17 x 18 x 27 in.

Janet Ayako Neuwalder, *Clay coated corrugated cardboard and pine needles, salt fired, 1990.*



Annette Corcoran
Fancy Heron,
 Porcelain,
 7½ x 9¼ in.





Ruth Dorando Marcy,
*Untitled from
 Tree of Life Series,
 Clay and Steel,
 56 in. x 22 in. x 19 in., 1990.*

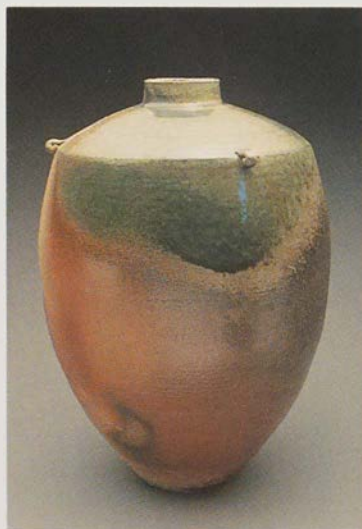
Jane Peiser/Paulus Berensohn,
*Rain Forest, Woodfired stoneware
 and salt glazed porcelain. 20 in.*



Deborah Hoch,
*The Birds Preaching Back,
 15 x 20 x 11 in.*



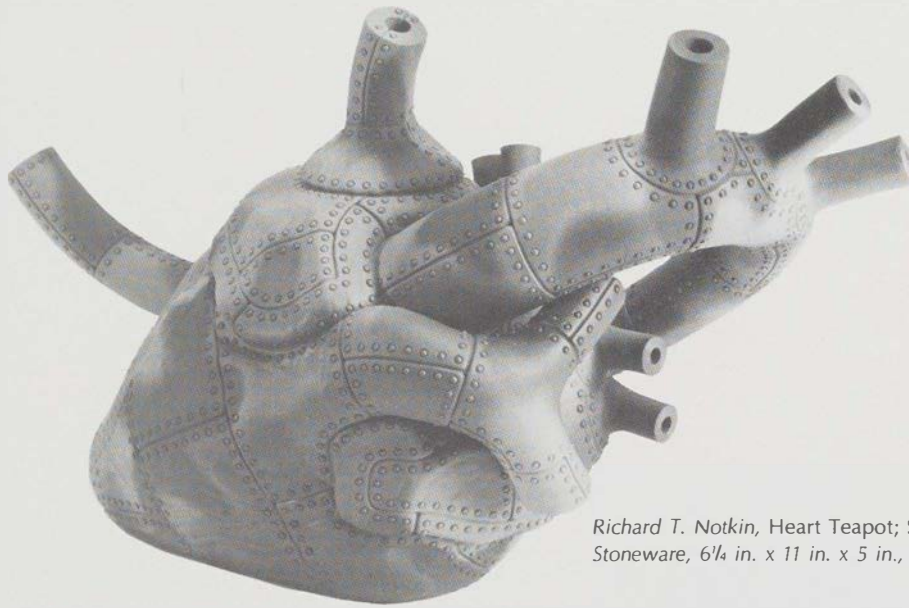
James Morris,
*Wood Trees #55,
 12 1/2 x 6 in.*



Gil Stengel, *Vessel.*



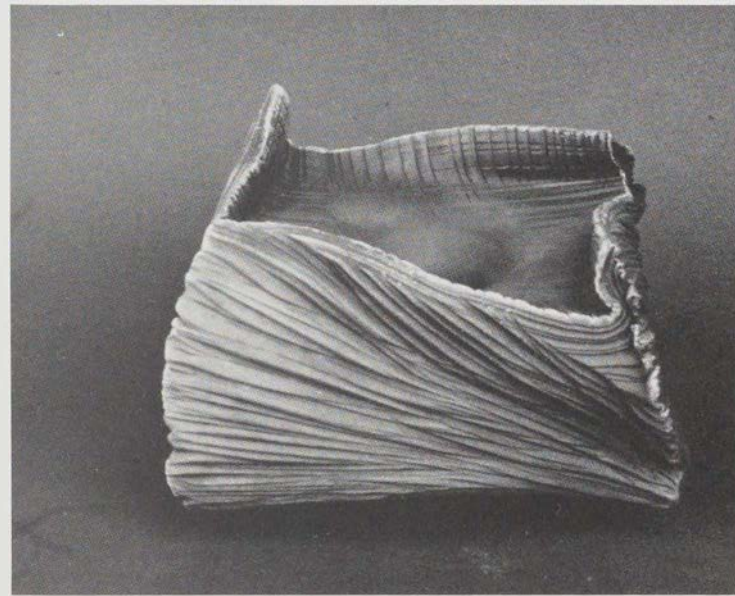
Diane Kempler



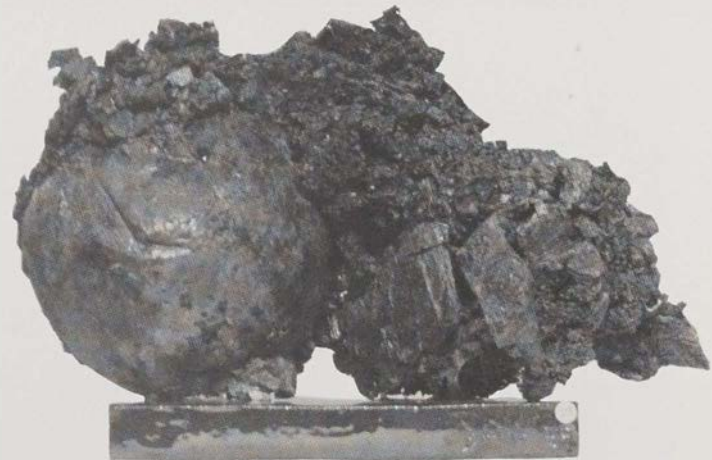
Richard T. Notkin, Heart Teapot; Salvador. Stoneware, 6 1/4 in. x 11 in. x 5 in., 1988.



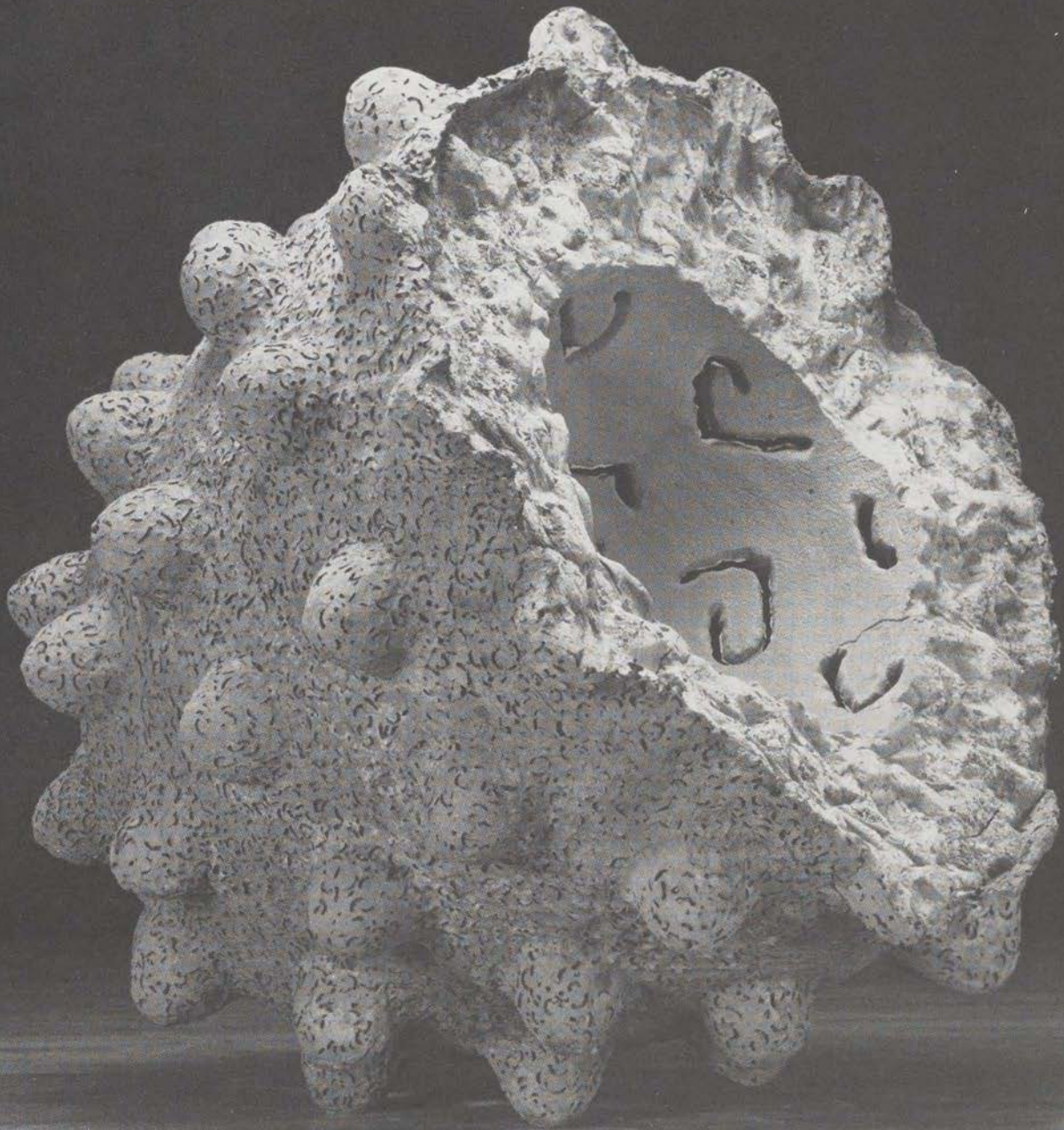
Indira Freitas Johnson Baggage Cart I, 36 x 26 x 90 in.



Renate Hahn, Movement, 12 x 12 x 18 cm., Germany.



Bingül Basarir, Sculpture, Clay and lignite coal., Turkey.



Graham Marks, Sandblasted Earthenware, 37 x 36 x 39 in.



Amy Sabrina, Bee and Bug.

Shelley Harari, Israel,
Sea Mural, 180 x 120 cm.



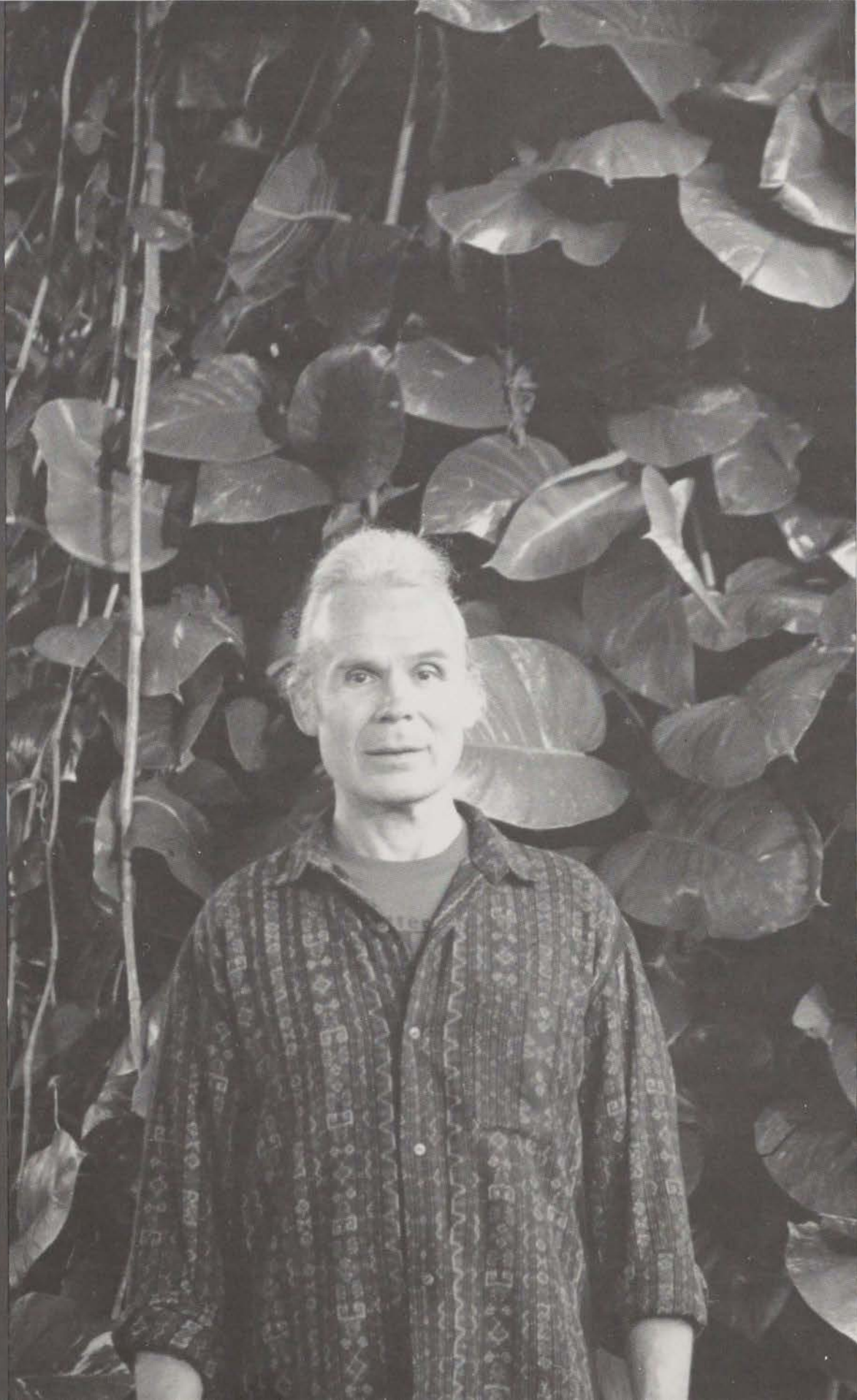


Bruno LaVerdiere, Tintern IX, 45½ x 48½ x 5 in.





Douglass Rankin and Will Ruggles, Covered Jars, Woodfired stoneware.



Silica, Alumina/Rapture and Awe: Revising Clay Imaginatively

by Paulus Berensohn

When I was asked to make a talk and workshop for the Phoenix Reunion of July, 1990, I noted it down in my journal. Then a title appeared, not as a conscious thought but as a gift of the unconscious: "Silica, alumina/rapture and awe."

I laughed. Where did that come from and what could it mean? First I thought, oh, yes, this is my new clay formula, and then I wondered just when did potters begin to make clay formulas and are formulas possibly a primitive expression of what we now call genetic engineering. Were rapture and awe ever a part of the recipe? If so, when was it left out, and is it needed now?

The next day I looked these two words up in my dictionary. "Rapture" refers to the transporting of a person (or of the consciousness of a person) from one state or place to another. It's derived from the root *rapere*, to seize, grasp, or sweep away. In other words, one's mind can grasp something or be seized by something. I was interested in the physicality of the words "seized" and "grasp," the two-way-ness of it. I feel this two-way movement in my hands. When I put my hands on the clay and take it on, it takes me, like a seizure or an embrace, both in body and in mind.

"Awe" is an emotion of mingled reverence, dread, and wonder, a fearful veneration or respect. It's the power to inspire reverence and fear. The proximity of the words "reverence" and "fear" in the dictionary definition interested me. I hadn't thought of the connection between fear and awe. Fear has been getting a bad press in recent years. We are told to rid ourselves of fear, that it's an illusion, that "love is letting go of fear." I've doubted that; my bias is toward inclusion, not divorce.

During the mid-70s, when I had a life-threatening illness, the artist and journal-keeper in me began to doodle the words "love" and "fear." For years, I drew these words in radiating lines again and again. Suddenly, one morning, I finally saw the obvious: the word "ear" was in the word fear. It made up most of it. There is an ear in my fear. I hadn't seen that before, and seeing it helped.

Soon the connection to love appeared as well when I saw that the word "ear" overlapped the word "art" in heart; the ear of my fear joined the art of my heart. Several years later, on a trip to the southern hemisphere where I began to study deep ecology, the "h" in heart turned upside down, like water spiraling down the drain in the opposite direction, and heart showed itself as earth.

And then, just weeks ago, while I was preparing for a workshop with high school students on art and nature, in which our central project was to rebuild and rededicate a recently vandalized altar to St. Francis at the Penland School in North Carolina, another "h" appeared, rejoining "earth" in its original place, and my doodle evolved into "hearth." Fear and love were now together at our altar. When I looked it up, I found the word "hearth" was allied to the word altar.

Still repeating "Silica, alumina/rapture and awe" as if it were a mantra or a healing image, I went, only days later, to hear Matthew Fox speak on creation spirituality to a large audience in Asheville, North Carolina. He began his remarks as if speaking directly to my meditation. Awe, he explained, is the beginning of wisdom, not morality: "Awe is a three-letter word for wisdom." To be overcome by awe was to be drunk with the plenty of our household, i.e., our universe. He encouraged us to teach the sense of awe to our children and to reawaken it in the artists we are. "Forfeit your sense of awe," he said, "and everything becomes a marketplace."

Could it be, I wondered, that what I have found so dispiriting in much mainstream claywork these last twenty years is that, despite clear evidences of original design, bravura technique and, in some incidences, of powerful expression, it has all seemed more a marketplace than a witness to awe-thentic meetings with clay?

Silica and alumina/rapture and awe has become, then, the metaphor for my re-search into a new beginning with clay, a "greener" clay than I have known. I wanted to begin at the beginning with clay once again, this time looking with a fresh eye at what I had learned from pottery texts years ago.

As Gerry Williams pointed out in a dual presentation and dialogue that he and I gave last winter in Hawaii, the texts that many of us studied so carefully and that are still used in clay education are out of date. In them, clay is looked at, we now see, with a specifically mechanistic-scientific eye, with little ear. What is the story of clay, I wondered, when it is approached from an interdisciplinary perspective, and what is the cosmic story of clay?

Even in the education of children, the approach is mechanistic, as I observed this past winter on several occasions. In each instance, the teacher was a recent M.A. from a university clay program—all of them bright, well prepared technically, earnest young people whom I admired. Although they had trained at different schools, their approach was similar. All began their classes with what they called a "demo" in which they showed the children how to make a hollow-bodied dinosaur, say, or a frog from two press molds that formed a hollow body, or how to cut pieces from slabs, pre-prepared on slab rollers, to make a clay sailboat.

The children in several of these classes were new to clay and had no experience with it; they were inner-city "minority children" growing up on concrete pads that covered all traces of earth. Yet there was not one word in any of these classes about what clay is and where it comes from. The clay was just there, a given, in 25-pound plastic bags. Furthermore, no stories, images, or myths were suggested, told, or allowed to arise by way of evoking imagination or atmosphere for the creative act; no wind for those sails.

There is an unconscious materialistic bias in this approach to teaching where object becomes all. This focus toward the final 29



product seems to me a form of “end-gaining,” and has little celebration of process and almost no mystery or sense of connection. The work I saw these children making was expressive—small children are almost always expressive, with or without our help—and usually I’m delighted and inspired to see that. But, no time or space given for rapture and, in these particular classes, no information presented in a way that would awaken awe. This is not always the case, and need not be so.

Over the years, I’ve heard wonderful stories from clay students at Penland and elsewhere about the inspired way they were introduced to clay by their teachers. Several of them were students of a teacher on the West Coast whose name I’ve forgotten; others, Graham Marks among them, studied under Lenny Beecher in high school, or with Squidge Davis in Maine, or with Amy Hart on Saturday mornings at the Wallingford Community Arts Center in Pennsylvania. Ms. Hart, for example, has spent a lifetime gathering stories, often from Inuit myths for which she has a special feeling, and collecting details of nature that she shares sensitively with her young students. She is passionately connected to these stores and signs of wonder in the natural world. Her passion is her pedagogy.

We all know how rare and great a privilege it is to study with a teacher who has a vivid intimacy and an open sense of mystery about her or his subject. Clay deserves this. One of the things I find most regrettable about the programs currently offered students in graduate clay programs, despite the fact that these students often go on to teach children, is the lack of anything that we could call preparation for imaginative teaching.

So, in my re-search in the beginning with clay and in teaching clay as interdependent phenomena of earthly and cosmic life, I have to re-vision, look at once again, what I think I know about clay. And because I’ve spent the last twenty years in an inquiry about the receptivity of the imagination, I bring that capacity to this new beginning.

Imagination, Rudolf Steiner tells us, like inspiration and intuition, comes to us through the ear. In in-depth psychology, imagination is referred to as the thought received by our compassionate, that is, our connective, hearts. Science, as we have known it, will no longer do; it’s been too heartless. Yet it is science, itself, that has brought us to this point where we have knowledge enough to know how little we know and so can learn by other ways of knowing.

Art, for instance. Art may not be the “talent” that we are told is given to some of us, but it is a way of joining experience available to us all. We can know with both the particularity of scientific inquiry and with the embodied artistic sense for connections.

When I look at the assumptions I’ve held I see now that they have not gone much beyond the assumption that clay is a commodity in the earth to serve us potters, much as I have assumed that oil is underground to fuel my car, and does not have the earthly function I now know it has. Clay is a free service provided by the earth. A service, not a commodity. A free service like the hydrological cycle, the circulation of fresh water, or the oxygen cycle in the atmosphere, or the soil cycle. How do I honor and return that service?

To initiate a new beginning again, I need a question. Not a question requiring a specific answer, but an open question, a

magnet that attracts. This is the question I’ve been asking myself and now ask you. *Now that we know that the earth is alive, interdependent, and in continuous creation, what is the living function of a dynamic clay in the breathing soil?*

It’s not a question I expect to respond to alone. I ask the question everywhere; I pause to ask it of the clay as I work with it, listen for clues in the conversation of every potter I know, ask you, and do some research. Here are a few of the clues and sources that have been coming to me.

Five years ago students and friends who were acquainted with my question sent me several newspaper and magazine articles that had appeared about a new “life from clay” theory that was being hypothesized by scientists in this country, Scotland, and Germany. You probably have heard or read about it as well.

The *Newsweek* account of April 15, 1985 put it this way:

“Now, as if the biblical tale of man’s creation from the ‘dust of the ground’ were haunting their unconscious minds, scientists are offering a surprising answer. Last week biochemists at NASA’s Ames Research Center in California presented evidence that life on earth may have gotten its start in lumps of clay.”

In a *Popular Science* article entitled: “Did life begin in clay?” Elaine Gilmore reported:

“The new clay theory proposed by A.G. Cavin-Smith of the University of Glasgow, Scotland, suggests that the evolution of life was patterned, not random. It has long been known that clays can act as catalysts in chemicals. Observations at Ames and elsewhere have shown that clays could have helped select and concentrate the raw materials of life (perhaps leaching from the oceans during high tide) and could have triggered further reactions of these building blocks, eventually producing incipient proteins and DNA. In addition, experiments in Germany have suggested that clays exhibit other lifelike functions, including self-replication.”

Gilmore quoted Dr. Leila M. Coyne of San Jose State University in California: “If you take a lump of clay and hit it with a hammer, it glows [with] ultra-violet energy for a month,” and went on to say that the researchers, led by Dr. Coyne, found that light was emitted when the clays were wetted, dried, ground up, fractured, or irradiated with gamma rays. Similar conditions could be produced in nature by earthquakes, freeze-thaw cycles, tidal cycles, and erosion.

Two years later, on May 5, a follow-up report by James Glick, titled: “Quiet clay is revealed as vibrant and primeval,” appeared on the front page of the science section of the *New York Times*. The word “vibrant” leaped out of the headline as if attracted by the magnetism of my question. Vibrant clay! Vibrant, that is, “pulsing or throbbing with energy or activity.” This encouraged me to pause between wedging the clay and using it to make something, to hold the clay in my hands and bring as much of my attention as I can to bear on listening to it as if my fingertips were ears. I’ve done this with others as well, with moving effect, in recent workshops, once for twenty minutes. The energetic vibrations I palpate and the light I see are like the energies I see and feel with my proprioceptive senses when doing *t’ai-che*, or breathwork, or receiving a massage or an Alexander technique lesson.

Now I work considerably more slowly with clay than I did in the past. I try to re-mind myself, more successfully on some

days than on others, to connect with the vibration I sense and to allow that vibration to enter my body in much the way blacksmiths talk about “the return of the anvil,” so that working with clay is not all giving out, not only a creative gesture I make, but a dialogue, an intermixing of energies, and a sharing of light.

I suspect there is also an important clue about the stress of working with clay; that the back problems, aches, pains, and repetitive motion syndromes we potters can suffer are due to a one-way consciousness—me making, me working *hard*. The new emerging story of clay, that I have begun to call “Clay’s subtle body,” is encouraging me to work *soft*.

Another way of putting this might be to work with both my masculine and feminine energies, the creative *and* the receptive. I’m convinced that this is a genius of clay for our lives, that potters of the past knew this, if not intuitively, then subconsciously, that there is an actual healing dimension to our work with clay that is one of earth’s blessings, and that we can sensitize and slow ourselves down enough to sense and therefore know it. If vibrant clay is earth’s gift to potters, then it behooves us to know the gift and the giver, to love them, listen to them, thank and praise them in our work, protect and take responsibility for them.

Glick’s article detailing the new investigations of clay begins by reminding us of what science already knew, that clay was the original catalyst in oil refining, for example, and that small amounts of it can speed chemical processes by a factor of 10,000 or more. He goes on to say that:

“Recent thinking about clay formation has looked less at how rocks are ground down and more at how such structures arise. The layering—more like a deck of microscopic playing cards than a bucket of sand—gives clay a phenomenally large surface area. A lump weighing one pound can have as much total surface as fifty football fields.

“All that surface makes clay a powerful chemical engine, because it is on the surface of a substance that the most interesting molecular events take place. Apart from its use as a catalyst, clay’s surface also makes it effective at neutralizing toxic chemicals, including dioxins and radioactive waste.”

This last sentence is good news but no surprise. We know now that earth is self adjusting, even, to a degree, from human abuses. I like knowing that clay has this healing function in earth’s body. It makes me proud of this powerful primary material that keeps rising through our feet and out our hands.

It is clay’s peculiar ability to mix disorder with order that most intrigues scientists, Glick reports, for “disorder is precisely the thing which can hold information.” Interesting! Think about that and the role of disorder in our creative soul lives.

The year 1978 was an important one for clay and for potters, although some of us were unaware of it at the time. That year three books were published that help reawaken and reinform us about clay’s life, both directly and by implication.

First, there was J.E. Lovelock’s book *Gaia: A New Look at Life on Earth*, the fruit of comprehensive presentation of the biological evidence for considering the earth as an organism capable of reacting to outer stimuli and inner processes in a unified, self-adjusting manner.

It’s interesting to note that Lovelock’s work was largely rejected by the scientific community upon its publication, yet

within a decade this same community awarded Lovelock one of international science’s highest honors.

Guy Murchie’s fascinating and eminently readable book *The Seven Mysteries of Life: An Exploration of Science and Philosophy* was also published in 1978, although I was unaware of it until 1985 when a copy was given to me by a friend. Murchie brings to the knowledge of science a philosopher’s more holistic musings and an artist’s meditative connection.

In preparation for this issue of STUDIO POTTER, we wrote to Murchie at his home in Santa Barbara, California. In a letter he notes: “I have a close friend named Beatrice Wood who is a famous potter and writes books at the age of 97 and enjoys philosophy.” He goes on in another letter to say: “My wife, Marie, like you a dancer, also Dutch and 83, says ‘Clay should be revered because it is so enduring and useful to mankind and feels good to the human hand, which gets loving when it works with clay.’”

The third book from 1978 that I want to call to your attention is *Lifetide* by British science writer Lyall Watson, especially pages 47 to 58 from his chapter on “The Soil.” There he gives a fascinating account of Cavin-Smith’s work on the three different patterns of crystallization in a bed of clay, which he calls the sloppy, the sticky, and the lumpy. He relates just why it is believed to be the lumpy crystal that survives selective pressures, due to its capacity to adapt, and explains how it “will pick up from a stream not only its food but a number of sugar-like organic molecules that just happen to have been formed nearby, or to have arrived on the latest comet” (italics mine).

Like Murchie, Watson’s lively consciousness and wide learning from a spectrum of disciplines makes for interesting, often inspiring, reading. For example:

“Survival of the fittest’ is in fact a motto even more appropriate for crystals of clay than it is for the more fully fledged organisms. Birds and beasts are not particularly adept at surviving. Individually they are poor survivors, not nearly as good as stones, for example. ‘A grey rock,’ said John Ruskin, ‘is a good sitter.’ That is its survival trick, and there are a lot of stones around to prove how effective it is. Sitting is a perfectly good piece of behavior, every bit as distinctive as the frantic dash of a dragonfly. Yet we call one alive and the other not, which is misleading. To make life a distinction between them,’ observes Sir Charles Sherrington, ‘is at root to treat them both artificially.’”

Watson also tells a most interesting story about the origins and discovery of hematite, an oxidized earth containing iron, one form of which we know as red ocher. It has had a fantastic cultural-evolutionary history by means of myths, rites, and mysteries of ancient metallurgy, alchemy, and burial practices where hematite was used as a blood surrogate. Hematite, first used for body adornment and cave drawings, and, symbolically, on pottery, is found packed around the body of one of the earliest known burials, a Neanderthal who died forty-six thousand years ago. Aboriginal Australians, the early Egyptians, and Native Americans had similar practices, echoes of which have continued throughout history, even to today when heads of the Catholic Church are buried in crimson shrouds.

The oldest mine discovered so far is at Lion Cavern in Swaziland. Material found there exceeds the limits of radioactive carbon dating and has been estimated as being perhaps more

than one hundred thousand years old, more than trebling the antiquity of modern man. Watson cites beliefs that this mine was dug in search of hematite, "the blood of the earth," and that when the hematite was found and excavated, the miners painstakingly filled in the cavity, moving more than a thousand tons of earth and rock in the process. Earth is the giant mother; she must be treated with respect. When work is done on her, the damage to her body must be repaired. "The skirts of earth must be decently rearranged." The human species has "an incestuous relationship with the earth," for better or worse.

The Bakgla people of the western Transvaal still revere red ochre, which they call "the holy red," and use it to daub on pots that they say can't be made or used without it. The pots would not "live" without the blood of their mother. This is only one of many examples of a ritualistic use of clay and oxides.

Did we outgrow these rituals, or have we forgotten them? A ritualistic or ceremonial use of clay has been almost totally absent from contemporary ceramics, and clay's potential power to connect us literally to earth is passed over in favor of using it exclusively as a material. We may have to revive or reinvent or make new rituals with clay out of what we are learning scientifically and imagining artificially about her, if we are to be as needful of joining clay, thanking her, as we are of using her.

What I appreciate in both Murchie's and Watson's observations on clay is that they speak of it both macrocosmically and microcosmically. Life from tiny crystals of clay could not have happened, they suggest, without the great cosmic clouds of "seeds" drifting around just waiting to take root in the right kind of soil and clay crystal.

There is no earth-life without the cosmos. We may think of clay as essentially an earthy material and are often drawn to it as a way of "grounding" ourselves; yet clay has a subtle, irrational body as well; an "incredible lightness of being" and a living history that literally puts us in touch with the evolutionary story of the universe every time we put our hands on even the smallest amount of it.

The most far-reaching of the clues to the mystery of clay that my question has brought forward comes from Rudolf Steiner's work in spiritual science early in this century, as explained in a recent book, *Secrets of the Soil*, by Peter Tompkins and Christopher Bird.

"The earth by itself," says Steiner, "is only feebly able to transmit to plants the reproductive process that growth requires; it has no power to do so without assistance from the cosmos. It requires the cosmic forces shining in upon the earth via the Moon, and in the case of certain plants, via Mercury and Venus. With the Moon's rays, the whole reflected cosmos comes onto the earth, so that the force of growth may be enhanced into the force of reproduction . . .

"All that is connected by way of silicon with the root nature must be able to be led upward through the plant, must flow upward, so that there is a constant interaction between what is drawn in from the cosmos and what takes place in the plants."

It is the purpose, says Steiner, for which clay exists in the soil. "Everything in the nature of clay is a means of transport for the influences of cosmic entities within the soil, to carry them upward from below. *Clay is the carrier of the cosmic upward stream*" (italics mine).

Clay is the carrier of the cosmic upward stream! What a pic-

ture! Here in North Carolina, I look up to see the sky between trees and mountains, but in northern New Mexico where I spent a spring three years ago with potter Terry Davis, the vast openness of the mesa surrounding Terry's home and studio brought the sky down to the ground, filling the canvas in a new way for me. I began making drawings, first of suns and then of moons, with shafts of sun and moon beams, like warp ends weaving into the soil of earth. Now Steiner's image of clay as a means of transport draws these threads deeper into earth's body and sends them up again in the creative cyclical and connected life of growth, reproduction, and imagination.

Imagination is the bridge between matter, the real world of things, and spirit, the actual world of the formative forces of continuous creation. It's the way we "see" supersensible life in sensible life. We don't make it up, that's fantasy's role; imagination comes to us. It's whispered into our ears.

The healing of the earth goes beyond recycling (as important as that is), treks into physical wilderness (would there be wilderness left if we all went back to it?), and an anthropocentric view of a sustainable world economy. Without imagination, seeing in the dark, our psyches are cut off from *anima mundi*, the soul of the world. It's in the soul and through the soul that we discover our deepest connections to wilderness: our green personhood and green clay.

The clues coming toward us from the secret life of clay, mediated by our imagination, put us in direct physical touch with the deeper story of a fuller ecology. Clay is our way of knowing, our way of healing our separation from deep nature, and, I suspect, we don't yet know the half of it. To paraphrase an old Hasidic saying freely, a clay artist who doesn't believe in the rapture of her or his imagination and the awe-full-ness of clay is not a realist!

I don't want to try to convince you of my view. What I want is to invite you to help continue this inquiry with your own reexamination of clay in light of your own deeper ecological awareness and concern.

M.C. Richards wrote a poem some years ago that begins: "Imagine inventing yellow." It's the title of her forthcoming collected poems. What if we studio potters were to write a new textbook for our ceramic-ecological educations and call it "Imagine the Story of Clay"? There could be several versions or chapters, one for children, one for adult beginners, one for graduate students, and one for the healers among us—all bound together in one great volume.

Paulus Berensohn lives at Penland, North Carolina. He is a potter and former dancer who enjoys working with needle and thread, writing, and journal-keeping. He is the author of Finding One's Way With Clay, and describes himself presently as a self-employed deep ecologist.





Paulus Berensohn with pinched pot. Photo by True Kelly.

The Quest: A Curator's View

by Jane Kessler

A piece I wrote five years ago for *Art Papers* in Atlanta and one recently written for North Carolina's *ArtVu* represent what has become my own search for the Holy Grail. I know that Art exists, just as God exists, and that belief in either is an act of faith. The quest derives from my innate belief in the power of art to change, to heal; in the belief that art is as essential to humankind as shelter and sustenance and love.

My quest is for evidence of that power in the art of today; evidence that art (our art) matters and that my engagement with art is a valuable way to use the one life I have. My concern is for art as a sturdy thread that runs through our lives and is part of the fabric of our existing, viable, living culture.

In 1985, I was feeling the effects of forces that were moving art closer and closer to a marketplace commodity status and that were creating a paradigm for artists that I thought was clearly divesting art of its spiritual value. The article for *Art Papers* was an apologia for my own part in that process and was titled "Un-Making It." Parts of it are excerpted here.

An unnamed but potentially debilitating illness is spreading through the art world, and like any life-threatening disease, it is beginning to manifest itself in identifiable symptoms. The initial symptoms are vague, like a mild nausea, slight discomfort, or a low-grade fever that causes us to instinctively move hand to brow to feel our collective art foreheads. As the queasiness increases, it is joined by a pervasive tiredness, sluggishness, lack of energy, loss of vision. We begin to consider laying out of work for the day—or the year—even though the symptoms are not yet advanced enough to merit such action. So we deny the existence of the illness, dismissing the symptoms as transitory, nonlethal, like temporary indigestion, a common cold, or a twenty-four-hour virus. But the symptoms persist until their visible effects become impossible to ignore—like a sore, a muscle tremor, an unsightly growth.

My own queasiness began months ago, but I attributed my discomfort to temporary disillusionment (common cold). I only began to consider the possibility of disease when I looked around and noticed other people feeling their foreheads. I decided to examine the symptoms more closely, to look for the sores. Easily enough, I found the first unhealthy fester. Finding it was bad enough, but what exacerbated my feeling of discomfort was a dawning awareness of my own complicity in having perpetuated the illness (like a cancer patient who must accept the responsibility for the ill effects of smoking).

Six years ago, the Mint Museum, with all good intentions and under my own guidance, sponsored a two-day workshop called "Making It." It was a concentrated how-to session. How to approach galleries, how to hawk your art, sell yourself to museums, how to be professional. Along with sundry others, I . . . insisted . . . that artists behave appropriately, systematically. Then those of us on the other end could perform our jobs systematically, appropriately, and . . . efficiently.

So why is it that now I am so slide/résumé/verbiage weary? I am reminded of the warning: "Be careful of what you ask for because you might get it." Well, we got it. We've been slicked up, smoothed out, made legally savvy and market smart. We've done it. We've made art into a legit profession. We've debriefed it, papered it, expense-accounted it, tax-deducted it. . . .

Predictability is as deadly to art as a cancer. It is precisely the unpredictability of the human spirit that enlivens those things we view as art. . . .

The symptoms are legion and tracking them is difficult for we still want to believe that we are healthy. Naming the illness becomes a treatise unto itself. It concerns sociological, historical, evolutionary aspects of our entire society and its unique structure. The art world illness becomes a symptom of a greater illness. . . . I believe that it has to do with the loss of spirituality. The motivation for our individual activities is power and one-upmanship and not the collective good. All our temples for spirituality have become department stores. Our Bibles are L.L. Bean's and Sotheby's catalogues. We've quit looking for inner peace through spiritual harmony and are now looking for self-appeasement through acquisition (of power, success, and goods). . . . Adherence to a brighter vision could reestablish the artist as the critic of society, as soothsayer and guardian of our spiritual selves. I am confident that if the rest of society refuses to acknowledge the symptoms or name the illness, it is the artist who will do it for them.

Art Papers, 1985, No. 5.

THE LAND ETHIC

All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community, but his ethics prompt him also to co-operate.

There is as yet no ethic dealing with man's relation to land and to the animals and plants which grow upon it. The land-relation is still strictly economic, entailing privileges but not obligations.

An ethic may be regarded as a mode of guidance for meeting ecological situations

so new or intricate, or involving such deferred reactions, that the path of social expediency is not discernible to the average individual. Animal instincts are modes of guidance for the individual in meeting such situations. Ethics are possibly a kind of community instinct-in-the-making.

In short, a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such . . . It reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the

In 1990 I still believe that the total manufacturing of art and the artist into commodities is a deadly force. Our aggressive consumerism is not only consuming art and artists, it is consuming nature. Our living ecosystem is not held to be sacred, it is held to be useful. One cannot make sacred art in a world that does not hold sacred its own diverse life-forms. One cannot make art in a spiritual void, one can only make *things*.

I expressed my thoughts about the relationship between art, the spiritual, and the environment in the 1990 piece for *ArtVu*, from which the following is an excerpt.

The depth of feeling that I have about this ecological crisis, about the "end of nature" and man's estrangement from and abuse of the natural world is how I used to feel about art. I feel it in my gut. It is more and more troublesome to concentrate on tracking the latest art isms or to keep apace with the latest art market horserace when we are destroying ten thousand species annually and one can actually count the number of grizzly bears left on this earth.

I know that my feelings about nature and art spring from the same source and represent a deep and instinctual yearning for wholeness, for spirituality, for the capacity to be compassionate and sensitive and to revere life . . . all of it.

My belief in art remains intact, however. It is simply that I ask different things of it. I look for it in different places. Matthew Fox, author of *The Coming of the Cosmic Christ*, says, "There is no renaissance without a vast outburst of creativity—new images, new risk-taking, new relationships, new dreams and visions. As Einstein put it, 'The whole pur-

pose of Science and Art is to awaken the cosmic religious feeling'. . . The artist's task is awakening awe and providing vehicles of expression so that we can express our awe and wonder at existence."

Paulus Berensohn, Miriam Sagan, and I collaborated in a workshop called "Clay and Words" at Penland School last summer. Much of the workshop had to do with relating our work to the earth and trying to free ourselves from the need to produce an object. None of the clay pieces were fired, and at the end Paulus handed me, as a gift, a beautifully elegant pot that he had pinched. "Put it outside," he said. I put the raw pot, by then dried to a delicate linen color, on my porch. Soon the morning dew, the rain, and finally the sun reduced it to a soft powder which the wind carried away. The pot exists for me as clearly as if I touched it every day, and has as much value as the other objects I've carefully collected and pridefully hung on my walls.

I have felt for some time that the impulse of our Western civilization (and specifically 20th-century America) to sever the object from its maker is an unfortunate one. We devalue process and the ritual of making. When we evaluate art, we are taught to disallow the human being, and process is considered only in terms of technique. We are taught to deny our own emotional response and to evaluate whatever the object is by analysis, using a highly structured, intellectual matrix.

This manner of evaluating art denies not only the emotional, but also the spiritual element, and consequently separates art from life. In our Western way of thinking, we separate things from one another.

We dissect things in order to consider them analytically. We do not consider things holistically, interconnected, and in relationship to other things. This same inclination, according to deep ecologists, separates man from the rest of being; causes man to think about himself as apart from nature rather than as a part of nature.

Perhaps my view of [nature], the marsh, and the deep impulse to save it are at the heart of creativity. That small patch of marshland, an untimbered, pristine forest, the pared-down beauty of an arid desert are spiritually, psychologically, and ecologically essential to man.

Perhaps the greatest artistic challenge is to create what Matthew Fox calls a "metanoia," a change of heart in ourselves and in the world. A change of heart means a shift in vision or a completely new vision; one that rejects our anthropocentric view in favor of one that values the whole glorious diversity of which we are only a part.

I am not saying in either of these pieces that all art should be about the environment, or that art should not find its way into physical form. Art in its physical manifestation does enrich and enliven our lives. I am saying, however, that the quest for the spiritual in art and in the way we view our living world are essential to the continued existence of both.

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The evolution of a land ethic is an intellectual as well as emotional process. Conservation is paved with good intentions which prove to be futile, or even dangerous, because they are devoid of critical understanding either of the land, or of economic land-use. I think it is a truism that as the ethical frontier advances from the individual to the community, its intellectual content increases.

The mechanism of operation is the same for any ethic: social approbation for right actions; social disapproval for wrong actions.

—Aldo Leopold, *A Sand County Almanac*. New York: Oxford University Press, 1964.

land. Health is the capacity of the land for self-renewal. Conservation is our effort to understand and preserve this capacity.

The 'key-log' which must be removed to release the evolutionary process for an ethic is simply this: quit thinking about decent land use as solely an economic problem. Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.

Soft Clay/Slow Wheel

by Douglass Rankin and Will Ruggles

When we were asked to write an article for this issue of *STUDIO POTTER* on clay and deep ecology, our first thought was: "Well, what do we know about that?" Putting this label on the way we have evolved our system of making pots seemed like trying to make a silk purse out of a sow's ear. But once we began to write, we were surprised at the depth of our feelings on the subject. Writing seemed to coalesce our philosophy.

On rereading this article, however, it seemed pretty hard-assed to us. Yet it wasn't so different from lots of late night discussions we have had with friends over a glass of whiskey. The T.S. Eliot lines from *Four Quartets* came back:

*We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.*

So we pull up our soapbox and begin. If it pushes you the wrong way, we hope you'll give the box a kick and begin the investigation yourself, as we did.

We as a species have denied the total and complete interdependence of all species. This denial began during the Middle Ages, a period when Man was separated from Nature in an attempt to negate pagan beliefs. As a result, Man slowly lost his understanding of the interdependence of all species on Earth. Only now is the current religion of science and technology just beginning to realize the fallacy of this view and is coming to see the total interdependence of all life on Earth—the intricate chain of events that makes the world go round.

For starters, consider the soil microbes that break down organic material into productive, stable soil. Death is transformed into food for life. Through energy conversion, all forms of life change food into waste, which in turn becomes food for other processes. Excess of any one species or waste product (as seen in humans and our use of fossil fuels) disturbs the balance of all other species—in many cases to the point of extinction.

In this new scrutiny of our impact on the natural world, we as potters need to look at how our livelihood affects the life of the planet. If you could grab a hold of a spot somewhere on the world and start pulling, everything would follow eventually. We are all inextricably woven together, past and present, large and small, and damage to one part damages the elaborate chain of events that maintain it.

The links of water, clay-earth, and fire are necessary for potting, but how we acquire and utilize these links requires some investigation. What are the real impacts of our actions as potters on our planet?

Every object, action, and process is part of an incalculably long chain of events. But, for example, we can focus on that part of the chain that takes place in the use of the clay mixer.

It is difficult to know where to begin, but we might start with the geological formation of the ores that need to be extracted and the fuels used to form and run this machine.

Millennia of heating, cooling, and eroding the Earth's crust and its vegetative matter give us the baseline materials of fossil fuels and metal ores. In turn, thousands of generations of the human species, whose development was influenced by climate, various foods, and experience, eventually reached a point of technical insight and began utilizing nature's bounty.

With the advent of industrialization, this utilization made life easier for humans, or so it would seem. Techniques have been refined, and the world economy is now dominated by and, in fact, is based on the bounty of natural resources—particularly fossil fuels, metals, and wood. However, the economic basis is constructed primarily on the costs of extracting and utilizing these resources. Little consideration is given to the values and costs accumulated over the millennia that are needed to replace these resources. Equally important, the hidden or wasteful costs incurred by extracting and creating energy from these materials and by dealing with the waste products are not factored in.

The chains of events and expenditures of energy are countless, and it is impossible to follow all the avenues and byways involved in the production and use of a single clay mixer.

Let's focus, therefore, on the proportionately minuscule time frame (speaking in Earth time) taken to produce, market, ship, and use the studio clay mixer, and the energy spent in this process.

The primary basis of our simplified analysis must be the accumulation of energy expenditures that result in the machine.

MAKING CHANGES

When the Australian Capitol Territory (ACT) State Arts Council invited me to be the artist-in-residence at one of Canberra's rubbish dumps, I felt it was going to be a challenge. Mary Hutchinson, a writer, and I were going to start a project at REVOLVE, a community recycling enterprise that has the exclusive rights to scavenge and sell such things as clothing, metals, glass, building materials, furniture, and so forth, from Mugga Lane Tip.

REVOLVE is one of the sponsors of the project, and, besides doing our own work there, Mary and I would involve the Tip and REVOLVE

workers and "habitués" into doing art work.

I was already acquainted with REVOLVE because I had bought window glass from them, which I crush, fuse, and mold into my art work. So I spent the first month trying to work as a REVOLVE worker, learning to see things with their eyes. There was so much to learn—the value of objects and what it is that people throw away.

Nothing has shaken my perception of values and objects as much as working at the tip. I was surprised to find that people fight when scavenging. My memories returned to the

From the potatoes eaten by a foundry worker to the electricity used to run our machine, all links in the energy chain must be considered. Ore mines, foundries, tool and die shops, and assembly plants are different aspects of producing the clay mixer. All the energy used in these processes as well as the energy consumed by the workers and their families in daily life become part of the Earth's "cost" for a clay mixer. So also with the buildings and office, personnel, the trucks, trains, and boats used to bring a mixer to our door—the list is endless. All these elements are inextricably linked to the true cost of the mixer.

The poignant realization that our use of fossil and nuclear energy creates detrimental by-products far beyond any previous recognition is presently of great concern. These by-products are beyond price. For example, in the early industrial times, smoke made things dirty and people in towns got "the cough" more frequently than those in the country. Today the cough has many names: TB, emphysema, cancer, to name a few. The smoke also has many names: nitrates, sulphurs, ozone, a multitude of carbons including chlorofluorocarbons and radioactive carbons, heavy metals, and so on. All these materials have important attributes for life in small doses but are deadly in excess. How is one to name a cost for illness and death?

Another cost factor is the greenhouse effect created in the Earth's atmosphere by these gases. Food and timber are not growing as well as thirty years ago; weather patterns are becoming extreme; soil and water are accumulating toxins from rain and effluents; the rays of the sun are becoming toxic to the plant and animal kingdoms.

country of my birth, Brazil, where people placed locks on their rubbish to prevent the poor from "messing" with it.

I began to recycle my sculpture, too. The materials changed into performances with the workers, then became interferences at the dump, and back again into sculptures.

Mary and I have been working at the notion that the Rubbish Tip is a sea: the "tides" are the bulldozers pushing the garbage twice a day. We comb the "beach" searching for objects that can be reused. Moving cliffs . . . hot . . . hats . . . sun cream.

I am working also on a series of Medicine Cabinets. They are shown just as they

are, old medicine cabinets that one has to open to find things. A reverse Pandora's box, though, given to decreasing chaos. The remedies are free, as in the "Water Medicine" where I use one of nature's most recycled materials, water.

We continue the Art Work at Mugga Lane Rubbish Tip, but my mind shall never be the same.

DINOSAUR'S PISS, SWEAT, RAIN, BODIES? TEARS, SEA, A NEVER-ENDING RAINBOW IN THE AIR OF MY THOUGHTS. PLEASE GIVE ME A GLASS OF WATER!

Marily Oppermann
3/7 Naas Road
Tharwa, ACT 2620
Australia

So if we consider the clay mixer from just an individual's perspective, it is simply a time- and labor-saving device, but if the planet is running the tab, the bill is quite different.

In our own pottery, we have ended up with systems that have relatively short chains of events, utilizing as much as possible low technology, local materials, and personal bodily energy.

It is difficult to pinpoint why we developed in this way. Was it reaction to the '40s, '50s, '60s, and '70s, and the seemingly mindless extraction of resources and the inevitable wastes created from the physical changes needed to convert coal, oil, plutonium, and the like into power? Was it the assumption that using the technological systems employed to create our favorite historical pots (early Korean, Chinese, and Japanese) would help us emulate the feeling and gesture that we love in those pots? Was it the gut feeling that the ease and efficiency of life created by mechanization of our society was loaded with hidden costs and shrouded with unseen negatives along with the wonders of the good? Or was it simply the fact that we ended up in a place with no electricity?

Obviously, many considerations played in the choices that we made, but perhaps the strongest factor was that low tech is the easiest, cheapest, and the most efficient way for us to make pots.

Our clay mixer is a recycled stock water tank, and our equipment includes a cement hoe and a group of wood, metal, and cloth drying racks. Its power source is the food we eat converted to energy by our bodies. The waste from this conversion is nontoxic and biodegradable.

We mix 1400 pounds of dry materials in the tank of water to a cake-batter consistency. We start with feldspar and other minor ingredients that need to be mixed thoroughly, then add the main clays bag by bag.

The slip is then poured onto bedsheets laid in drying racks made of 2x4s with sheep-fence bottoms. These racks stack up, and a tin roof fits on top. It usually takes about two weeks for the slip to air-dry to throwing consistency. The sheets with clay in them are then rolled up, carried to the clay box, unrolled, and the clay is dumped in.

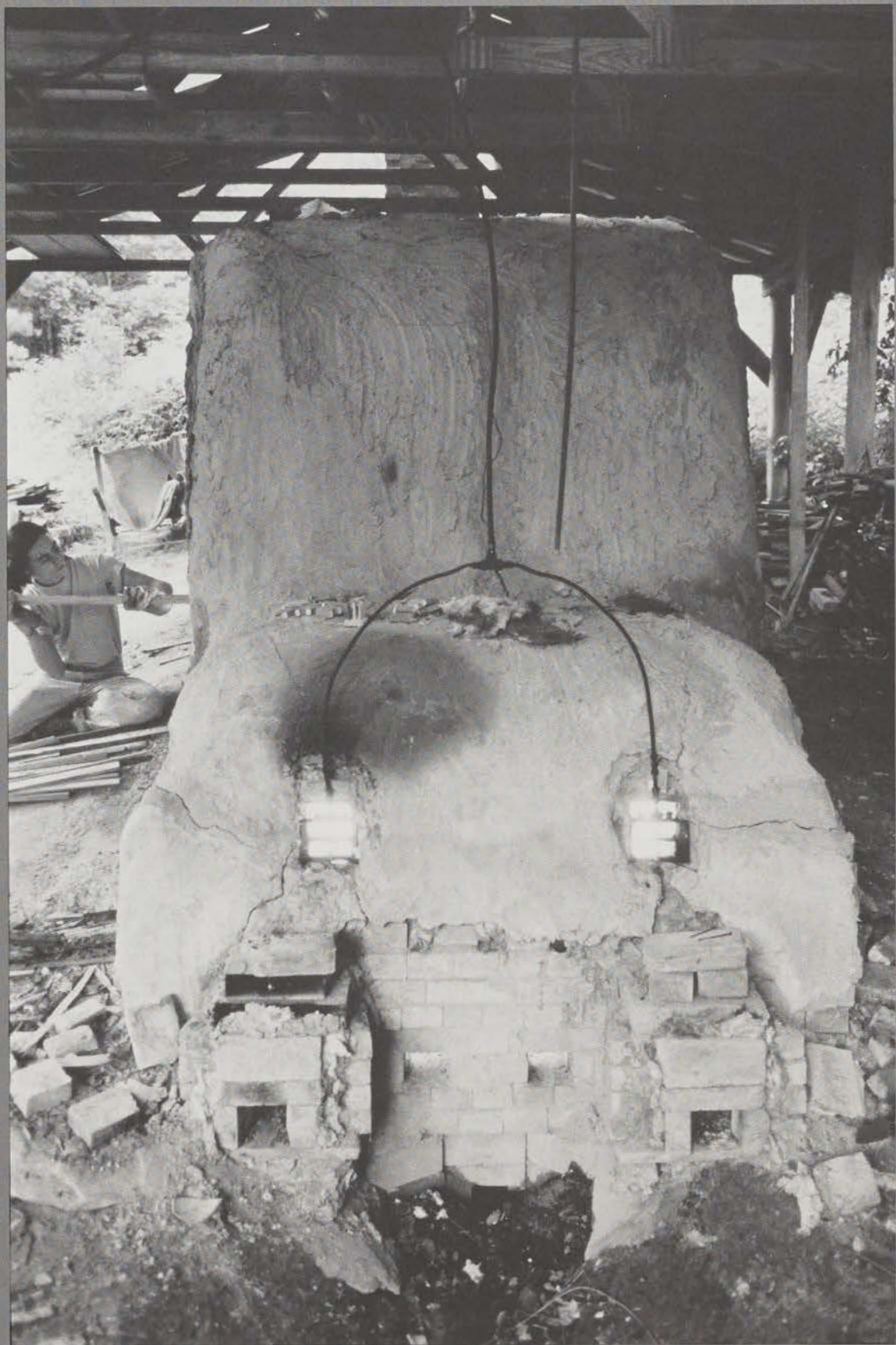
It takes about two-and-one-half to three hours total hands-on time for one of us to make 1800 to 1900 pounds of very plastic, relatively airless, wet clay.

We wedge 40 to 50 pounds of clay at a time and tear balls from this, or make two humps of clay.

Though this system has been used for centuries, it is still efficient by any standard.

For years we couldn't understand why anyone would use a pugmill, since it only took us thirty minutes or so to prepare a day's clay. The answer came one day as we were helping a potter-neighbor prepare his clay and the stuff was so stiff that making one ten-pound ball wore us out! By the time our friend had made a day's worth of clay (2 to 3 hours), he was exhausted.





We hadn't realized how soft the clay we worked had become over the years. This is due to the fact that we are completely opposed to unnecessary work. We throw on very low momentum, Korean-style (wooden) wheels, and we wedge our clay—which makes working with hard clay too difficult.

Soft clay, in combination with the "line" tendency that our wheels give, makes it easier to reach our aesthetic goal. Soft clay and low-momentum wheels seem naturally to produce pots that have even compression and reflect the throwing process with relatively spontaneous gesture. The pots' structures don't tighten up from that lovely leatherhard state on through the firing process.

Our pottery is an 18 × 22-foot converted horsebarn. Although this space sounds small, two of us work regularly in it without noticing one another, and we have worked comfortably with three people for extended periods of time.

The ware racks were built to accommodate a little more than one kiln load. (When the racks are full, we are ready to fire.) The benches are Japanese in style and act as a seat for throwing as well as a worktable, and the area underneath holds just enough scraps for a recycled batch of clay that fills the drying racks. The clay box holds a load of clay from the drying racks, and its top is the wedging table.

We bought a slab roller one day and sold it six days later. It took a lot of space, and we found that our old system of slab-making was more efficient for us.

This slab-making system is another ancient method. We have several pairs of $\frac{3}{4}$ × $\frac{3}{4}$ × 12-inch sticks with notches cut at the same interval down the sticks. The distance between notches determines the slab thickness.

A mound of clay about 8 to 10 inches high is beaten into whatever-shaped slab we are making. The slabs are then cut by a wire stretched between the notched sticks, starting near the top of the mound with the sticks held perpendicular to and resting on the tabletop. We pull the stretched wire through the mound, then move the wire down one notch and proceed, creating a stack of 5 to 20 slabs in a very short time.

The slabs are then lifted off, put on $1\frac{1}{2}$ × 4-foot plywood boards, compressed slightly with a soft rubber rib, and slid into the slab rack to dry to working consistency.

Our pots are all decorated and glazed leatherhard. When we first quit biscuiting, we figured we could increase production by about ten percent with the time saved. It was easy to quit: it took a day to pack the kiln, a day to fire it, and when we unloaded, the pots were pink and covered with wood ash, which had to be dusted off before glazing.

The kiln is a three-chamber climbing kiln. It fires between 700 and 800 pots in 16 to 20 hours on less than one cord of wood. It has brick footers for the shelf pots to start on, a sand floor, and catenary arches that are $4\frac{1}{2}$ inches thick. This saved us from pouring a concrete slab and using hundreds of extra bricks, as compared with typical American kiln construction,

and is without noticeable firing inefficiency. The wood is "waste" wood from local sources and is a renewable resource.

Two years ago we added propane preheat overnight and drip-feed oil to finish the first chamber. This reduced the wood use—and therefore ash—in the first chamber and cut our firing time by 3 to 4 hours. It has increased our expenses and the planet's by around 20 gallons of oil and 20 gallons of propane four times a year.









These fossil fuel adaptations are efficient in terms of heat. The propane dries the kiln while developing the kiln draft, and the drip-oil burners work perfectly with the flue and chimney arrangement necessary for an efficient wood kiln.

Obviously, every potter has individual needs, but for us these systems are the easiest possible means to get the pots that we want. We have also found them to be efficient, both economically and ecologically.

Relatively speaking, our cash outlay to make and sell the pots is dirt low. There are no machines to buy, maintain, or run, aside from the truck. The kiln is light in materials for its size and efficient, partially because of its large size. The fuel for the workshop and kiln is predominantly local, renewable wood. About 35 percent of our materials are mined close by, cutting down on transportation costs, and the electricity that we do use is produced from a stream of water on our land.

Over the ten years we have worked at this pottery we averaged about two-and-one-half months per year to work on house improvements, to travel and, in the last few years, to work on the battle to reduce the habitat destruction by the clear-cutting of our neighbor's land: the National Forest.

This work has necessarily heightened our awareness of the importance of balance of all species—from worms and bacteria to flowering plants to food-bearing trees to predators such as bobcats, owls, and humans.

It has also made clear to us the trend of our species toward mindless extraction of resources, of which a large percentage is simply wasted. This waste could be minimized through mindful consideration, with no loss of comfort or convenience, and would go a long way toward healing the ecological illness we have imposed upon our planet. The best step-by-step approach is to shorten the chains of events necessary to make the products we use, and to upgrade our habits and products in terms of real efficiency.

Local products eliminate the middleman waste of transportation and mass marketing. Thoughtful consideration of supposed labor-saving devices may, in some cases, eliminate the need for a tool or machine.

It's time to wake up, use our intuition and question the status quo of our society's basis of consumption. There is nothing beneficent or righteous about this quest. It is pure self-preservation when our combined actions inadvertently cause the slow suicide of our species and the murder of thousands of others.

We are all original productions whose character and needs are determined by our particular positions in the vast and ever-changing chain of events called existence. There is therefore no one right way to attain balance; truth comes not only from information but also from personal realization.

An excellent tool for investigation and change is to keep "Earth costs" in mind as we attempt to find our personal balance in the web of existence.

The responsibility *and* the ability for positive change do not lie solely with government and the corporate bad guys; it lies with each individual. The combined force of a multitude of people living, acting, and voting thoughtfully can set up the positive chain reaction necessary in our time to create ecological—and thus personal—well being.

Douglass Rankin and Will Ruggles are production potters and proprietors of the Rock Creek Pottery, Rt. 2, Box 235, Bakersville, North Carolina 28705.

The Secret Life of Clay

by Guy Murchie

Is clay alive? Does it want to live?

It wouldn't seem so to a casual observer looking at a shovelful of clay dug from a tennis court. But to a philosopher who can't find any clear line between life and nonlife, especially if he is cosmic-minded, there is much to make him think the answer must be "yes."

Of course, the tempo of clay life is extremely slow compared with that of vegetable life, even slower compared with that of animal life, but, if you accept Einstein's famous dictum that time and space are not fundamental, why not give clay more time to make itself understood? After all, clay is definitely part of the soil of Earth, and Earth may be a fair sample of a living planet in this universe—which brings me to surmise that clay may well be part of Mars and any other planet in the cosmos.

It is surely reasonable to consider clay alive and a basic ingredient of Earth; especially if you recognize it as a vital and fundamental part of life's omnipresence in everything from the nearest rock to the farthest star.

The structure of clay is not so different from the structure of an animal, for it has "bones" made of quartz to which cling softer compounds of feldspar and mica corresponding to flesh, it can "breathe" without lungs, as vegetables do, and reproduce itself as crystals. This is most evident in clay's complex molecular organization comprising at least thirty elements whose crystals tend to align themselves in alternating sheets of silica and hydrated alumina rather like club sandwiches. These layers can be only one thirty-five-millionth of an inch apart and are electrically charged so that rather intense chemical interactions take place between them.

In one typical form of mica clay, the alumina sheets have hexagonal holes that line up opposite similar holes in the silica, and the sheets are riveted together with potassium ions that exactly fit the holes.

But the greatest potential in clay probably results from the very smallness of its particles. Based on the geometric principle that cutting any solid into pieces increases its total surface area proportionately to the smallness of the pieces, the effect becomes dramatic when these are the caliber of fine powder. Thus, the finest clays have a total surface as vast as ten acres per ounce, which makes them strongly colloidal, notoriously sticky when wet, and chemically potent enough to be molded and fired into bricks, tiles, and pottery.

Another vital part of soil is humus, which is composed of rotting vegetable and animal matter. This mucky protein helps hold the skeletal grains of quartz together, along with many other compounds of carbon, oxygen, nitrogen, phosphorus, and so on, that add up to the basic living substance of Earth. All these components of soil, both organic and inorganic, though mixed together none too evenly, tend to form crumbs, except in sandy places, up to about one-eighth of an inch in diameter. Each crumb represents a tiny sample of the local earth and is familiar to anyone who gardens or handles dirt.

In aggregate, these crumbs seem to be tranquil little clods of inert, mellow tilth, but their apparent quiescence is illusory;

they are not only teeming with individual vegetable and animal life but are in a real sense alive themselves. They actually inhale oxygen and exhale carbon dioxide, and tests show that normally the air in the top five inches of soil is completely renewed every hour. And many feet below that the soil still breathes, though progressively more slowly as the moisture and carbon dioxide content of the air increase with depth.

If it seems incredible that hard clay could be breathing, just remember that crevices only one-thousandth of an inch wide, much too small to see without a microscope, are as much bigger than an oxygen molecule as a valley one hundred and twenty miles wide is bigger than a man.

When it comes to rocks, understandably they are not considered alive by most people. But we are clearly called upon to search for life everywhere, including where it is least expected. And where would one expect life less than in a stone?

It is the crystal structure of the solid mineral that gives it these attributes of life, the essence of a crystal being the steady equilibrium of its lattice skeleton. In fact, the crystal is so constructed that it always tends to maintain itself in a stable balance, automatically restoring its shape whenever it is forced a little out of line in any direction. In effect, it "wants" to hold onto the exact anatomy it already has—and maybe annex more of the same sort of structure if offered half a chance.

This lattice structure is a reproductive system as well because the molecules that construct the layers of growth, if they are to be accepted at all, have no alternative but to attach themselves

THREE STRATEGIES

Today a respect for our environment carries with it an element of responsibility to protect that environment. In Ruskin's day artists felt themselves to be separate from, in fact superior to, the lower orders of life; after all, Darwin had more or less proved this to be the case.

Today the relationship between the artist and the environment has completely changed. The artist now sees that he/she is within the natural order, every bit as vulnerable as the plants, animals, rocks, and waterways that are the source of inspiration and delight.

Unfortunately, ceramics is a dirty business. Most technologies that use energy tend to have minus points when viewed from a conservation perspective. Most of us are now aware of the main problems associated with our craft and are taking steps to mend our ways and to eliminate noxious practices. I can't see how anyone can claim to be at one with the world whilst continuing to slop heavy metals down the drain. One has to be determined in order to change habits of a lifetime.

Though my production is small, I am adopting three

at exactly the correct angle for whatever the substance is: 90° in the case of salt or sulfur, 60° in snow or quartz, odder angles in odd crystals like axinite or rhodonite. It could even be called a rudimentary genetic process because the crystal lattices themselves serve as "genes" in admitting only one specific kind of molecule to fasten and grow upon them. Very probably it was life's first and simplest reproductive technique on Earth. And it has evolved dozens of different forms such as the pea-like clusters of bauxite crystal, the hairy ones of asbestos, the sea-urchin-shaped radial globes of wavellite, the "asparagus sprouts" of limonite, the foliated nuggets of copper, the nerve-like branches of psilomelane and the serrate leaves of muscovite—all of them crystal species with growth habits that dramatically reveal their kinship with the rest of life.

If we add to the three familiar kingdoms of animal, vegetable, and mineral the celestial kingdom of hot plasma, our resulting four-kingdom classification will obviously include the blazing suns that spawn the planets, more distant cousin stars, and, by extrapolation, all the galaxies and supergalaxies to the farthest reaches of the universe. Every star, by this reasoning, should be at least as alive as a rock or a grain of sand. And the Earth of which we are a part, all the more so.

Guy Murchie is a philosopher and the author of The Seven Mysteries of Life, Song of the Sky, and Music of the Spheres. He lives in California. Portions of the above text are reproduced with permission from The Seven Mysteries of Life.

strategies to try and clean up my act. First, adopting a simpler approach to making sculpture, eliminating toxic materials as much as possible, and single-firing unglazed objects to a lower temperature in oxidation. Second, I am checking up on suppliers. Recently I discovered that according to Greenpeace, Morganite has failed effluent tests 33 out of 37 times in the last five years. I will avoid their products until I hear of improvement. Joining an environmental protection organization is a good idea. Third, and probably the most demanding though at the same time more rewarding strategem, is to in-

vest in less finished work. Quite simply, don't complete anything that isn't the best you can produce.

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HAWAIIAN CLAY AND GLAZES

Maui clay is found near its primary location next to the rocks from which it is decomposing. It is a montmorillonite clay, coarse when dug, and needs to be hammer-milled and sieved before use. It fires to a metallic black, and I like to use it for sculpture.

Maui Clay

Maui clay	66
Mason's blend fireclay	10
Columbia fireclay	15
Bentonite	5

Woodash Glaze

Woodash	50
Custer feldspar	20
Whiting	10
Silica	15
Kaolin	5
Nepheline syenite	5
Dolomite	3
Bentonite	7

Ash

mango trees — yellow
 banana leaves — light green
 sugar cane — dark green
 grasses and ferns — blue
 wild hibiscus — yellow-green
 eucalyptus — dark-brown
 guava — green
 keave — yellow

I wash and dry the ash. After mixing in the glaze, I use it on leather-hard pots, often over a slip composed of 90 parts Maui red clay and 10 parts colemanite.

Our culture has so many problems. It teaches us to be individuals first and group members second. This is contrary to nature's rules of interdependence. For the human race to survive, we must forget the "me" and join hands to care for each other and our environment. I want to make pots that put people in touch with each other and with our mother, the earth.

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The Spirit of the Earth

by Barbara Gonzales

Caw, Cawl . . . Caw, Cawl! . . . brother crow announces our arrival to gather clay as a westerly storm approaches.

"Over here?" I call out in our Tewa tongue from the driver's side of my four-wheeled truck, and my grandfather Adam answers, "We ya! (a little bit more!)." My grandmother Santana replies, "Nae-wai-boll! (I like it here!)," and my grandfather agrees. So we stop and I back up the truck. We have arrived at the clay site and I take out the necessary tools: a small window screen used as a sifter and three clean 25-pound empty flour sacks. We walk down a gully and up to the side of a small hill.

My grandfather opens his cornmeal pouch. Cornmeal is a sacred nourishment offered to the deities who make all things possible for us. We each take some cornmeal and sprinkle it over the ground. Now an age-old custom begins: Words of praise said in our native San Ildefonso Tewa language, we each voice a prayer and my grandfather Adam leads us . . . "Naw-in be Na-Poe Quiyo" . . . "Our Mother Earth, Clay Woman, you have given us so much. We wish to thank you Mother Earth, Clay Woman, you have given us so much. We wish to thank you. We will take only what we need and return to you what we do not need. We know others [potters] need you, too. Thank you for helping us all. May we use it wisely . . . Koo-da! Thank you . . . Na-Poe Quiyo."

To me, Barbara, Tahn-moo-whe, Gonzales, this ritual begins an ancient custom handed down to us from a long line of descendants of potters. This memory was begun for me by my great-grandmother Maria, Poveka, Martinez, a potter who, along with my great-grandfather Julian Martinez, revived and made famous the beautiful black-on-black ware from San Ildefonso Pueblo, New Mexico. It was Maria that I had seen giving homage every morning during my childhood years. And whenever we took her to gather clay . . . "The spirits they stay with you," she said.

Now this practice—a ritual from the time the use of natural clay for pottery-making began—is carried on by us: my mother Anita, my grandparents Adam and Santana, and my sons Cavan, Aaron, Brandan, and Derek. Cavan, now twenty-one, is a third-year student of art and ceramics at Alfred University, New York; Aaron, nineteen, is a soldier in the United States Army. Brandan is in the first grade, and Derek is a three-year-old potter and still at home. I know this spiritual offering will be continued by them.

As children we were told, and are reminded as we continue in our growth: "Respect all your surroundings, hold dear the Earth from where all things come. Sacred be the homage you give. She hears, she talks. Listen and you will hear. Look for signs and you will be told. Nature works in harmony. She bleeds and each child she brings forth is good. Mother Earth cares and needs caring." Such are the words of wisdom from our elders.

Being a potter, I sprinkle my cornmeal offering before I gather my clay, and a commitment is given: To use clay with respect and diligence. From the dry clay to a work of art, my prayers are said over the pottery. I think of my pots as if they

were persons and wish them well. My prayers go with them when they find a new home.

But nature is slowly being altered. No longer can we roam places that were once a potters' paradise. Now we use what is available within our reservation. Our resources, though limited in scope, are plentiful in quantity. We treat them with respect.

Like the contours of Mother Earth, people also change. It is my deep concern that future generations will not respect and appreciate Mother Earth. Each generation changes in attitude, customs, or social life, whether they are Native American or non-Indian. Nature does not always take precedence, but we must all learn to heed her warnings.

Giving reverence to this substance called Mother Earth symbolizes an emotional gesture that is reflected in all I do as a clay artist and potter. This reverence enhances my pottery. I decorate with Mother Earth's help. I use her designs. She gives the pottery meaning and makes it beautiful. Beauty comes from within the clay, made outwardly visible by the luster. I am her mode, and she works through me.

To me, being a potter means Life is Earth, Earth is Mother, Mother to us all. She is "elements," that which affects us all. Ecology is her concern . . . *She is life!*

Barbara Gonzales is the eldest great-grandchild of Maria and Julian Martinez, eldest grandchild of Adam and Santana Martinez, eldest daughter of Anita Pino Martinez, also eldest in her generation of Maria and Julian descendants. Barbara lives in San Ildefonso, New Mexico.

Barbara Gonzales: I have initiated and established a scholarship fund on behalf of my great-grandmother Maria Martinez. It is a college scholarship fund for juniors and seniors working in a four-year institution toward a degree in any field.

I feel that Native American students in their last year or two need extra aid to encourage their getting a degree. For a Native American whose tribal roots are important, higher education is forfeited to pursue other duties in tribal life. A sacrifice is made and formal education suffers. This scholarship is a must and will be based on scholastic average and need. I hope this extra boost will encourage in-

dividuals to stay in school and become a greater asset to their community with their new knowledge and experience.

A tax-deductible donation of any amount will aid the fund. A collector's commemorative poster of my great-grandmother Maria will be sent to you with a \$50 non-profit, tax-deductible donation. For \$65 or over you will receive a copy of the same poster autographed by various members of Maria's family.

Please send inquiries to: Barbara Gonzales, Sunbeam Ltds., San Ildefonso Pueblo, Rt. 5, Box 304-A, Santa Fe, New Mexico, 87501. Phone: (505) 455-7202 or 455-7132.

Koo-da! Barbara.



Report of a Sighting

by George Kokis

This amounts to a report of a sighting. There was a search, an opening, and a going within. Most of all, there was an invitation. And therefore an appearance. The Green Man appeared!

I will digress for a moment to state that I have not been a conscientious environmentalist. Lending occasional political support and integrating recycling on a daily basis doesn't mean issues of deep ecology have been paramount with me. All I intended, on that late summer day, was to plan something interesting for my ceramic sculpture course. The only ecological connection was what is always inherent in any endeavor in the arts.

As with most studio classes, I usually teach my sculpture class from the perspective of the material and the working processes. I consider the content of the work an individual concern, self-selected by the student. Though I had no reason to be dissatisfied with that approach, I found myself wondering what would happen if I predetermined the content. Since that felt somewhat against the grain, I decided I would have to find something broad enough to accommodate everyone's imagination.

Then the Green Man, as they say, "popped into my mind." I don't know why. Certainly I knew little about it myself, but that has always seemed to me a healthy basis for a new learning enterprise.

When the class formed, I offered the idea for their consideration, making it clear that if we were to go forward, I would determine the content and subject for the entire term, that everyone would have to agree to stick with it, even if they became bored. They would be free to work in any style, representational or abstract, to any degree that suited the maker, but they would stick to the content.

They were intrigued and wanted to play along and I then announced the subject was the Green Man.

As you might expect, the first thing someone asked was, "Why is it a Green Man? Can't it be a Green Woman?" I didn't know why not and left that up to them. For my part, the first thing I asked of them was that they not "look it up." There was to be no research—for now. They would have a two-week warm-up period to do anything they wanted with the clay, to get to know the studio and each other, and to just let the Green Man soak in to their imagination. After that, we would turn our attention solely to the mystery guest.

Now I passed on to the group what I knew about the Green Man. The Green Man—a head or body with foliated hair—though originally a pagan image, is found in sculptural representation in many churches of the Romanesque and Gothic periods from Ireland to Russia. There are likely other epiphanies in the East and other parts of the world. The Green Man goes dormant periodically, sometimes for centuries, but awakens again and again. For example, it was popular in the late Victorian period but vanished in the twentieth century, exiled along with all sculptural decoration in the building arts.

Now it seemed to be returning to consciousness again, as though a sleeping archetype were waking up. My question,

and the charge that the class had accepted, was: Why is he returning to our awareness now? What they had agreed to do was to invite this image into their imaginative sensibility and see what it wanted from us.

I felt prepared for this work because I've been doing similar things in summer workshops and specialized studio classes. Students are apprised beforehand of the approach I use since that approach draws heavily on mythology, storytelling and particularly on Carl Jung's concept of the unconscious. This was to be the first time I applied these methods to such a degree in a conventional studio class.

I was counting on the magic of archetypal imagery to appear and direct our efforts. If we did the work and prepared the ground, I sensed that we would receive something we all had needed. I urged them to evoke rather than to describe. To deliver themselves to their unconscious individually and collectively; not to work from example but to turn toward the image, letting it grow in them as they returned to it again and again with the gift of attention. In this way they became acquainted with that storehouse of images that the artist does not invent but receives.

In time, a veritable forest of green beings emerged in a terrific variety of expression. Though many students had little experience in forming techniques, the power of the content led them on with a boldness usually evident in little children. Once the work was manifest there was the matter of amplification. There would be no quick consumption of image but a soaking in its juices, each student producing several versions on the theme.

We all enjoyed working energetically on something we knew so little about cognitively. For amusement we listed possible candidates for the Green Man. The list included: Kermit the frog, the Jolly Green Giant, the Hulk, Aliens, Jack's Giant, Sir Gawain's Green Knight, Green Man (Batman), Iron Hans, the Green Knight (Danish), Green Mountain Boys, Silvanus, Cernunnos, Dionysus, Gollum, Vegetation Spirits, Robin Hood, Green Arrow, Green Lantern, Peter Pan, Pan, Green Party, the Heap, Leprechauns, Dagda, Orpheus, Narcissus, Adam, Grain-gods, Tree-gods, Gumby, St. Francis, Adonis, Attis, Osiris, Diana, Green George, Tammuz, Kostrubonko, Corn-mother, Huitzilopochtli, Frey, and Geb. Candidates from many countries and cultures. Certainly not a inclusive list but well representative of the green fraternity.

A few weeks before the final review I placed names from the list in a pot and had each student pick one at random. Each was to give a five-minute presentation on that figure at our final review. This was to be the objective phase of our study, not undertaken until the subjective phase had been thoroughly established.

At the review, each class member delivered her or his part of the whole, a picture none had seen completely. As the random information accumulated, a vibrant and richly colored pattern began to appear. I've arranged these aspects of the Green Man in in a rough chronology.

The idea of the Green Man was generally treated as an amusing but often sinister survival of the old pagan religions. The original forest dweller, the Green Man of Old World mythology, was thought to take care of plants and animals in the forest and was known variously as Dionysus, Osiris, Gilgamesh, and by many other names. He was the son, lover, and guardian of the Great Goddess. Whenever the Goddess appeared in some new aspect, the Green Man was likely to arrive on the scene as well. She who fertilized nature must herself be fertile, must necessarily have a male consort.

The Green Man is also connected with the Celtic Druids, the "Oak-men." Baltics, Teutons, Greeks, all burned oakwood fires in sacred groves. There are many accounts of rites and folk customs in which a man, dressed overall in leaves, underwent some form of ritual decapitation. The killing of the tree spirit in spring was intended to promote and quicken growth and was always associated with a revival of the spirit in a more vigorous form. From early times on, the tree has been a symbol of immeasurable truth, the cosmic pillar or world axis around which

the universe revolved, and above which was the north star, the origin of our Christmas tree. Trees were revered as sacred objects. Under an old German law, a person who violated a tree was nailed to the tree by the navel and the guts were unwound till they surrounded the tree. A grotesque outcome of what can happen when symbolic vision is petrified by literalists.

This is only part of the kind of information that unfolded for us that day. The connections and associations were profound and never more so than when we turned our full attention to the clay forms that had been produced well before all this data had been collected and presented.

There it all was! In images formed subjectively from each person's own well, we could sense the common water table that had been tapped—each separate interpretation authentic yet genuinely related to a comprehensive tradition of poetic human concern for nature's bounty and its continuance. Until now, the imagery and conviction had been hidden—from others and from ourselves.

I couldn't say I was surprised. We introverts internalize everything. I see art as a ritual "going below" or within if you prefer. While modern methods, as in science, move from the general to the particular in a rational-linear process, the artist persists in moving from the particular to the general. A folly that generates every new thing as well as countless wacky ideas. Sure, there is the danger of trying to define anything as vast and liquid as art in one short sentence as I've just done. Whatever we manage is as a mere drop of sap from an immense tree in a forest of unimaginable dimension, and can be taken as such. But that is our task and our risk as art makers: to gather that spot of amber from nature's chaos, small but truly representative of all that we cannot own or circumscribe.

We concluded our work together with no definitive understandings or clear-cut meanings and hauled off our trophies, somewhat confused about what had actually happened. I chose to write about it as my way of wondering and invite your wondering if you are of a similar mind.

I can say that the concept worked very well across the board for the class. Of course we had, as does every clay class, the advantage of dealing with matter. The clay gives weight and dimension to ideas, and too elaborate fancies are quickly perceived for what they are. The fact that we shared the theme produced a cohesion utterly unknown when everyone is off on her or his personal pursuits. Though some had trouble relating to the theme, the archetype is so deep that everyone "knew" more about it than they ever imagined. I see it as an example of what the Greeks called *metis* or intuitive intelligence. For the students and me, there was never a vision, only a notion: how would it look if . . . That proved to be enough.

Stepping back from the experience, I have several questions that both soothe and agitate my thoughts. Our general cultural stance seems to be one of trying to destroy the orders of the past and replace them with methods of the scientific-corporate/managerial age we live in. Increasingly, we are becoming aware 51



that many of these methods represent even more desperate pitfalls than those we want to avoid. Everything is organized for profit and exploitation, including our creative energies.

There are now generally two creativities: a fast, applied kind that deals with specific purposes and is consumed quickly; and the other, slow, exploring the deeper fringes of cognition on a long-term basis. One had better know where one's allegiance is to be placed because the unconscious *is* unconscious. We cannot know our true preference directly but only through the manifestations of the unconscious: dreams, works of art, and so on. For the collective life, as in the individual life, to be conscious of what is moving in the psyche reveals the best manner of dealing creatively with the power of change rather than being overwhelmed by it.

This experience reaffirmed my belief in the important role that education in the arts plays in creative awareness of our common global inheritance and its uncertain future. That's the soothing part.

The agitation is stirred by the thought that we may only be engaged in empty sentimental gestures, much like the artists of the nineteenth century, painting pretty pictures of bucolic landscapes even as those landscapes were rapidly disappearing. If so, whatever urgency we feel is justified.

I conclude we must assume nothing but be alert and open to *metis*, to intuitions such as the Green Man who remains more than we can know but is also that hidden "natural" part of ourselves, that authenticity that lives before and after all culture.

I WONDER IF THE GROUND HAS ANYTHING TO SAY?

I wonder if the ground has anything to say? I wonder if the ground is listening to what is said? I wonder if the ground would come alive and what is on it? Though I hear what the ground says. The ground says, It is the Great Spirit that placed me here. The Great Spirit tells me to take care of the Indians, to feed them aright. The Great Spirit appointed the roots to feed the Indians on. The water says the same thing. The Great Spirit directs me, Feed the Indians well. The grass says the same thing, Feed the Indians well. The ground, water, and grass say, The Great Spirit has given us our names.

We have these names and hold these names. The ground says, The Great Spirit has placed me here to produce all that grows on me, trees and fruit. The same way the ground says, It was from me man was made. The Great Spirit, in placing men on the earth, desired them to take good care of the ground and to do each other no harm. . . .

—*Young Chief, of the Cayuses, on the occasion of an Indian council in the Valley of Walla Walla in 1855, in opposition to a treaty formulated by the Governor of Washington Territory whereby the land was to be sold to the government to form three reservations. From Touch the Earth by T.C. McLuhan (Outerbridge & Dienstfrey, 1971).*

Since the iconography of the Green Man combines leaf and human hand, it can be taken to symbolize the union of the inner and the outer and presents the Green Man as the prototype of the poet. Perhaps the prophetic poet returns to our awareness now because his forests and all that is naturally genuine in the world are in danger. He comes to warn and to heal.

Have there been other sightings of the Green Man? Has this apparition appeared to others? I am sure this is so, in many ways and forms. This internal envoy has a vital message. It is likely our future depends on the kind of reception we offer the messenger.

George Kokis is a potter and professor of art at the University of Oregon, Eugene, Oregon.

WENDELL BERRY

There are, I believe, two fundamentally opposed views of the nature of human life and experience in the world: one is linear and the other is cyclic.

The linear idea, of course, is the doctrine of progress, which represents man as having moved across the oceans and the continents and into space on a course that is ultimately logical and that will finally bring him to a man-made paradise.

Characteristic of the linear vision is the idea that anything is justifiable only insofar as it is immediately and obviously good for something else. The linear vision tends to look upon everything as a cause, and to require that it proceed directly and immediately and obviously to its effect. What is it good for? we ask. And only if it proves immediately to be good for something are we ready to raise the question of value: How much is it worth? But we mean how much money, for if it can only be good for something else then obviously it can only be *worth* something else.

The cyclic vision, on the other hand, sees our life ulti-

mately not as a cross-country journey or a voyage of discovery, but as a circular dance in which certain basic and necessary patterns are repeated endlessly.

The cyclic vision, at once more realistic and more generous, recognizes in the creation the essential principle of return; what is here will leave to come again; if there is to be having there must also be giving up. And it sees death as an integral and indispensable part of life.

We are kept in touch with these cycles, not by technology or politics or any other strictly human device, but by our necessary biological relation to the world. It is only in the processes of the natural world, and in analogous and related processes of human culture, that the new may grow usefully old, and the old be made new. . . . We can only wait here, where we are, in the world, obedient to its processes, patient in its taking; away, faithful to its returns. And as much as we may know, and all that we deserve of earthly paradise will come to us.

From A Continuous Harmony, by Wendell Berry (Harcourt Brace Jovanovich, Inc., 1970).

Making Ripples

by Marian Edwards

John Leach, noted English potter, was doubtful, when approached earlier this year, about taking part in what was billed as the "Biggest National Green Show on Earth," to be held in Britain's major exhibition centre.

Was he "green" enough? How could he square his unavoidable and repeated destruction of timber in fueling his kiln, for example, with the aims of environmental conservation and ecology?

Reassured by the show organiser that few exhibitors would be completely "squeaky green," he agreed. It was a decision defended by a subsequent London *Times* article in which John Leach's conscientious efforts toward a greener lifestyle were contrasted with the bandwagon attitude of some of his co-exhibitors.

"Green froth is not going to save the world," giped Friends of the Earth, Britain's foremost ecology activists. The motives of the exhibitors were unimportant, countered the show organisers. "The event is only a catalyst of what people want to do."

What John Leach wants to do is to find an ethical balance, to restore or repay nature, and to live in peace with a world which, as he sees it, "we borrowed from our grandchildren."

John Leach, the eldest grandson of Bernard Leach, son of David Leach, has been a professional potter all his working life. His home, studio, and workshop have been situated, for the past twenty-six years, in the simple, unsophisticated setting of a

low craftspeople as a member of regional and national committees and councils.

But all this wasn't enough. Increasingly disturbed by his woodfired kiln's appetite (even though he burns only offcuts), John developed a personal feeling of responsibility to replace in the environment the timber he was constantly destroying. His response, three years ago, was to purchase nine acres of pastureland close by his pottery with the resolve to create within it a traditional English woodland.

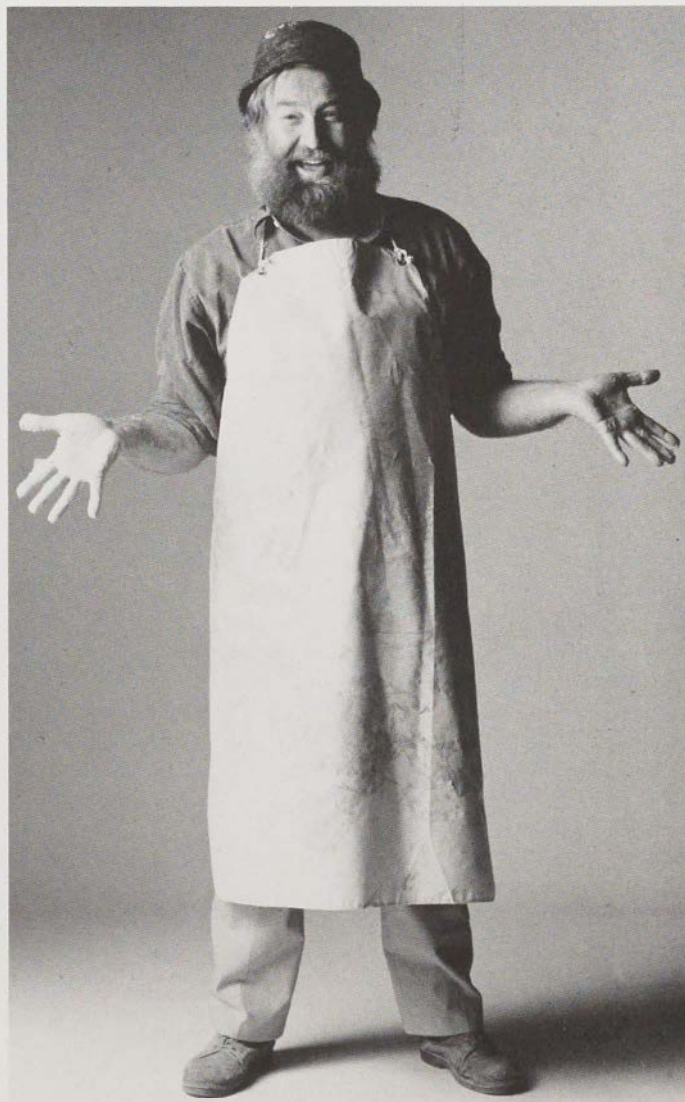
With the aid of a Farm Woodland grant, the plan took root last spring with a planting of 3,500 young indigenous trees. A lake with a central retreat island had already been excavated on the side "partly to demonstrate that we who dig holes in the ground to remove clay can put those holes to sympathetic use for environmental benefit" and partly to establish a poten-



Marian Edwards
paddling a coracle
toward the Leach
forest.

group of restored, 350-year-old thatched farm buildings deep in the peaceful King Arthur country of southwest England's conserved wetlands.

The family grew up, ate, and socialized in one long living room at Muchelney. Artists, craftspeople, Leach-tradition pilgrims—all were entertained at the dominating refectory table, often sharing an appetizing, homey fare cooked daily by Lizzie, his wife. The rustic, rounded pots designed and handthrown by John form the now-classic, repeat range of "Muchelney" kitchen stoneware, echoing an honest, no-frills approach to life. John gives freely of his time to help promote causes of his fel-



tial natural habitat for as wide a spectrum of flora and fauna as possible.

His scheme was described by the English Countryside Commission as "a considerable and positive contribution in restoring the traditional countryside." John is more diffident in his assessment. "It is still in an embryonic stage. OK, so I shall have to wait fifteen or twenty years to achieve anything. But one must start somewhere."

John adds to his personal ecological commitments an urgent search for a burner to fit to the base of his kiln chimney "to burn off the black stuff." He is looking for a new brand of environmentally friendly dishwasher soap powder, and promises to drive no faster than 60 mph!

More important, he is thinking of a future generation of British craftspeople—basket and furniture makers—who will inherit

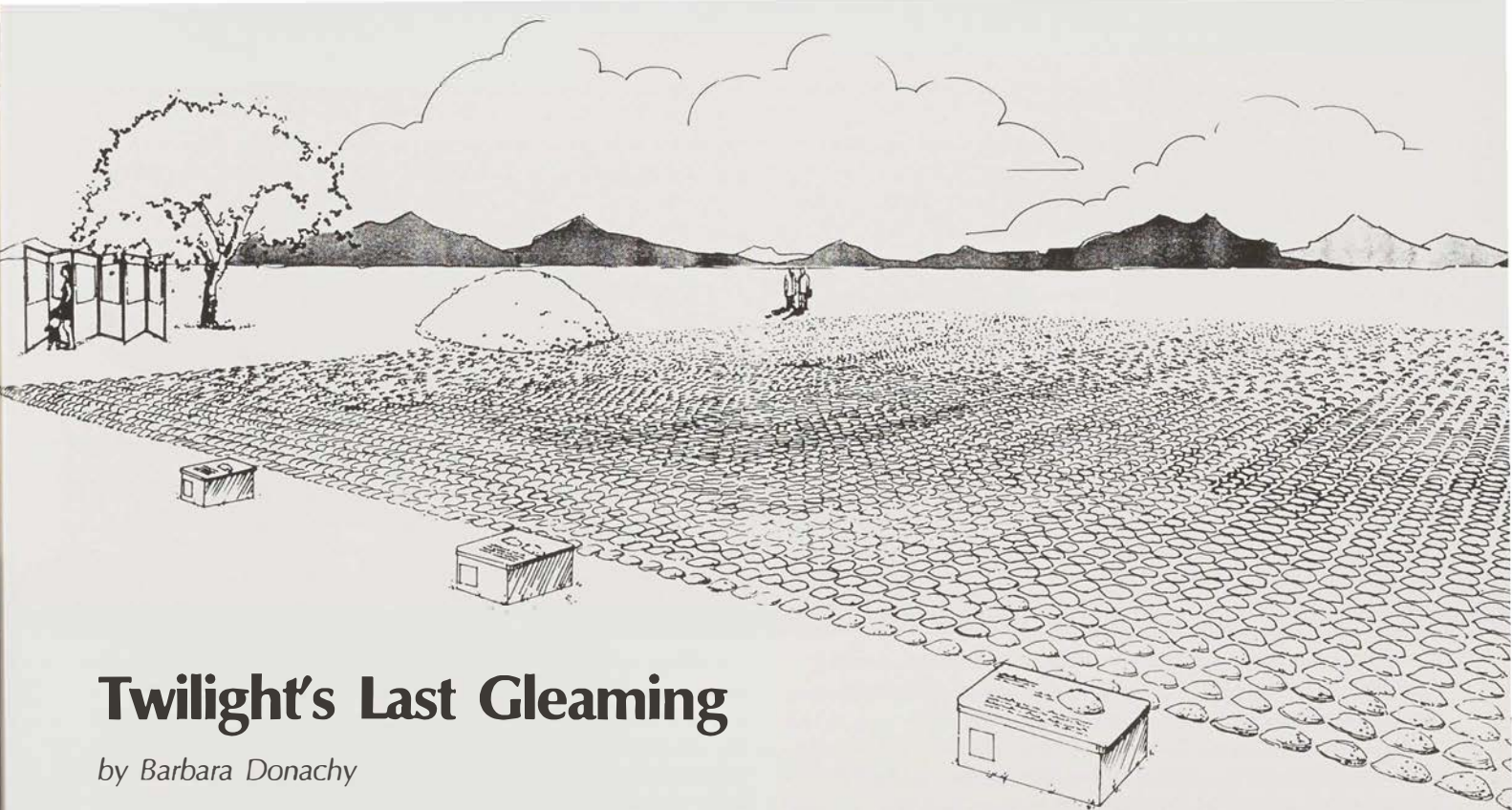
his stock of timber. "We should all be thinking of them. How else can these crafts survive in the future?"

"Even though as potters we use materials that are cheap and abundant, we must act as good stewards. Among the things I hold dear is the Native American belief in a spirit that looks after the world from the aspect of regeneration."

What is his prediction for the future? "It used to be despair. Now I have hope. I know that my contribution is a tiny one. However, we have to make ripples to start waves."

John Leach has given many workshops in the United States. He can be reached at his home in Muchelney Pottery, Langport, Somerset TA10 0DW, England.





Twilight's Last Gleaming

by Barbara Donachy

We live in a time that calls on me to change direction, to take the larger view, and to draw attention to the nuclear patches of death dotting our country and other countries. These patches were meant to keep us "safe," yet they now threaten to kill us and irrevocably alter the future of life on earth. We are our own victims, but there is still hope. To this I am committed and have become a political artist.

I am following a calling or, as Quakers say, "a leading" that involves intense thought and deliberation and comes from my spirit. My art, unlike much political art that is too subtle, too obscure, and difficult to understand, is literal and to the point.

This leading has taken me on the path of creating large scale ceramic installations that address the problems of our nuclear proliferation. Simply put, my projects illuminate the absurdity of the number of bombs our country is responsible for.

My first installation, "Amber Waves of Grain," was completed in 1984 and represented the entire nuclear arsenal, warhead for warhead and missile for missile, in miniature scale. Seemingly endless rows of these pointed objects conveyed an equally pointed message. There were seventeen installations, including one in West Berlin at which 2000 volunteers participated.

I create my exhibits to be tranquil, not high-tech . . . something people can't just walk away from. "Amber Waves of Grain" was a success. Douglas B. Smith, of the Exhibits Department at Boston Museum of Science, wrote to me: "I have never seen the public react to an exhibit with such respectful attention as they have with your work."

For my second exhibit, I was inspired to follow through with what seemed the next logical concept: showing the amount of radioactive material in those weapons and the nuclear waste generated by the weapons industry. Even if we dismantle our weapons, the highly toxic material with which they were built will not disappear.

Instead of the vast number of missiles, my emphasis is on the quantity of plutonium we've created. Plutonium is a highly toxic man-made element named after the Greek god of the Underworld. It has a half-life of 24,000 years; 24,000 years from now, half of the original mass will still exist. And 24,000 years from then, a quarter will be as toxic as the day it was made, and so on. Add to this thought the fact that one-half gram of plutonium (less than the size of a tiny pill), in a contained area could be lethal to more than 500,000 people and wreak havoc on all living things. Consider that one disc in my exhibit weighs about 10 pounds. Rows and rows and rows of these ceramic discs (styled after the "buttons" processed for bombs) represent the actual volume of the highly radioactive pure nuclear material and by-products already accumulated in our nation.

At the time this article was written, the casting and firing of the 20,000 ceramic discs for the exhibit was half complete. When finished, the exhibit will physically represent 100 metric tons of plutonium, 500 metric tons of weapons-grade uranium, and 23,000 cubic meters of high-level and transuranic radioactive waste. The amount is mind-boggling.

"Twilight's Last Gleaming," a name proffered by a member of my pottery co-op (Jill), relates to the fathomless amount of time (half-lives) and radioactive volume implied by the exhibit. The project is based on my belief that some things are too big to comprehend, but that art can reach places in the mind that statistics can't; that people need to *know* before they can act; and that people are concerned, loving beings who *will* act to care for their environment.

To raise public awareness around the issue of nuclear waste, the completed exhibit will be loaned to art, science, and technology museums; churches, colleges and universities; galleries and art centers; environmental, peace, community, and anti-

I Am the Village Potter Making Pots at Findhorn

by Gay Smith

nuclear groups; and institutions serving elementary and secondary schools. It can be exhibited at low cost as an adjunct to conferences or seminars focusing on related issues. Photographs, slides, and video footage will also be available.

From the beginning, this project has required a multitude of skills. I am fortunate to have some of these and to know people willing to donate those I do not.

My husband Andy and I funded the first project with \$16,000 from our savings. It has been the greatest investment in the future we've ever made, but we just didn't have the money for "Twilight's Last Gleaming." Ploughshare and Chinook funds provided necessary fuel for the project—\$75,000 in grants. About thirty people are contributing their efforts, too.

Andy, an inventor and mathematician, has been essential in figuring everything from the volume of a ton of plutonium to what type of bushings to use on the clay mixer.

Six people are casting the pieces, about 200 per day. We use a cone 06 white casting slip, and fire the pieces in a five-shelf saggar-loaded kiln using sawdust, turf food, with a lot of reduction.

It's difficult to peg just when and where these projects began. Perhaps it was my Western Civilization teacher at Moore College who taught me to think for myself and to question authority. Also key was a trip to Europe in 1981, when talks of limited nuclear war had begun to galvanize the European peace and antinuke movement.

Being in that place at that time made war feel close and possible. This was when my consciousness became global and I realized I might never make another bowl. Then I moved (unwittingly) to a place only thirty miles from Rock Flats, the nation's number one plutonium processing facility. All these factors underscored my suspicion that the military-industrial complex does not have my best interest at heart—nor the best interest of all humanity.

If people create a demand to find the best solutions for containing our radioactive monster—not the cheapest or most convenient—perhaps it can be contained. My personal hope is that "Twilight's Last Gleaming" will further evoke positive action and gifts of the human spirit: brilliant minds and creative ideas.

Barbara Donachy is a graduate of Moore College of Art, Philadelphia, Pennsylvania. She is a potter and worked with developmentally disabled elderly people. She can be reached at 2216 Race Street, Denver, Colorado 80205.

The upper half of the wooden front door of Findhorn's pottery studio is glass, and when the door opens, I turn to see who is coming through. This time the door is mysteriously opening itself; I see no one there. Then a small hand appears and my friend Aidan, who is four, says "Hi, Gay!" and welcomes himself into the pottery.

I am happy to see him. We have a talk and he has a biscuit, actually several biscuits. Our conversation ranges freely: how fast he can now ride his bike to the community centre, what I am making, maybe he will play with clay today.

I love being a potter at the Findhorn Foundation, the well-known spiritual community in northern Scotland. Always my friends, my family are around me. I am the village potter, and my village participates in and partakes of my work. We use my pots every day. The pots serve the salads in our community dining room, they receive flowers from our garden and candles for our tables, they hold the salt, candles, teas, herbs, and spices that the kitchen group uses in cooking our food. This is a joy as well as a responsibility.

The pots I make need to be good pots. I look at them every day as people use them. Sometimes my mistakes literally come back to haunt me. When I am making pots, I experience the necessity to be pure of thought, intention, and act, for I believe that pots retain the qualities with which they are made. Just supposing . . . a pot I make while thinking angry thoughts might convey heartburn to those who eat food out of it. I am not sure the process is as direct as that, but there is truth here in a metaphor.

As a potter, I am seeking to work consciously with and to embody in my pots the living elements: earth, water, air, fire. I am looking for greater understanding of the connections between making and firing pots and human spiritual growth and transformation so that I may pass on that understanding in my pots. As M.C. Richards has said: "It is not the pots we are forming, but ourselves." Findhorn is a supportive context for this quest.

When I make pots' on the wheel, I am aware—as often as I can remember to be—that I am working with earth and with water. I am working with what I am made of. At times I have an almost physical sense of working with my own body, with the planet's body, working with the matter, the material, feelings, thoughts of who I am, who we are. The water mediates and moves between us, we reflect each other. The clay and I are aspects of each other.

The earth on the wheel expresses itself in interaction with me. The pot is forming itself, my hands are the hands of a midwife.

The air is the breath. The breath is inside and outside of me. It is spirit, it creates space. The space within the clay vessel determines the shape of the vessel, both contained by the vessel and containing the vessel. Human bodies of clay that are



and with the elementals. We hold hands, including the kiln within our circle. In silence we bring ourselves into resonance with the kiln, with the fire, with the forces we are working with, especially the elements and the muses. We seek and invite the awareness necessary to cooperate and to co-create with these forces in this final transformation of the pots in the fire so that the work will be blessed and will bless. We give thanks for the help we are receiving.

During the attunement, and as the firing progresses, I feel my way into a consciousness of the inside of the kiln, filled as it is with fire and pots. I use this awareness to fire the kiln. The fire is the ultimate critic of my work. Only the best will survive.

When the new kiln was built at Findhorn, I invited the community to come celebrate and bless it. Forming a circle around the kiln and holding hands, we invited the elementals, the angel of the pottery studio, the angel of Findhorn, and the muses to welcome and imbue the kiln with their blessing along with us. We gave thanks to them, to the materials in the kiln, to all who contributed to building it.

We gave thanks to the tree and to the plant kingdom for providing fuel in aeons past with which to fire our pots. We blessed the work and makers of the work that bring light, love, beauty into the lives of those so touched. Offerings and blessings were written or drawn on paper to be burned with the pots in the first firing.

Findhorn is a planned spiritual community whose roots run deep in principles and practice of cooperation and co-creation with nature. Living and working at Findhorn is a pleasure and a privilege. Friends visit the studio every day, talking, taking tea, seeing the latest pots fresh out of the kiln, giving and receiving love and support, working with the clay.

I have witnessed the influence that the presence of pots has had on my life and the lives of my fellow villagers. I am awed by the power to make real, to reveal, to heal, and to imbue such objects of use with beauty and meaning.

breathing, forming themselves, inspiring the breath of life, spirit.

The fire is for me that element most obviously alive. The living flame, though, clearly requires my cooperation and partnership. At Findhorn there are kilns of two kinds: gas and wood, both of which I built. They are my intimate friends.

When the kiln is lit, a small ritual takes place. I attune myself with the kiln, with the friends who will help with the firing,

A Glimpse into Pandora's Box: Personal Narrative

by Graham Marks

Photographs by Steven Myers

Many tragic stories have recently come to national consciousness: the plight of residents living near the Nevada Test Site, and the nuclear reservation at Hanford, Washington, the atomic veterans used as guinea pigs in early nuclear experiments, as well as the equally tragic deaths of the uranium miners who provided the raw materials for the nuclear age. In an emotional statement on the Op-Ed page of the *New York Times*, July 22, 1990, Tom Bailie, a farmer who grew up near Hanford where massive amounts of radiation were knowingly released upon an unsuspecting public, said: "Moscow was condemned for its three days of silence after the Chernobyl nuclear accident. What about Washington's forty years of silence? Are we just so much nuclear waste? We were the children on the front lines of the Cold War."

Forty years after the Cold War began we are beginning to learn the results of a priority on weapons production over human health and environmental safety. The National Academy of Sciences issued a report in 1989 on the extent of the radioactive contamination by the nuclear weapons complex, in which it was stated: "To date, more than 3,200 sites have been identified as having soil contamination, or groundwater contamination, or both. . . . There is no doubt that the contamination is pervasive."

The situation involving wastes generated by the private nuclear industry has been no better. (Nuclear power plants generate over 75 percent of the waste by volume and 95 percent of the total radioactivity.) Initial attempts at ocean dumping were discontinued when broken and leaking canisters washed ashore. By 1967, the Atomic Energy Commission established six dumps in various regions of the country. Three of them were shut down within a few years after they were found to be leaking radioactivity offsite and into nearby streams.

Since these closures, only three sites in the country have been accepting so-called low-level wastes generated by industry and nuclear power plants. ("Low level" is an example of linguistic detoxification; the term low level as defined by law can apply to materials that are radioactive for thousands of years, such as niobium-94 with a half-life of 20,000 years and nickel 59 with a half-life of 80,000 years.) The three sites are located in Beatty, Nevada; Hanford, Washington; and Barnwell, South Carolina.

In the late 1970s, the governors of these states threatened to close their dumps if Congress did not create new sites. On December 22, the final day of the hectic 1980 session, the U.S. Congress passed the Low Level Radioactive Waste Policy Act (L.L.R.W.P.A.). A review of the *Congressional Record* shows little input from the states or environmental groups, and, in fact, when Senator McClure of Idaho was asked to testify as to the nature of these wastes, he stated that they were "nondefense, nonnuclear power." In effect, Congress yielded to the pressures of the three governors and adopted a short-sighted political solution for what in reality is a serious environmental problem.

58 The act mandated that all states take care of their own wastes

and suggested a regional approach of interstate compacts. The volume of waste generated currently in the United States is known to require two to three sites nationwide, but under the established regional compact system, thirteen to sixteen sites are now being planned, proliferating poisons across the country and in many areas with both humid climates and high water tables.

It is now almost ten years since the establishment of the Low Level Radioactive Waste Policy Act of 1980. My family and I live in Michigan, where I teach, and spend summers at a home in Allegany County, New York, near the town of Alfred.

Early in January 1989, we received a phone call from the family renting our house in Alfred, and the voice said: "We have some bad news for you." I immediately envisioned a defective septic system requiring mid-winter evacuation. But the answer was far more devastating. "Allegany County has just been selected as a possible site for a nuclear waste dump."

This news has, to state it simply, changed our lives. Immediately we scrambled to get more information. We read everything we could on the issue. Even knowing what questions to ask was a problem. How does one try to see through the half-truths, the politicized science jargon, and the language manipulations of a governor-appointed commission looking for a dump-site? How to begin forming a basis for opinion, response, and action? I now realize that facing this threat has led us into an unexpectedly profound sense of community and connection to the land.

Allegany County is located along the southern tier of New York State. A predominantly rural county with a population of 50,000, it is a beautiful, pristine place where the people are independent and have a connection to the land. In siting nuclear facilities, waste dumps, and trash incinerators, the pattern is to dump on the rural poor. This pattern suggests the beginning of a nightmarish industrial vampirism where radioactive rural America is sacrificed to maintain the status quo of urban America.

At the first confrontation with the commission in Belfast on January 26, 1989, 5,000 citizens turned out to voice their adamant opposition to the siting process. The meeting began when Steve Myers, founder of the Concerned Citizens of Allegany County, read the Declaration of Independence, bringing everyone to his or her feet. This was followed by eloquent statements from university professors, farmers, grandmothers, and high school students, signaling the manner in which this would cut across all cultural boundaries.

The nuclear dilemma is intricately woven into the fabric of our civilization. One must ultimately look to the roots and effects of corporate capitalism, industrialism, and militarism to understand it. The feelings of the people of Allegany County remained clear and direct. They were:

1. We are in the extraordinary position of defending ourselves from our government, not unlike the position of the early American colonists under British rule. The tyranny in this



situation is the tyranny of the majority over the minority.

2. It is without precedent that industry, through government, can tell a segment of the population that they must bear unconsented, untested, uninsured, and unwanted risks.

3. It is irresponsible to claim that the technology for disposal currently being considered can totally isolate long-lived, highly toxic nuclear waste from the biosphere for the imaginable future.

4. Siting a radioactive waste dump within our borders is an aggressive action that we, the people who live here, find morally, politically, and ecologically insane.

5. What is considered "state of the art" by the promoters of nuclear technology is only another way of saying "industry's lat-

est experiment." The split atom always demands a sacrifice. We will not become a statistic in the devastating history of the nuclear age.

6. A patient must give informed consent before a medical procedure is performed. We are being asked to be guinea pigs in a nuclear experiment that has the potential to directly affect the health of the residents (human and animal) of this country. We are informed and we do not give our consent.

This crisis in Allegany County gave birth to two citizens' groups: the Concerned Citizens of Allegany County (CCAC), whose focus is educational, motivational, outreach, fund-raising, and legal; and the Allegany County Nonviolent Action Group (ACNAG), a grass-roots collective, organized organically with no 59

leaders or membership, committed to massive nonviolent resistance to stop the siting process.

There were many attempts by the Siting Commission, accompanied by state police, to walk on the potential sites within the county. Each attempt was met with massive nonviolent resistance that has, for two years now, prevented the commission from setting foot on the land in question. Many unforgettable moments in the struggle come to my mind, but perhaps the most inspiring was the symbolic blocking of a bridge with a chain. Above the bridge, a huge American flag flew, while under it was a large sign proclaiming "Grandparents for the Future." Beneath it, handcuffed to the chain, sat a row of senior citizens. When state troopers approached to arrest the grandparents, each answered in turn, when asked his or her names, "Allegany County."

This and other acts of civil disobedience as well as the hard work of the CCAC finally seem to have initiated a study concerning the possibility of the industrial utilities storing their own wastes on the site of generation instead of creating radioactive sites elsewhere. As of this writing, things are at a standstill. But the struggle is surely not over.

Two catalytic events occurred for me in January 1989. One was the announcement of the proposed nuclear waste dump in Allegany County. The other was reading *An Open Letter* by William Heyen, poet-in-residence at the State University at Brockport, New York. Heyen's letter to the faculty and students, a powerful statement, began by describing a faculty meeting:

We wondered, in part, if we were keeping up with many new ways of reading literature—postmodern approaches, including post-structuralist, deconstruction, and so forth. Then after an hour or so, as our discussion became more convoluted and technical, I found myself saying something that apparently had been building up in me for a long time, only appearing, in understated ways, in my poems and stories. I said that I read much literature on our environment. I said, given our current direction, that it's hard for me to conceive that human life will exist on this planet a hundred years from now. What if this is true? I asked. I wondered what this should do to our sense of our curriculum. This impending absolute extinction of mankind.

The letter went on to focus this question on curriculum, community, and art.

Faced with the threat of Allegany County being sacrificed to the nuclear power industry and, after reading Bill Heyen's statement, the inevitable question arose in my mind: "What is the efficacy of art?" A kind of paralysis set in and everything seemed called into question. How could I go back into the studio when I felt the place I needed to be was in the streets? What good was another ceramic sculpture when all I could think about was a line from a James Dickey poem that Bill Heyen had quoted: "Lord let me die / but not die / out."

What is the connection between the world of art and the world of action? Can a link be made? Is it fair to expect that there could be one? What could the nature of that link be? Would the forging of that link mean we might have to redefine what art is, or how it could function to embrace the world? How can we address something larger than ourselves and engage in what it means to be alive at this particular time?

My first response was not to go back into the studio. And I couldn't for many months. I felt plagued by these questions and felt a sense of helplessness. The impulse was to read, so I started reading everything I could find on nuclear waste and the nuclear fuel cycle. The more I read the clearer it became that I was only skimming the surface and that these issues were only symptoms of underlying conditions.

Each book I found uncovered another layer, which in turn directed me to another book. Jeremy Rifkin in *Entropy* provided a broad understanding of the roots of our present crisis and dissected the history, motivations, and attitudes that shaped our dominant world view, i.e., the unconscious and internalized assumptions that shape our perceptions of the world. Other writers also dealt with the notion of world view, among them Gary Snyder, Wendell Berry, Carolyn Merchant, and George Bradford.

In a conversation with Paulus Berensohn last winter I was prompted to reread parts of Daniel Rhodes' *Clay and Glazes for the Potter*. It was instructive to find in the introduction reference to clay as "one of the few materials which has no apparent value of its own, yet can be made into valuable objects."¹ Here, unconsciously, in this statement was encapsulated the whole world view. What is clay? Clay is earth. This stated the hierarchical and anthropocentric world view that the earth was of no inherent value. Within this perspective, man was the giver of value, the natural world was ours and was useful insofar as it could be put to use and its raw materials transformed into things of human value. The dynamics of this perspective was control, the imposing of will and order, extracting, commodity-making, mind over matter.

Reflecting on this statement from *Clay and Glazes* led me to think of ceramic objects themselves and how they function as containers of culture, so to speak—to encapsulate a world view. Perhaps Sèvres porcelain reflected the particular world view of the Rhodes statement. It certainly seemed to reflect Cartesian values, science as control, the scientific method as a means to experience the world, material of no value transformed into objects of treasure.

In contrast, I thought of other works that might encapsulate an alternate world view. Korean tea bowls and the work of Stephen DeStaeble came to mind. Seemingly an unlikely pairing, they came to represent to me clearly another mode of feeling, one that is empathetic and participatory. The inherent qualities and values of materials are enlisted, collaborated with, not imposed upon. Man is not the only form-giver; nature also is assertive and welcomed into the forming and firing process,



creating a larger sensual body. In the Rhodes/Sèvres world view, clay is inert stuff. In the tea bowl/DeStaebler view, clay is the tissue of living earth, as we all are. (On a 16th-century English slipware platter: "Earth I am, it is most true, disdain me not for so are you.")

This thinking process and world view led me inevitably to return to my own work. The time away from work also brought clarity through hindsight. My own method of working involved control and deliberateness. For instance, I went through elaborate strategies to prevent the clay from cracking by slow drying it under plastic for three or four months. Through an assertion of will, I intended to subdue the plastic life of the material. Although I professed an interest in the geologic and biologic nature of clay, aspects of these notions were more theoretical than actual, and the process remained repressed.

I did two things. I went back into the studio and proceeded in a manner opposite to my established practice. I made a slip without knowing exactly what was in it—some clay, some frit, a little stainless steel, some wood ash, some sawdust, some straw, macaroni, floor sweepings, and the like. I made a form and left it uncovered by the open window to dry.

I was tremendously excited by the result. Although I am still discovering my way through the process, I can say it now feels like a fuller, more fluid way of working, and I am more the participant and collaborator. Perhaps I am learning how to stay out of my own way.

The other thing I did was to get arrested. Two members of the Siting Commission came to Allegany County in the summer of 1989 to proceed with business at the courthouse in Belmont. Forty-eight of us, representing ACNAG, decided to vote with our bodies in a symbolic statement, the first act of civil disobedience in the county. As the commissioners entered the parking lot, we surrounded their car, locked arms so that the doors could not be opened, and stood in silence until we were all arrested two hours later.

Not only was this a symbolic event that led to many more effective mass actions in Allegany County, but it was a private one for me as well. The frustration I had felt in terms of dealing with the nuclear issue in the studio found a means of expression. It was an expression that was real, not abstract. It answered something that the studio could not. How could I expect work in the studio to answer the urgency and anxiety I felt? Nonviolent civil disobedience could.

At the same time, I rediscovered what the studio *could* offer, and, indeed, what the meaning and function of the studio was all along. Now I am more interested in abstractions, finding essences, working below the threshold of names, materializing intuitions and connections, excavating the world out of the work and reconstructing the world within the work.

I also discovered a psychological dimension I cannot ignore: fear. Up until this point, I had regarded my work as affirmative, affirming values connected to the earth and to organic nature, and making objects that suggested connections between the

biologic, the geologic, and the technologic. It wasn't until I examined the nature of radiation that I realized what monstrous offspring the marriage of these three subjects had produced.

That fear is alive in both a general and a personal sense. All future generations on earth are presently with us in the ova and sperm of women and men alive today who are the ultimate genetic material on whom the health of the world depends. The proliferation of radioactivity throughout the environment presents a real threat to the viability of our species as well as to other species.

In a personal sense, my fear lives in relationship to my brother, who is severely retarded. We were both children of the '50s when unprecedented amounts of radioactive materials (200 million tons) were introduced into the biosphere, due, in part, to aboveground testing. In her book *Multiple Exposures*, Catherine Caufield says: "Since the first bomb was exploded in the New Mexico desert . . . people are still being exposed to the longer-lived components of the fallout . . . [and] the body of every man, woman, and child on Earth now contains some strontium-90, a substance that does not exist in nature."²

My mother was X-rayed while pregnant with my brother. There are conclusive studies from the Hiroshima/Nagasaki populations that show increased retardation due to low-dose exposure in utero. I am not making an argument for cause and effect in this case; rather, what is important is the knowledge that low-dose exposure is not benign and that there is no threshold level below which there is no significant effect. Allowable is not the same as safe.

I do believe that radiation, both man-made and natural, is responsible for much more illness than we realize. What is now referred to as "background radiation" is, in part, the result of a man-made product. And we are, after all, in the midst of a cancer epidemic.

Here again fear resides. Fear of nature altered, nature mutated, nature no longer the sublime ideal we have envisioned but man-made. Bill McKibben, in his book *The End of Nature*, writes:

An idea, a relationship, can go extinct, just like an animal or a plant. The idea in this case is "nature," the separate and wild province, the world apart from man to which he adapted, under whose rules he was born and died. . . . We never thought that we had wrecked nature. Deep down, we never really thought we could. It was too big and too old. . . . This new rupture with nature is different. We have changed the atmosphere, and thus, we are changing the weather. By changing the weather we make every spot on Earth man-made and artificial. We have deprived nature of its independence and that is fatal to its meaning.³

The rupture McKibben speaks of is something I want to have present in my work. I want to let the fear of it in. The fear of what the interface between the man-made and the natural might look like. Between the idea of artifice and the natural. I



hope my work can trigger questions concerning origin. Is it a technologic object or one of the organic world? Or a hybrid of both? With hindsight I might say my intention is to materialize this fear and give it form. In the end, perhaps, the work simply is an attempt to make what is invisible, visible.

NOTES

1. Daniel Rhodes. *Clay and Glazes for the Potter*. Radnor, PA: Chilton Books, 1978, p. xviii.
2. Catherine Caufield. *Multiple Exposures: Chronicles of the Radiation Age*. Chicago, IL: University of Chicago Press, 1989, p. 132.
3. Bill McKibben. *The End of Nature*. New York, NY: Random House, 1989, pp. 48, 58-59.

SUGGESTED READING

All works by Dr. John Gofman:
Radiation Induced Cancer From Low-Dose Exposure: An Independent Analysis, 1990

An Irreverent, Illustrated View of Nuclear Power, 1979

(Both available from Committee for Nuclear Responsibility, P.O. Box 11207, San Francisco, CA 94101. I have made a two-hour videotaped interview with Dr. Gofman. Those wishing to borrow it may write me c/o Cranbrook Academy of Art, 500 Lone Pine Road, Box 801, Bloomfield Hills, MI 48303-0801.)

Poisoned Power: The Case Against Nuclear Power Plants Before and After Three Mile Island. Emmaus, PA: Rodale Press, 1979.

Radiation and Human Health: A Comprehensive Investigation of the Evidence Relating Low-Level Radiation to Cancer and Other Diseases. San Francisco: Sierra Club Books, 1981.

Graham Marks is the head of the ceramics department and artist-in-residence at Cranbrook Academy of Art, Bloomfield Hills, Michigan. Steven Myers is the founding chairperson of Allegany County's Concerned Citizens Movement. Photographs © 1990



RESOURCES AND GRASSROOTS ORGANIZATIONS

Committee for Nuclear Responsibility. Publishes the important works of John Gofman, including a newsletter. Gofman is professor emeritus of medical physics at Berkeley and has been an outspoken thinker, challenging the radiation "community" through his writing and independent scientific analysis. P.O. Box 1127, San Francisco, CA 94101.

Concerned Citizens of Allegany County. 175 North Main Street, The Brunswick Building, Wellsville, NY 14895. (716) 593-7511.

Don't Waste Michigan. 227 Custer, Lansing, MI. (517) 482-8810.

Don't Waste New York. 28 South Broad Street, Norwich, NY 13815. (607) 336-4246.

Don't Waste U.S. Recently formed national coalition. Publishes the *Radwaste Report*. Information and subscriptions c/o NIRS, 1424 16th Street, N.W., Suite 601, Washington, DC 20036.

Fifth Estate. A critical, Luddite, pre-ecology journal often featuring the writing of George Bradford. Bradford's writing seeks to integrate a radical ecological perspective with a concise historical, political, and social analysis. For subscriptions contact FE, 4632 Second, Detroit, MI 48021. (313) 831-6800.

International Institute of Concern for Public Health. Supports the important work of Dr. Rosalie Bertell, who works with indigenous peoples and others around the world who have been harmed by military and industrial radioactive pollution. 830 Bathurst Street, Toronto, Ontario, Canada M5R 3G1. (416) 533-7351.

National Coalition to Stop Food Irradiation. Just what it says. Important work, newsletter, and legislative alerts. P.O. Box 59-0488, San Francisco, CA 94159. (415) 626-2734.

Natural Rights. Newsletter from the Natural Rights Center, P.O. Box 90, Summertown, TN 38483-0090.

Nuclear Information and Resource Service (NIRS). An invaluable clearinghouse and network. Legislative alerts and newsletter. Important resource for educational materials. Currently leading the fight against "BRC" (Below Regulatory Concern), an insane idea brought to you by the Nuclear Regulatory Commission that allows 40 percent of the low-level radioactive waste stream to be linguistically detoxified, with wastes to be poured down the drain, dumped in municipal landfills, and recycled into consumer products. 1424 Sixteenth Street, N.W., Suite 601, Washington, DC 20036. (202) 328-0002.

Public Citizen/Critical Mass Energy Project. 215 Pennsylvania Avenue, S.E., Washington, DC 20003. (202) 546-4996.

Radioactive Waste Campaign. Publishes a newsletter called *The Waste Paper*. 625 Broadway, 2nd Floor, New York, NY 10012. (212) 473-7390.

A PRACTICAL SUGGESTION.

It occurred to us one day at Cranbrook, when glazes were cleaned up or abandoned, that there were toxic materials being washed down the drain or thrown out with the garbage. Since we all live downstream, we embarked on an experiment to glassify our wastes. We have established large containers in our glaze room where all excess glaze is placed, and at the end of the academic year, we also collect abandoned glaze batches. Large crucibles were thrown and kiln-washed, in which the leftover materials are melted down into glass blocks. This is certainly not a perfect world, and I don't know if this is a perfect solution, but it seems to us that it would render the materials in question into a more stable form. As the materials accumulate, interesting things happen. One begins to be aware of how much waste one generates, so that reducing the quantity of glaze batch mixed is one positive result. Unexpected aesthetic possibilities present themselves: what if we shaped the molds the materials are melted in to give them an imaginative form? Could the product become artistically viable? We are curious to learn how others might go about this. Let us know by writing Graham Marks, Cranbrook Academy of Art, 500 Lone Pine Road, Box 801, Bloomfield Hills, MI 48303-0801, or calling (313) 645-3304.



ECOLOGICAL ART

By ecological art I don't mean art that is out there cleaning up the earth, but art that comes from an ecological con-

sciousness, from a sense of the way everything is radically interconnected and radically interrelated.

It comes from the assumption that we are interconnected rather than the



assumption that we are separate . . . Art is the partnership mode rather than art coming from the dominator model, which is art based on ego, self-assertion, separateness

. . . as opposed to art that is based on dialogue, in partnership, in trying to create connectedness.

—Susi Gablik, from an interview by Paul Ryan in *Art Papers*. Susi Gablik is the London correspondent for *Art in America* and the author of *Has Modernism Failed?* and the forthcoming *The Reenchantment of Art*.

The Renewal of Art Through Agriculture

by M.C. Richards

Interbeing. This is a word coined by Thich Nhat Hanh, Vietnamese Buddhist monk who was nominated for the Nobel peace prize. I use it here to name the new science of connection, relationship, mutuality. Scientific theory has taken a while to catch up with perception, for surely it has long been apparent that we live in a tissue of interconnections. It has taken time for the doors to open, for our souls to soften and flow through, to be able to feel ourselves both mobile and intact. There is no other way but love, the experience of connection filled with an Ur-warmth—it is our morphology. But we are perhaps so hurt and so frightened and so conditioned to withdraw within boundaries that we don't want to hear about it.

My own life and work have evolved in relation to images of feeling the whole in every part—and the images have been born in the pottery studio and on the potter's wheel. Centering the clay, opening it, raising the walls of the cylinder, we work simultaneously on the inside/outside. We hold the wall between our fingers. We touch the spinning form at only one point and feel the belly swell or the rim bend, and know that the whole piece is taking shape as it passes through that one point. We feel the whole in every part. "See it breathe," said my teacher Robert Turner, as he filled the form with air.

And just as we breathe, we speak. All forms are language. The "word" is a mystical concept that evokes the realm of "content," of "meaning." "Meaning" is supersensory: the house of consonants and vowels, sounds and shapes on a page, is the sensory image. Likewise, clay can be a language of living forms, and it participates in the primal elements of earth, water, air, fire. The alchemy of the cosmos breathes in the clay. And this intuition of our connection with claybody and universe has become the new science of our time.

To reconnect: bodylife and claylife, spirit in the hand and spirit in the stars, health of the earth and health of person.


It is but a step from a sense of the living clay (mother of the life principle) to living earth—the awesome quickening of matter into intention and consciousness. And with clay, the doubly awesome qualities of responsiveness (intimacy) and transformation through fire. Such a metaphor for our human qualities, clay-derived, of responsiveness and emotional development! And now with our deepened sense of ecology, we are able to reconnect the health of soil and the health of soul.

I live in a working community based on biodynamic agriculture and gardening. About a third of our community members are "mentally handicapped." Our work therefore is also "social therapy," healing and empowering through social imagination. We offer an agriculture course through the autumn and winter, and as a part of it I give *The Renewal of Art Through Agriculture*. The agriculture we practice was envisioned by Rudolf Steiner, an Austrian scientist and seer, in a course given to farmers about 1922. The dynamic is, of course, life-process. And life-process is the universal matrix. The life of the soil, of the clay, of the soul are all aspects of the whole, which lives in all the parts. Soil moves in the forms of silica, contracting and standing erect in rye and other grasses; it opens into calcium and

limestone, porous, dissolving. These are temperaments in the individuality of a farm—and of a person. Reconnecting spirit in person and spirit in universe: this was Steiner's insight, which he called Spiritual Science and Anthroposophy (the feminine counterpart of Anthropology: moving from *logos* to *sophia*, from knowledge to wisdom). The perception of a spiritual universe is not new or unique, but its revelation in agricultural practices that nourish the soil has created a body of information and a holistic ecology, much of it a renewal of ancient and native wisdom.

I attend the course in the agricultural program with the apprentices, and then go with them to the studio to help lift their perceptions into their Imagination, where perceptions may be enriched by a spiritual "feel" and reconnected to Source. I hear how the students long to discover a realm of universal feeling and the freedom to imagine what they are experiencing. (The only other work in this vein that I have discovered is a little book called *How To Imagine: A Narrative on Art and Agriculture* by a contemporary Italian artist, Gianfranco Baruchello, and Henry Martin.) All week the apprentices work with hoes and tractors (so to speak), and then they come to the studio, and we work with clay and color and the sounds and meanings of words.

Recently we ended a term by making clay masks: not to conceal but to reveal the Being of Natura in some one of her epiphanies, happy or wounded. The masks were to be held before our faces and spoken through. What would these Beings say? They were nodes on the lifeline of the great tree of life. They spoke on connection and disconnection—of ecstatic



THOMAS BERRY, ECOLOGIAN

Thomas Berry, a former Roman Catholic priest, now head of the American Teilhard de Chardin Association, speaks from the consciousness of the evolution of the universe that helps integrate many aspects of the quest for knowledge. In a recent workshop, he began with the following three sentences:

"In the twentieth century, the glory of the human has become the desolation of the earth.

"The desolation of the earth has become the destiny of the human.

"All human institutions, professions, and activities must be judged primarily by the extent to which they inhibit, ignore, or foster a mutually enhancing human-earth relationship."

Berry points out that we think in a "spatial mode of consciousness" and that now we must think in a "time developmental mode of consciousness." "Humans," he says, "can no longer view their world as an adversary to be conquered or controlled but as a place for cooperation and celebration."

In the story of the universe, he reminds us, we humans are only minutes old, which, he suggests, may explain our

union and grief-stricken destruction. The masks were the countenances of Natura's living aspects. Being thus ensourced, art is renewed. And along with the art, the artist-person. We were renewed: deepened, made more reflective, made more acute in our listening to one another, more astounded in our beholding, simpler in our stories as we heard their divine genesis.

At the end of the class, the students didn't want to leave. Their hunger for Imagination and a sense of connection with earth and spirit and universe and each other is intense. What more likely field for the play of ecstasy and sacred consciousness than the fields of nature? The renewal of art through cosmic drama and the cycle of the year, through the geometry of a morning glory opening its spiral into the day, through the sowing of grain and the theater of movement and gestures, through the coloration of fruits and flowers, the sounds of animals and insects and birds and weather, the aroma of air, through the presence of the dark gods and the mysteries of birth and death.

In Genesis the story begins with clay and breath. In the New Testament, St. John's gospel, "In the beginning was the word." This polarity of clay and word, weight and weightlessness, sense and supersense, fertilizes the renewal of art through agriculture.

M.C. Richards is a potter and poet and lives in Camp Hill, Pennsylvania. She is the author of Centering in Pottery, Poetry, and the Person; Toward Wholeness: Rudolf Steiner Education in America; The Crossing Point; and The Public School and the Education of the Whole Person.

autistic and addictive behaviors thus far. But he sees us in that same story as representing the earth's knowing itself. "The human being is the sense mechanism and the mind of the earth." For the first time, nature has created beings, human beings, who can reflect on themselves and our relationships to the universe. We are the earth thinking itself. This thinking has the capacity to extend to include the interconnectedness of the entire universe and to the responsibilities inherent to that thinking.

Thomas Berry has formulated three basic laws of the universe:

1. Every being is different from every other.

2. Every being has its own interiority.

3. And all beings have a commonality.

If these thoughts of Thomas Berry interest you, I urge you to read his recent book *The Dream of the Earth* (Sierra Club Books, 1988). His forthcoming book with physicist Brian Swimme is tentatively titled *The New Story*.

—Clara Couch

PINYON CREST GLAZES—

Cone 10, Oxidation or Reduction

F & T Granite Glaze

Decomposed granite	60
Silica	25
Calcium carbonate	15
Bentonite	2

Olsen Seto Yellow

Feldspar	600
Limestone	120
Local surface clay	600
Woodash (mixed pinyon, pine, fir)	300

Olsen Seto Matt

Feldspar	600
Limestone	120
Woodash (mixed)	300
Washington III clay (desert surface clay)	600

Olsen AME

Woodash (mixed)	500
Feldspar	200
Local surface clay	100
Ball clay	300

Olsen Yellow Ash

Mixed ash	7
Ball clay	3
Local surface clay	1

Green ash — 2-4% copper carbonate

Blue ash — ½% cobalt oxide

Olsen Ash

Pinyon tree ash (alone)

I use local dolomite and local limestone tailings that I get from abandoned mine sites. I also grind local granite rock.

*Fred Olsen
Box 205 PC
Mountain Center, CA 92361*

Good, Wild, Sacred

by Gary Snyder

My family and I have been living for twenty years now on land in the Sierra Nevada range of northern California. These ridges and slopes are somewhat "wild" and not particularly "good." The original people here, the Nisenan (or Southern Maidu) were almost entirely displaced or destroyed during the first few decades of the gold rush. It seems there is no one left to teach us which places in this landscape were once felt to be "sacred"—though with time and attention, I think we will be able to feel and find them again.

Throughout the world the original inhabitants of desert, jungle, and forest are facing relentless waves of incursions into their remotest territories. These lands, whether by treaty or by default, were left in their use because the dominant society thought the arctic tundra or arid desert or jungle forest "no good." Native people everywhere are now conducting an underprivileged and underfunded fight against unimaginably wealthy corporations to resist logging or oil exploration or uranium mining on their own land. They persist in these struggles not just because it has always been their home, but also because some places in it are sacred to them. This last aspect makes them struggle desperately to resist the powerful temptation to sell out—to take the cash and accept relocation. And sometimes the temptations and confusions are too great, and they do surrender and leave.

Nanao Sakaki, John Stokes, and I were in Australia in the fall of 1981 at the invitation of the Aboriginal Arts Board doing some teaching, poetry readings, and workshops with both aboriginal leaders and children. Much of the time we were in the central Australian desert south and west of Alice Springs, first into Pitjantjara tribal territory and then three hundred miles northwest into Pintubi lands. The aboriginal people in the central desert all still speak their languages. Their religion is fairly intact, and most young men are still initiated at fourteen, even the ones who go to high school at Alice Springs. They leave the high school for a year and are taken into the bush to learn bush ways on foot, to master the lore of landscapes and plants and animals, and finally to undergo initiation.

One day driving near Ilpili we stopped the truck and Jimmy and three other elderly gentlemen got out and he said, "We'll take you to see a sacred place here. I guess you're old enough." They turned to the boys and told them to stay behind. As we climbed the bedrock hill these ordinarily cheery and loud-talking aboriginal men began to drop their voices. As we got higher up they were speaking whispers and their whole manner changed. One said almost inaudibly, "Now we are coming close." Then they got on their hands and knees and crawled. We crawled up the last two hundred feet, then over a little rise into a small basin of broken and oddly shaped rocks. They whispered to us with respect and awe of what was there. Then we all backed away. We got back down the hill and at a certain point stood and walked. At another point voices rose. Back at the truck, everybody was talking loud again and no more mention was made of the sacred place.

Now we can rethink what sacred land might be. For a people of an old culture, *all* their mutually owned territory hold nu-

merous life and spirit. Certain places are perceived to be of high spiritual density because of plant or animal habitat intensities, or associations with legend, or connections with human totemic ancestry, or because of geomorphological anomaly, or some combination of qualities. These places are gates through which one can—it would be said—more easily be touched by a larger-than-human, larger-than-personal, view.

The societies that live by the old ways had some remarkable skills. For those who live by foraging—the original forest botanists and zoologists—the jungle is a rich supply of fibers, poisons, medicines, intoxicants, detoxicants, containers, waterproofing, food, dyes, glues, incense, amusement, companionship, inspiration, and also stings, blows, and bites. These primary societies are like the ancient forests of our human history, with similar depths and diversities (and simultaneously "ancient" and "virgin"). The *lore* of wild nature is being lost along with the inhibitory human cultures. Each has its own humus of custom, myth, and lore that is now being swiftly lost—a tragedy for us all.

There is a movement toward creating a "culture of the wilderness" from within contemporary civilization. The Deep Ecology philosophers and the struggles and arguments which have taken place between them and the Green movement, the Social Ecologists, and the Ecofeminists are all part of the emerg-

DEEP ECOLOGY

The term *deep ecology* was coined by [the Norwegian philosopher] Arne Naess in his 1973 article, "The Shallow and the Deep, Long-Range Ecology Movements." Naess was attempting to describe the deeper, more spiritual approach to Nature exemplified in the writings of Aldo Leopold and Rachel Carson. He thought that this deeper approach resulted from a more sensitive openness to ourselves and nonhuman life around us.

The essence of deep ecology is to keep making more searching questions about human life, society, and Nature as in the Western philosophical tradition of Socrates. As examples of this deep questioning, Naess points out that "we ask why and how, where others do not. For instance, ecology as a science does not ask what kind of a society would be best for maintaining a particular ecosystem—that is considered a question for value theory, for politics, for ethics."

Thus deep ecology goes beyond the so-called factual scientific level to the level of self and Earth wisdom. Deep ecology goes beyond a limited piecemeal shallow approach to environmental problems and attempts to articulate a comprehensive religious and philosophical worldview. The foundations of deep ecology are the basic intuitions and experiencing of ourselves and Nature which comprise ecological consciousness.

. . . [Summarizing] the contrast between the dominant worldview and deep ecology. . .

ing realization that this could be tried. Deep Ecology thinkers insist that the natural world has value in its own right, that the health of natural systems should be our first concern, and that this best serves the interests of humans as well. They are well aware that primary people everywhere are our teachers in these values. The emergence of Earth First! brings a new level of urgency, boldness, and humor into environmentalism. Direct-action techniques that go back to the civil rights and labor movement days are employed in ecological issues. With Earth First!, the Great Basin finally steps onto the stage of world politics. The established environmental organizations are forced by these mavericks to become more activist. At the same time there is a rapidly growing grassroots movement in Asia, Borneo, Brazil, Siberia. It is a cause for hope that so many people worldwide—from Czech intellectuals to rainforest-dwelling mothers in Sarawak—are awakening to their power.

Environmental concerns and politics have spread worldwide. In some countries the focus is almost entirely on human health and welfare issues. It is proper that the range of the movement should run from wildlife to urban health. But there can be no health for humans and cities that bypasses the rest of nature. A properly radical environmentalist position is in no way anti-human. We grasp the pain of the human condition in its full complexity, and add the awareness of how desperately endangered certain key species and habitats have become.

We get a lot of our information—paradoxically—from deep inside civilization, from the biological and social sciences. The critical argument now within environmental circles is between those who operate from a human-centered resource management mentality and those whose values reflect an awareness of the integrity of the whole of nature. The latter position, that of Deep Ecology, is politically livelier, more courageous, more convivial, riskier, and more scientific.

It comes again to an understanding of the subtle but critical difference of meaning between the terms *nature* and *wild*. Nature is the subject, they say, of science. Nature can be deeply probed, as in microbiology. The wild is not to be made subject or object in this manner; to be approached it must be admitted from within, as a quality intrinsic to who we are. Nature is ultimately in no way endangered; wilderness is. The wild is indestructible, but we might not see the wild.

A culture of wilderness starts somewhere in this terrain. Civilization is part of nature—our egos play in the fields of the unconscious—history takes place in the Holocene—human culture is rooted in the primitive and the paleolithic—our body is a vertebrate mammal being—and our souls are out in the wilderness.

Excerpted with permission from The Practice of the Wild by Gary Snyder, published by North Point Press, Berkeley, CA, 1990.

Gary Snyder is a poet and the author of several volumes of essays and poems, including Turtle Island, Axe Handles, and Left Out In the Rain. He teaches at the University of California, Davis.

<p><i>Dominant Worldview</i></p> <p>Dominance over Nature</p> <p>Natural environment as resource for humans</p> <p>Material/economic growth for growing human population</p> <p>Belief in ample resource reserves</p> <p>High technological progress and solutions</p> <p>Consumerism</p> <p>National/centralized community</p>	<p><i>Deep Ecology</i></p> <p>Harmony with Nature</p> <p>All nature has intrinsic worth/biospecies equality</p> <p>Elegantly simple material needs (material goals serving the larger goal of self-realization)</p> <p>Earth "supplies" limited</p> <p>Appropriate technology; nondominating science</p> <p>Doing with enough/recycling</p> <p>Minority tradition/bioregion</p>
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... From a deep ecology perspective there is a fascination, a deep engagement, with living. John Muir, near the end of his active life, once said, "I only went out for a walk and finally concluded to stay until sundown, for going out, I discovered, was actually going in."

From Deep Ecology by Bill Devall and George Sessions, Gibbs M. Smith, Inc., 1985.

WARWICK FOX AND DEEP ECOLOGY

Two years ago, during a visit of several months to the island of Tasmania in Australia, I had the good fortune to meet and be befriended by a group of serious students of Deep Ecology. Among them was Warwick Fox, just then completing his PhD in environmental philosophy. Since then his thesis has been reworked for a larger audience and is to be published in the United States this fall (1990) by Shambhala Publications (Boston) under the title *Towards a Transpersonal Ecology: Developing New Foundations for Environmentalism*. Following are quotes taken from an article

I Lift My Head Up from the Wheel

by Nick Joerling

I'm going to ramble a bit so be patient. I want to paint a small picture, include a favorite (and reassuring) quote, and make an obvious but perhaps worthwhile observation.

It's early a.m. and I am sitting on the main deck at Haystack in Maine, alone except for a woman I haven't yet met, who sits twenty feet away. We acknowledge the good morning and then sit in silence with our separate readings and mullings. My thoughts lead me to write at the top of a blank sheet of watercolor paper, "What are my responsibilities as a potter?" After a short while, the woman rises and walks to my table and asks, "Can I read you something?" She sits and reads from Rilke's *Letters to a Young Poet*.

"Leave to your opinions their own quiet undisturbed development, which, like all progress, must come from deep within, and cannot be pressed or hurried by anything. Everything is gestation and then bringing forth, to let each impression and each germ of a feeling come to completion wholly in itself, in the dark, in the inexpressible, the unconscious, beyond the reach of one's own intelligence, and await with deep humility and patience the birth hour of a new clarity: that alone is living the artist's life: in the understanding as in creating.

"There is here no measuring with time, no year matters, and ten years are nothing. Being an artist means, not reckoning and counting but ripening like the tree which does not force its sap and stands confident in the storms of spring without the fear that after them may come no summer. It does come. But it comes only to the patient, who are there as though eter-

nity lay before them so unconcernedly still and wide. I learn it daily, learn it with pain to which I am grateful: patience is everything."

I am a firm believer in places like Haystack (where I worked) and Penland (where I live). And the reason is that after all the philosophizing and the brochures, they are places that allow things to happen, things that are less likely to occur in our everyday lives. I've often heard the "getting to" Haystack and Penland described as having a sense of pilgrimage, that there is in the act of traveling a sense of removal and therefore making new sight (and insight) more likely. We come primed for new possibilities. But it is what we arrive to, the settings, that I want to notice in this writing.

I love how the geography of Penland and Haystack gently slap me to attention. We seem predisposed to live our lives bent over, narrowly focused, over our potter's wheel or jeweler's bench or computer terminal. What I'm grateful for is how the mountains of Penland and the coastline of Haystack gently lift my head up out of my work, insist on my attention with a beauty too persistent to ignore. It is in a sense spiritual, if that word can be used to describe a feeling of awe. Whatever. Words of some kind will be found to describe the widening of awareness and the intimation of grandeur that nature can impart. There are moments when it can't help but strike you as sacred, beyond yourself but there to be shared in.

► on "The Meaning of Deep Ecology" by Warwick Fox.

"Deep Ecology refers to the general idea of a non-anthropocentric or, more positively, an ecocentric approach to ecology/living in the world. Whereas an anthropocentric orientation considers the non-human world as so many 'resources' to be used as humans see fit, an ecocentric orientation attempts, within obvious kinds of practical limits, to allow *all* entities (including humans) the freedom to unfold in their own ways unhindered by the various forms of human domination.

". . . An anthropocentric orientation does not necessarily mean the same thing as an

environmentally destructive orientation. This is because we exhibit an anthropocentric orientation not only when we see the nonhuman world as there simply to be farmed, dammed, mined, pulped, slaughtered, and so on, but also whenever we argue that the nonhuman world should be conserved or preserved because of its value to humans (e.g., its scientific, recreational, or aesthetic value) rather than for its own sake or for its use value to *nonhuman* beings. Indeed, it cannot be emphasized enough that the vast majority of environmental discussion is couched within these anthropocentric terms of reference whether one is referring to public meetings, newspapers, popular maga-

zines, reports by international conservation organizations, reports by governmental instrumentalities, or even reports by environmental groups. Thus, even many of those who deal most directly with environmental issues continue to perpetuate, however unwittingly, the arrogant assumption that we humans are central to the cosmic drama; that, essentially, the world is made for us.

"Deep Ecology is predicated upon the idea of asking progressively deeper questions (Why A?, because B; why B?, because C; and so on) about the ecological relationships of which we are a part."

—Paulus Berensohn

Finding the Buddha

by Shirley Tassencourt

Of course, that ability of nature to overwhelm you and connect you simultaneously is not exclusive to these school locations. It can as easily occur in one's backyard as at the rim of the Grand Canyon. If we are open to it.

I am a functional potter. One of the ingredients that shapes my life in the studio is the sense of wonder/sharing that comes from nature. That is reflected in the belief that through the process of creating it is possible to make an object with the ability to affect those it contacts.

There is a reaching out through my pots, a connectedness, and, I believe, those qualities that go into making pots—beauty, craftsmanship, imagination, spirit—enrich daily life. I hope that no matter how many pots leave my hands, there will always be that part of me that whispers, “Unbelievable,” as the bowl comes from the lump of clay.

Nick Joerling is a potter and lives in Penland, North Carolina.



DEEP ECOLOGY

Christ's blood is green
in the branches,
blue in the violet.
Her bright voice
laughs in the night wind.
The big nova swells
in her breast.
Christ suckles us
with spring sap and
spreads clay under our feet.

O she loves us,
feeds us, tricks us with
her triple ways:
calls us soul
calls us body, and spirit.
Calls us to her bed.

—M.C. Richards

The scientists cry “Checkmate!” (global warming). We don't hear. Statistics show we are poisoning our life systems—air, food, water. We don't get it. Why?

We're saturated with death gestures (habits, surroundings, visions, expectations). We can't tell the difference between artificial and real flowers, artificial and real handshapes, artificial and real children, artificial and real self. As a species we've swum to the surface of our success and now float around in abstractions. Like alcoholics we only dimly hear that we are poisoning ourselves. Death is our bedfellow. We've lost the tools to *know*. We just *know about*.

Ancient men knew. They knew Earth as a Being. We need crash courses in Life. Its looks, its smells, its ambience, these are the answer to Checkmate! To go forward we need to go back and reestablish the basics we were trained to forget, such as how to stand upright, how to breathe, how to hug, feel, listen, attend, relax. Balance, dignity, centeredness, space, flow are everybody's homework. The one-year-old understands the craft of life. “We must become as little children.”

I study the old masters of Altamira and Lescaux, who stand on the crisp edge of freshness. Using their sketchbook (wall), I translate their drawings to sculpture and retrain myself in their 15,000-year old vision.

Sitting in deep Zazen, I am educated from within in uprightness (posture) as well as compassion. With an etheric sense I feel out the Buddha's body in clay. From a deep root the energy flows and rises high. This Buddha body, the back as important as the front, a map for meditation, not worship.

To work on inner balance, I take the dualities of gravity and levity in the form of two reverse curves poised over a square base. *Growing the horned gate*. I balance the dualities bit by bit, moment by moment until resolution creates a piece that balances the viewer as well.

Once I had the privilege of working in clay with an architect and teacher of biodynamic gardening, Alex Podolensky. He led us through exercises to awaken sensitivities and identification of the life ethers (the invisible life element in the universe—light ether, sound ether, fire ether, liquidity). I was in awe as I stood on that cosmic threshold that man waits to cross: the awakening to Spirit in Matter. Then and there I became a disciple of Life.

Shirley Tassencourt is an artist, teacher, and long-time student of meditation who lives on the island of Martha's Vineyard, in Massachusetts. Her course on clay and meditation is often offered in times of solstice and equinox.

The Global Environmental Crisis

by Rodney M. Fujita and Julie Jetton

The earth is a union of rock, air, water, and life. It has functioned harmoniously for billions of years, with elements and energy cycling among the partners in the union. However, in the last century, humans have emerged as a new and powerful planetary agent, short-circuiting these cycles and producing entirely new compounds and processes that are destroying the ability of the union to sustain its most fragile partner: life.

In recent years global environmental problems have captured the world's attention. The warming of the world during the last century, the appearance of the Antarctic ozone hole every austral spring, and the accelerating loss of biological diversity are a few of the many signs that the earth's resources and its ability to assimilate our waste products are limited.

We are now at the stage where countries must look beyond their domestic environmental problems and combine intellectual and financial resources in an effort to protect the global commons and, indeed, the future of life on earth. Immediate action is warranted given the severity of our shared environmental problems and the enormous magnitude of the risks of not taking action. Deforestation has been occurring at an increasing rate for centuries, resulting in the rapid extinction of species. The oceans have been polluted and overexploited. Hazardous wastes threaten the health of people all over the world. All these problems are critical, but in this article we describe only two global environmental problems: the destruction of the ozone layer and global warming.

The Destruction of the Stratospheric Ozone Layer

Chlorofluorocarbons (CFCs) and halons are manufactured chemicals used as electronic cleansers, refrigerants, and fire-extinguishing agents and in air conditioning, insulation, and plastic foams. These chemicals destroy the ozone gas that encircles the earth in the upper layer of the atmosphere called the stratosphere, causing depleting of the ozone layer at a rate of 2 to 6 percent per year over the northern hemisphere (Clark, 1988) and 2 to 3 percent per year globally. Halons and CFCs are also responsible for the ozone hole that forms each austral spring over Antarctica, when stratospheric ozone levels decline by as much as 50 percent (Oppenheimer, 1988), and for ozone depletion over the Arctic.

The stratospheric ozone layer protects life from excessive ultraviolet (UV) radiation. As a result of ozone destruction by halons and CFCs, levels of UV radiation are expected to increase—a disastrous situation since high UV levels have been linked to increased incidence of skin cancer and other health effects (U.S. EPA, 1989), decreased plant productivity (Teramura, 1986), and alterations in aquatic ecosystems (Worrest, 1986).

A worldwide phase-out of CFCs and halons must be implemented as soon as possible. The 1987 Montreal Protocol on Substances That Deplete the Ozone Layer, an international agreement, calls for a 50 percent cut in the use of CFCs by the year 2000; this agreement, however, is not enough to halt stratospheric ozone depleting or control climate change. It is essential that *all* ozone-depleting chemicals be phased out in both

their production and their consumption when the agreement is renegotiated. To encourage developing countries to implement the Montreal Protocol, we need to provide economic incentives for replacing CFCs and halons and to make these incentives widely available to them. This is because developing countries, which have not contributed substantially to the ozone depletion problem, would pay a heavy price for CFC and halon replacements if these substances are phased out.

Environmentally benign alternatives to ozone-depleting chemicals must be developed. The currently proposed CFC substitutes will reduce ozone depletion but will still contribute to the greenhouse effect; this is not enough. Users of these compounds need to implement improved management practices, such as capturing and recycling them.

Global Warming

Fossil fuel combustion dominates world energy production. In 1985, almost 90 percent of global energy demand was met by burning fossil fuels, with 69 percent attributed to the two fuels that give rise to the most pollutants: coal and oil (International Institute for Environment and Development and the World Resources Institute, 1987).

The most important pollutants associated with fossil fuel combustion are sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), particulants, ozone (O₃), nitrous oxide (N₂O), and carbon dioxide (CO₂). Acid rain, SO₂ and NO_x aerosols, and smog have been recognized as pollutants for decades: the environmental problems they cause are well documented and call for rapid solutions. However, alleviation of pollution arising from fossil fuel use would not be complete even if all "traditional air pollutants" were removed from emis-

REDUCING HARM TO NATURE

Ceramists are fascinated by the beauty of nature and often try to find glazes or clay that correspond to the colors in crystals or stones. At the same time, our work adds to the pollution of the very nature we admire. We use up clay and help destroy the landscape. We spill off glazes at the sink and help poison our water. The kilns we use—be they electric, wood, or gas—add CO₂ or SO₂ to the atmosphere. We are using up Earth's natural resources and helping produce a garbage that is everlasting.

Being aware of all this, the logical conclusion would be to stop making ceramics. But this is too radical, and most studio potters and artists could not accept this. There is, however, a need to reduce the harm we do to mankind and to the planet. Here are some suggestions:

1. Do not fire any pot or sculpture until you are convinced it should be preserved. Otherwise, recycle it.
2. Try to realize your concept with a material other than clay, especially one that need not be fired.
3. Avoid waste.

sions. Carbon dioxide and nitrous oxide would still remain. We now know that these gases present a threat of unprecedented magnitude and great urgency: global warming.

Scientists are projecting an increase in the average global temperature of 2°F by the 21st century if emissions of greenhouse gases (GHGs—carbon dioxide, methane, nitrous oxide, and CFCs) are not abated (IPCC, 1990). These gases trap heat radiated from the earth, heating the atmosphere (the greenhouse effect).

Greenhouse gases emitted from natural sources (e.g., CO₂ from decomposing vegetation) were absorbed in natural “sinks” such as oceans and forests, and the amount of a given gas in the atmosphere remained relatively constant for 10,000 years before the Industrial Revolution in the late 1800s. Since then, we have greatly altered our atmosphere by adding large amounts of GHGs.

Carbon dioxide emissions due to human activities is the leading cause of global warming. These emissions are responsible for 57 percent of the greenhouse problem and originate primarily from fossil fuel combustion. Methane arising from rice paddies, solid waste dumps, cattle and sheep, and wood burning represents 13 percent of the greenhouse effect. CFCs and nitrous oxide emissions are responsible for, respectively, 24 percent and 6 percent.

There is a significant body of understanding about the effects of a continuing buildup of the greenhouse gases in our atmosphere. If no actions to limit GHG emissions are taken now, GHG abundance (in CO₂ equivalents) will double in 40 or 50 years. Even if emissions growth is stabilized at current levels, GHG abundance will double in about 70 years. Because of the capacity of the oceans to store heat and release it slowly, the

amount of warming at any given time does not fully reflect the potential warming that will eventually occur as a result of GHG emissions at that time; warming will probably lag 20 to 40 years behind GHG emissions.

One of the more certain effects of global warming is an accelerated rate of sea level rise. Global sea level has already risen over the past 100 years by 4 to 6 inches. Although it is difficult to predict the increase in sea level due to an anticipated doubling of carbon dioxide, a conservative estimate is that by the year 2050 the global sea level will be ½ to 2 feet higher than it is now. Rising sea level already causes a large amount of beach erosion and salt-marsh flooding; for every half inch of sea level rise, approximately 3 feet of beach disappears on the U.S. East Coast. Wetlands will be lost at an ever-increasing rate; coral reefs will probably show changes in species composition and perhaps greater erosion. Obviously, buildings in low-lying coastal areas will be displaced. In addition, storms will penetrate farther inland and tropical storms may become more intense due to higher sea surface temperatures. Because many coastlines are heavily settled, human populations will be severely affected by increased sea level rise, especially in less developed countries with limited means to adapt. More than 8 million people live within 3 feet of sea level in Bangladesh and would be displaced by the projected sea level rise.

Reductions in soil moisture, affecting many of the great agricultural belts of the world, are projected to occur due to warming and changes in precipitation patterns.

Many natural ecosystems will not be able to adapt to rapidly shifting climate zones. Inland wetlands may dry up, decreasing waterfowl populations. Because forest responses to climate change are usually very slow, radical changes in forest distribution can be expected, along with the disappearance of the tundra. Global warming and ozone depletions will also exacerbate the already devastating effect of air pollution on forests.

Although these projected effects are uncertain, the fundamental conclusion is irrefutable: *climate will change profoundly because of GHG emissions if nothing is done, posing a risk of global catastrophe.*

GHG emissions must be reduced rapidly due to the irreversible nature of the effects and the likelihood that efforts to abate global warming must be enacted well in advance of the time when the effects become obvious and “proven” (Japan Environmental Agency, 1988; Japan Ad Hoc Group on Global Environmental Problems, 1988; U.S. Environmental Protection Agency, 1989). We cannot afford to wait.

We must significantly reduce our use of fossil fuel, which will also alleviate a plethora of other environmental problems. A reduction in fossil fuel will make us less dependent on imported fossil fuels and ease pressure to exploit oil off continental shelves and in pristine environments, thus decreasing the risks of environmental damage due to oil leakage, drilling muds, and oil spills. Less fossil fuel combustion will also decrease smog and acid rain.

4. If you teach, inform students of the consequences of their work, and discourage their indiscriminate production.

5. Share in cooperative firing with one large kiln rather than firing several small individual kilns.

6. Reduce the temperature of firing.

7. Reduce the use of glazes.

8. Use only nonpoisonous glaze materials.

9. Recycle everything, especially clay and glazes.

10. Avoid using plastic bags or plastic peanuts for packing.

11. Try to cut down on travel. Every exhibition seems

to need four trips: one to present oneself, one to transport the pieces, one to appear at the opening, and one to fetch the pieces not sold. This means hundreds of kilometers every year by people who would much prefer to stay in their workshop and work. It is wasteful.

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We need to work with other countries to establish an international convention and protocol to reduce the threat of global warming. In addition to research and action to end GHG emissions, we must develop innovative technologies (and decrease the cost of existing ones) to (1) increase energy efficiency, (2) capture GHGs before they are released, (3) transport people efficiently with reduced emissions of pollutants and GHGs, and (4) produce energy without pollution. We must then make these technologies available to developing countries at concessionary terms, to allow them to develop and improve quality of life without sentencing the planet to still more warming.

In general, the management of environmental problems and the development of environmental policies should be placed in a framework that takes into account the full cost of pollution. Currently, these costs are not fully reflected in the market prices of fossil fuels or in costs associated with nuclear power. At a minimum, a policy of restricted pollution levels should cause prices associated with the use of fossil fuels or other polluting substances to rise, resulting in less demand, increased conservation, use of previously more costly substitutes that result in less pollution, or an incentive to industries to develop substitutes or offsets (such as the planting of trees to remove CO₂ from the atmosphere). Other strategies, such as emissions-permit trading systems, can harness market forces to achieve compliance with pollution standards in an economically efficient way.

In short, we must use all of our creative powers to bring about a shift in how markets work, how economic decisions are made, how policies are designed and implemented, and, ultimately, how people view the world if we are to save the planet.

REFERENCES

- Clark, S.L. "Protecting the ozone layer: What you can do." Environmental Defense Fund, 1988 (33 pages).
- International Institute for Environment and Development and the World Resources Institute. *World Resources 1987*. New York: Basic Books, 1987.
- IPCC. *Climate Change: The IPCC Scientific Assessment*. World Meteorological Organization/United Nations Environment Program Intergovernmental Panel on Climate Change. Cambridge: University Press, 1990.
- Japan Ad Hoc Group on Global Environmental Problems. "Japan's activities toward a better global environment." June, 1988 (49 pages).
- Japan Environment Agency. "Interim report on global warming." Prepared by the Panel on Global Warming. November 1988 (8 pages).
- Oppenheimer, M. "Global lessons from the ozone hole." Environmental Defense Fund, 1988 (23 pages).
- Teramura, A.H. "Overview of our current state of knowledge of UV effects on plants," pp. 165-174. In *Effects of Changes in Stratospheric Ozone and Global Climate*, J.G. Titus (Ed.). Vol. 1: Overview. U.S. Environmental Protection Agency, 1986.
- U.S. Environmental Protection Agency. "Policy options for stabilizing global climate." Report to Congress, February 1989.
- Worrest, R.C. "The effect of solar UV-B radiation on aquatic systems: An overview," pp. 175-198. In *Effects of Changes in Stratospheric Ozone and Global Climate*, J.G. Titus (Ed.). Vol. 1: Overview. U.S. Environmental Protection Agency, 1986.
- Recommended Reading**
- Oppenheimer, M., and R.H. Boyle. *Dead Heat: The Race Against the Greenhouse Effect*. New York: Basic Books, 1990.
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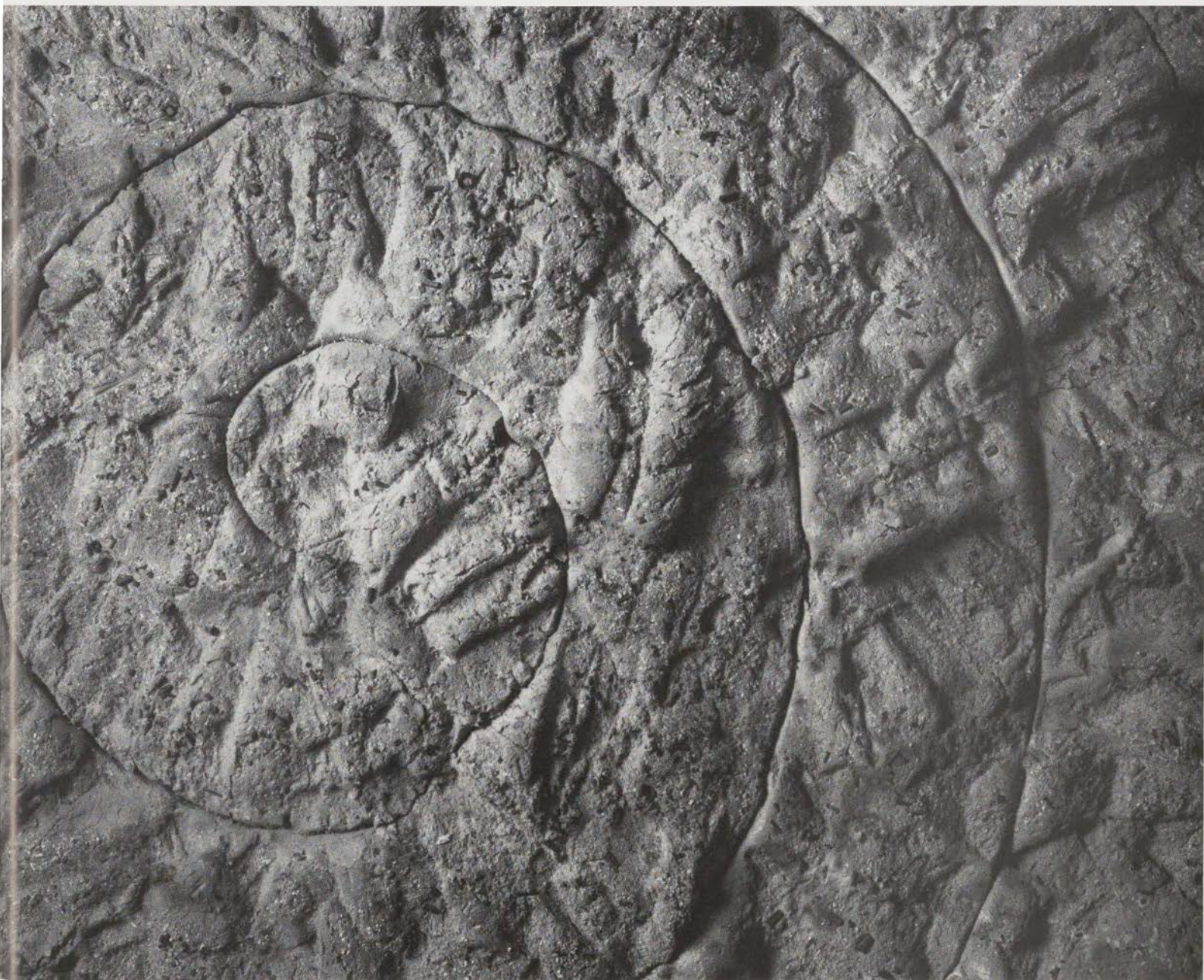


A SELECTED BIBLIOGRAPHY ON ECOLOGY, DEEP ECOLOGY, ENVIRONMENT, AND ENVIRONMENTAL ACTION.

- Berry, Thomas. *The Dream of the Earth*. San Francisco: Sierra Club Books, 1988.
- Berry, Wendell. *Home Economics*. Berkeley, CA: North Point Press, 1987.

- Bradford, George. "We All Live in Bhopal." From *Questioning Technology: A Critical Anthology*, Zerzan and Carnes (Eds.). London: Freedom Press, 1988.
- Caufield, Catherine. *Multiple Exposures: Chronicles of the Radiation Age*. Chicago: University of Chicago Press, 1989.
- Devall, Bill, and George Sessions. *Deep Ecology*. Salt Lake City: Gibbs M. Smith, Inc., 1985.

- Edelstein, Michael. *Contaminated Communities*. Boulder, Colorado: Westview Press, 1988.
- Fox, Matthew. *Original Blessing*. Sante Fe: Bear & Co., 1980.
- Fox, Warwick. *Toward a Transpersonal Ecology*. Boston & Shaftsbury: Shambhala, 1990.
- Joseph, Lawrence E. *Gaia: The Growth of an Idea*. New York: St. Martin's Press, 1990.



Leopold, Aldo. *A Sand County Almanac*. New York: Oxford University Press, 1964.

Lovelock, J.E. *Gaia: A New Look at Life on Earth*. New York: Oxford University Press, 1979.

McKibben, Bill. *The End of Nature*. New York: Random House, 1989.

McLuhan, T.C. *Touch the Earth*. New York: Outerbridge and Dienstfrey, 1971.

Merchant, Carolyn. *The Death of Nature: Women, Ecology and the Scientific Revolution*. San Francisco: Harper & Row, 1980.

Murchie, Guy. *The Seven Mysteries of Life*. Boston: Houghton Mifflin Co., 1978.

Rhodes, Daniel. *Clay and Glazes for the Potter*. Radnor, PA: Chilton Books, 1978.

Rifkin, Jeremy. *Entropy: Into the Greenhouse World*. New York: Bantam Books, 1989.

Snyder, Gary. *Turtle Island*. New York: New Directions, 1969.

_____. *The Practice of the Wild*. Berkley, CA: North Point Press, 1990.

Tompkins, Peter, and Christopher Bird. *Secrets of the Soil*. New York: Harper & Row, 1989.

Vittachi, Anuradha. *Earth Conference One*. Boston and Shaftsbury: Shambhala, 1989.

Weiner, Jonathan. *The Next One Hundred Years*. New York: Bantam Press, 1990.

Compiled by Paulus Berensohn, Graham Marks, and Gerry Williams.

The Nitty-Gritty

by Robert Tichane

The importance of particle size and particle size distribution in ceramic bodies is obvious for the artist-potter. Unfortunately, it can readily be seen that this is a Good News—Bad News type of situation. Good control of particle size does not solve all of a potter's problems. It improves some of them and makes others worse.

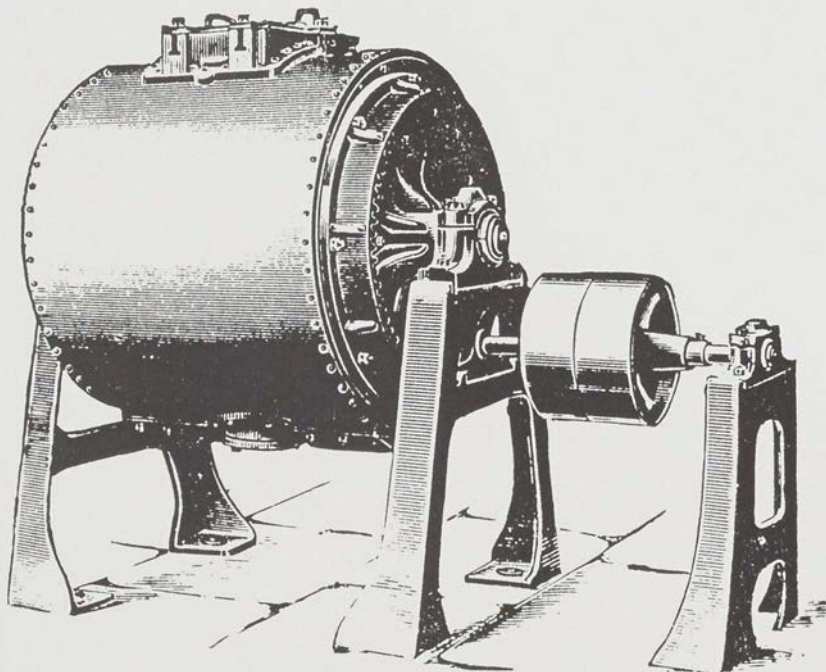
Particles in Bodies

Considering an unfired ceramic body as merely a collection of particles offers some provocative insights. As a first approximation, imagine a hypothetical ceramic body made up of perfectly spherical particles. If these particles are all one size, then, with average packing, pore space in this body amounts to about 38 percent (Westman & Huggill). One interesting aspect is that, as long as only one size of spherical particle is involved, the porosity is the same, whether the particles are one micron, one millimeter, or one foot in diameter. The pore space will always be in the neighborhood of 38 percent.

In real life particles are never perfect spheres. These irregular shapes do not pack as regularly as spheres and thus, for the most part, have even greater porosity. Okay, so much for single-sized particles; what if two particle sizes are chosen to make up a hypothetical body? Well, things look up. If one particle size is relatively large compared to the other, say 10:1, then packing improves. The holes between 10-micron spheres could be filled with 38 percent of 1-micron spheres. Then pore space would amount to 14 percent ($.38 \times 38\%$). Nevertheless, in real life these particles do not distribute themselves evenly in the holes, so the porosity always runs a little above theoretical values.

Going one more step, with the further addition of 14 percent of 0.1 micron-spheres the void space might be reduced to 5 percent ($.38 \times 14\%$), but that would be the realistic limit. In practice, 10 percent is more likely.

One can learn about the practical application of particle sizes by reading a



Ball mill, circa 1910.

book on the mixing of concrete. A frequently used mixture in this field has the ratio of 1:3:6, where the materials are, respectively, powdered cement, sand, and gravel. The variance from theoretical values is due to the fact that all the ingredients represent gradations of sizes (just as with ceramic body ingredients).

The selection of ingredients for ceramic bodies is based to some extent on particle size distributions, but mostly it is founded on criteria such as plasticity and fusibility of the resulting body.

What can be concluded from this foray into the sphere of spheres? Primarily, that all the voids will never be filled in, hence it might be better to aim for a practical solution than a perfect one. Just as in the concrete industry where the emphasis is on the workable, something of this sort can be done when making up a ceramic body. A very fine clay (ball clay) can be mixed with a coarser clay (kaolin) and then with still coarser minerals, such as feldspar and flint (quartz), to give pretty good packing.

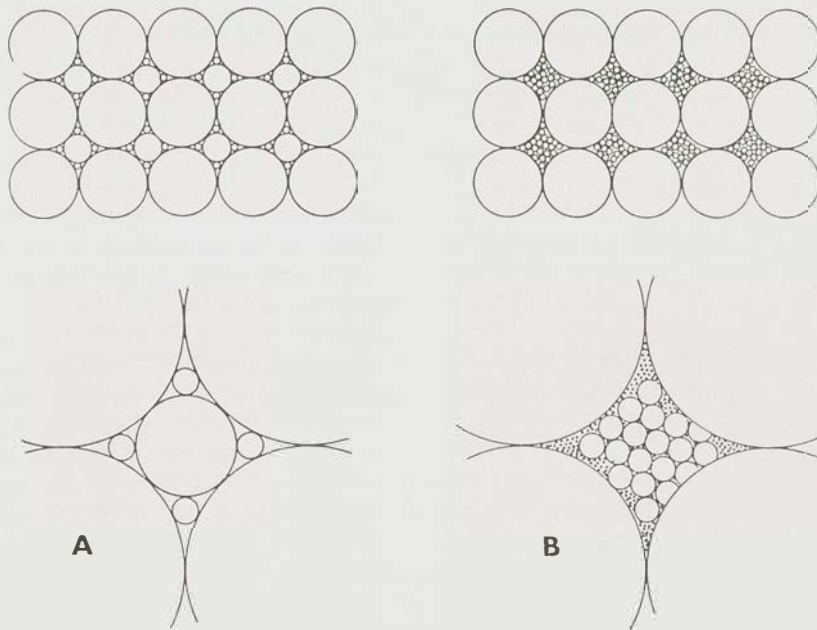
If flint and feldspar are ground to an extremely small particle size and then mixed with clay of about the same size, a very porous body results. This is because all the materials are close to

the same dimension. In such a body, with about a 40 percent porosity, the shrinkage from the dried body to the fired body is excessive and dry strength is poor. That is the bad news.

There is some good news associated with such a body. For example, the reactivity of this body is excellent. Therefore, this body might fire to full density at a significantly lower temperature, perhaps even two or three cones lower, than a normal body that contained some relatively larger particles. Other evidence of the negative features of a uniform body is found when making a body with only a single ingredient, such as one clay. In a body like this, both the shrinkage and body cracking is excessive. An example of the negative aspects of this has been presented in a paper by Robinson, who found that no matter how carefully a pure clay body was dried and fired, it suffered a great deal from drying cracks. On the other hand, the same kind of body, if mixed with 50 percent flint, (of relatively large particle size), has much less drying shrinkage as well as many fewer cracks, even without special care in drying.

Mixing

The mixing of ceramic bodies, especially in the dry state, is sometimes given short shrift by ceramists, but this



The packaging of spheres of different sizes. (A) Theoretical representation; (B) practical representation.

should not be so. I can think of almost no case where it is not a good idea to mix a body as thoroughly as possible. Perhaps an artist who is trying to get a special body or someone who is trying to make a nonuniform body might want to proceed with a coarsely mixed dry body. But normally it is wise to mix ingredients just as much as our pocketbooks and our clocks allow, to give the possibility of good packing and the opportunity for good reactivity of the ceramic raw materials. The better the mixing, the better the packing, and therefore the less shrinkage and the more strength there is in a ceramic body. If the feldspar particles are well distributed, both a stronger body and a lower fusing body result.

But let there be no mistake about it, the mixing of a body takes a lot of energy and a fair amount of time too. This is why many normally skimp on or skip the process. It is possible to live with poorly mixed bodies even though they are defective. If you are working with a white body, a classic way to evaluate how well the mixing is proceeding is to add a pure, finely powdered organic dye to the batch. I tried this once using methylene blue dye on a white cordierite body in a commercial operation. The poor quality of the muller mixing operation and the

short time spent mixing was strikingly demonstrated by the blue streaks running through the batch.

Grinding

The only type of body grinding operation that makes sense for ceramists is ball milling. Unfortunately, ball milling a ceramic body batch is utterly impractical for the studio potter. One might want to try grinding a pound or two of a body batch, just to see what kind of effect it achieves, but under no circumstances would you want to try this on a large scale. It just doesn't make sense from a time or an economic standpoint.

Body grinding has been done, is being done, and probably always will be done for special situations, but the importance of grinding to us is merely to indicate what routes to take in body preparation. We only want to find out what the grinding effects are and how they can be obtained by simple means.

The main problem with grinding bodies is that, to have a major effect, grinding needs to be done for an extended period of time. For example, some tests reported in the literature (Cook & Sane) involve grinding bodies for 24 to 100 hours. This is terribly uneconomic for most applications. An additional complication is that a body ground for throwing normally needs to

be filtered, dewatered, and then re-mixed (to compensate for the unmixing that occurs during filtration).

Actually, the action of grinding the whole body at one time is rather inefficient and impractical. Only some of the materials in a body need to be ground, and therefore there is no sense in subjecting all the ingredients to this action. For instance, an average body containing about 50 percent clay does not need grinding to reduce the size of the clay particles. Grinding might disperse some clay "booklets," but it would not reduce the particle size.

Materials like flint and feldspar should be ground. These two components are easily ground and if a very finely ground body using them is desired, the procedure is first to grind the flint in the ball mill for 12 hours; then add the feldspar and continue grinding for another 12 hours, and finally add the clays and merely ball mill for another couple of hours, until all the ingredients are well mixed.

Nevertheless, there is one basic problem with a fine grind of the whole body, and that is that, during the grinding process, the larger particles are reduced much more efficiently than the smaller particles. Thus, the tendency in a ball-milled body is to approach a state where the particles become one minimum size. The resultant body has a naturally high porosity in the dry state and has at least two drawbacks. In the first case, it is very weak (with about half the dry strength of a normal body) and secondly has very high shrinkage when fired.

On the positive side as mentioned before, if the firing is carried out carefully, the final body can have very low porosity and it may also be more vitreous (and translucent). The body also matures at a lower temperature.

There is one more item to consider with regard to the extended grinding of a body, and that is the actual wear and tear on both the grinding pebbles and the mill. This action means that one should be careful what media are

used in the mill. Although one normally prefers to use the hardest possible pebbles, such as zirconia or alumina, in most cases it is preferable to use pebbles of either flint or porcelain, so that any loose particles would have little influence on the nature of the body. The residue from something like alumina or zirconia balls may have a negative effect on a property such as translucency.

The practical solution to the question of grinding is best handled by either grinding selectively or by purchasing ingredients of the appropriate size. Since it is desirable to have a range of particle sizes to help from a shrinkage standpoint and to help with degassing and vitrification, you ordinarily do not want to grind the silica finely. Alternately, you may want to use finely ground feldspar because it is more reactive that way and would then give a more translucent and a stronger or a lower fusing body.

If grinding is used, then you may want to put feldspar in the ball mill for an extensive grinding, next add clay to obtain good dispersion, and only at the last stage add the large "flint" particles. Then only mill enough to mix the body.

These comments should act only as a "teaser" to you. To learn more about this subject, refer to the fine papers listed below.

REFERENCES

- Cook, R.L., & Sane, S.C., "Grinding and Firing," *J. Am. Cer. Soc.*, vol. 34: 1951, pp. 145-151.
- Koenig, J.H., "Particle Size Distribution," *Ceramic Bulletin*, vol. 19: 1940, pp. 424-430.
- Redd, O.F., "Ball Milling," *Ceramic Bulletin*, vol. 19: 1940, pp. 253-255.
- Robinson, G.C., "Design of Clay Bodies," *Ceramic Bulletin*, vol. 47: 1968, pp. 477-480.
- Shaw, C.F., "Translucency and Grinding," *Ceramic Bulletin*, vol. 37: 1958, pp. 448-451.
- Westman, A.E.R., & Hugill, H.R., "Particle Packing," *J. Am. Cer. Soc.*, vol. 13: 1930, p. 767.

This is an excerpt from the book *Ceramic Bodies* by Robert Tichane, published in 1990 and available from the New York Glaze Institute, 511 N. Hamilton Street, Painted Post, NY 14870.



THE 100 PERCENT SOLUTION

Computers are handy gadgets, but it is not often that anything they do can be classified as simple. Here is an exception.

A graphics program can do a series of helpful calculations for you in nothing short of a blue lightning flash.

The particular software that I used was Graph-in-the-Box by New England Software Company, but any graphics program that generates a pie chart should do the trick. The hardware is even less of a problem; any PC clone will do.

The trick behind it all is the pie chart concept. The numbers that go into a completed pie chart have to add up to 100 percent (the whole pie), so any combination of raw figures that you feed in finally adds up to 100. Why this is useful to ceramists is that it allows you to convert a mish-mash composition of raw numbers into a neat batch that adds up to 100.

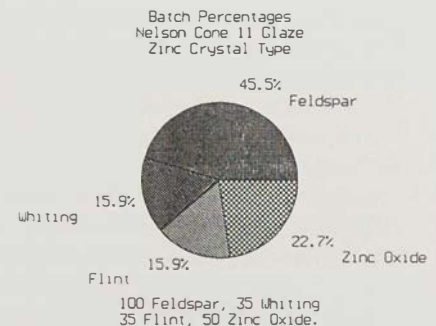
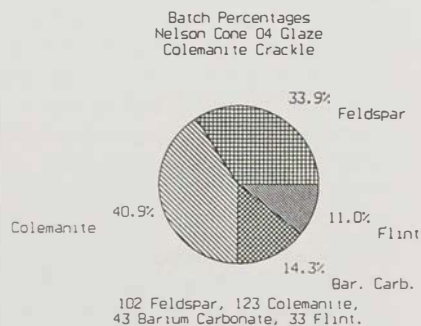
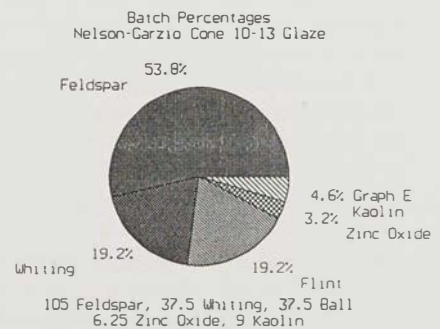
For instance, a tap of a key converts the following numbers feldspar 654, flint 398, kaolin 126, and whiting 235, to the percentages feldspar 46.3%, flint 28.2%, kaolin 8.9%, and whiting 16.6%.

The following examples are taken from the 1966 edition of Nelson's book *Ceramics*. The original numbers are listed at the bottom of each chart. In

the Graph-in-the-Box program, by simply arranging these numbers in a row in the pie chart segment of the program and then tapping the F-10 function key, you obtain both a display of the chart and a display of the percentages.

If you are careful to use the same background pattern for the same ingredients, then comparisons of similar recipes is facilitated. In the end, when you have a pie chart actually printed out, it gives you an excellent way of comparing similar glazes or body compositions at a glance. If you are allergic to computers, hunt for the nearest hacker and explain your problem—that's what friends are for.

Robert Tichane is a former research scientist with the Corning Glass Works who specialized in the examination of glass and ceramic surfaces through optical and electron microscopy. He is the author of Ash Glazes; Reds, Reds, Copper Reds; Ching-te-Chen; Those Celadon Blues; and, recently, Clay Bodies.



Cone Three Clay Bodies and Glazes: A Suggestion For the 90's

by Richard Zakin

Many ceramists are looking for ways to fire at a lower temperature; they want to use the brighter color range of the lowfire and yet produce durable, useful pieces. Then, too, many want to fire in a way that does not have a strongly negative impact on the environment. I have found that cone 3 (1168°C/2134°F) is quite effective in answering these needs. Like lowfire, its demands in terms of fuel and power are small; however, the work is quite durable and well suited to utilitarian ceramics. Actually, cone 3 has been popular among industrial ceramists for years and perhaps it is time we studio potters learned to use it as well.

For the past two years, I have been working with my students at this firing temperature. They seem to like these bodies and glazes and have been able to produce excellent results with them. At the end of this article are a number of recipes that we have found useful.

Cone 3 clay bodies are workable, quite dense, durable, and fairly non-permeable. In this part of the firing spectrum, mullite crystals have a chance to develop in the clay body, strengthening it in a most significant way. These bodies are simple to mix and not overly sensitive to slight changes in formulation. They are suitable for all forming methods including the wheel.

Cone 3 glazes tend to be durable and stable. Glaze character is excellent and versatile, and resembles either high- or low-fire. In the formulation of some of these recipes, I aimed for brilliant color effects. These recipes work well with glaze stains; their surface is smooth and enamel-like, and their color is clear and ungrayed, reminding one strongly of lowfire. Other recipes are based on iron-bearing clays and natural colorants; in these I aimed for muted color and surface marked with a visual texture similar to highfire.

While still in the lower part of the firing spectrum, cone 3 glaze recipes need not contain the powerful flux



lead. I no longer use this toxic material and also avoid using barium. Although the highly textured glazes derive their character from lithium, I have used spodumene, which is safer than lithium carbonate.

All my cone 3 glazes contain some frit (usually from 10 to 20 percent) but most of their ingredients are normal feldspars and secondary fluxes. I have formulated the glazes so that they do not run very much; while this has inhibited florid imagery, it has protected our kiln shelves. An adventuresome studio potter who wishes more active surfaces might want to vary my recipes by lowering the alumina content and raising the secondary fluxes; feldspar amounts would be lowered, and titanium, zinc, Gerstley borate, and calcium magnesium fluxes raised.

Cone 3 glazes may be dipped, sprayed, poured, or applied with a brush. Most important, the firings are short, comparatively effortless, and economical.

We have used these bodies and glazes only in the electric kiln, but I

imagine they would work quite well in fuel-burning, reduction-fired kilns as well. If my experience with cone 6 reduction firings is any guide, the bodies would respond very well; the glazes would benefit from flashing but, due to the very different character of calcium/magnesium materials in lowfire, would not particularly remind the observer of cone 9 reduction.

What to Look for in Cone 3 Recipes

Cone 3 glazes should be fairly high in silica-containing materials. These should include at least 10 to 15 percent frit, as frits will ensure a good glaze melt and stabilize the glazes. If earth-colored glazes are desired, the use of iron-bearing clays in the recipe is recommended. Small amounts of zinc or titanium are useful in these glazes to harden and further stabilize them. ►

Above: Detail of vase by Richard Zakin. Class brown was applied to the interstices using an intaglio application (the glaze was applied and then sponged off high points). The piece was sprayed overall with Dewitt dark tan and the lip with Fairdale cream.

These recipes usually contain heavy alkaline materials. The addition of a small percentage (.02 percent) of a material that enhances glaze suspension is advisable.

Appropriate Materials for Cone 3 Glazes

At cone three you will need powerful fluxes. The following materials fall in this category:

Primary fluxes:

high boron and sodium frits (I use 3124, a boron frit, and 3110, a soda frit, but other frits would be useful as well)

soda feldspars

lithium feldspars (mainly spodumene)

Secondary fluxes:

Gerstley borate
zinc or titanium

Adapting a Cone 3 Glaze Written for a Higher Fire

Primary fluxes:

Add high boron and sodium frits, lithium feldspars, soda feldspars.

Subtract and/or lower potash feldspars

Secondary fluxes:

Add Gerstley borate, zinc, or titanium

Subtract and/or lower dolomite, magnesium carbonate, or calcium carbonate (whiting)

Remember that all cone 3 glazes should contain at least 10 to 20 percent soda or boron frit.

CONE 3 RECIPES

Bodies

BUFF BODY QU 1

Ball clay	20
Goldart	55
Talc	25

This body is durable and quite workable. Its color is a buff yellow and it works well with glazes.

RED BODY

Ball clay	10
A.P. Green fireclay	10
Goldart	55
Red clay	25

This body is ocher orange in color. While it darkens many glazes, it is quite compatible with most of them.

Glazes

GRANBY BASE

Ball clay	12
Soda frit (3110)	28
Gerstley borate	10
Opax	10
Soda feldspar	38
Tin oxide	2
Glass makers—normal	
Clay—normal	
Secondary fluxes—normal	

The most significant flux in this glaze is sodium, derived from both the soda feldspar and the soda frit. This is a smooth, satin shiny glaze. It is very durable and quite opaque due to its zirconium and tin content. It is an excellent base glaze and works well with most colorants and stains.

FAIRDALE CREAM

Ball clay	12
Dolomite	10
Soda frit (3110)	24
Gerstley borate	10
Opax	12
Soda feldspar	10
Spodumene	20
Titanium	2
Glass makers—normal	
Clay—normal	
Secondary fluxes—normal	

The most significant fluxes in this glaze are lithium, derived from spodumene, and sodium, derived from soda frit and soda feldspar. Its color is soft ivory cream and its surface is matt.

DEWITT DARK TAN

Ball clay	8
Barnard clay	8
Dolomite	16
Boron frit (3124)	24
Opax	12
Soda feldspar	10
Spodumene	20
Titanium	2
Glass makers—normal	
Clay—high	
Secondary fluxes—normal	

The most significant fluxes in this glaze are iron, derived from Barnard clay, and lithium, derived from spodumene. Its color is a dark earthy tan. Its surface is strong and durable. It is marked with a tight pattern of visual texture.

FULTON GLAZE

Ball clay	10
Soda frit (3110)	30
Gerstley borate	18
Opax	10
Soda feldspar	30
Titanium	2
Cobalt carbonate	1.5
Glass makers—normal	
Clay—normal	
Secondary fluxes—normal	

The most significant flux in this glaze is sodium, derived from soda frit and soda feldspar. It is bright blue in color. Its surface is shiny and unmarked by visual texture.

CLASS BASE

Flint	14
Boron frit (3124)	32
Gerstley borate	12
Iron oxide	5
Red clay	22
Soda feldspar	14
Titanium	1
Glass makers—normal	
Clay—high	
Secondary fluxes—low	

The most significant fluxes in this glaze are iron, derived from red clay, and boron, derived from boron frit and Gerstley borate. This is a dark base glaze and can be used with a number of colorants. It is a durable and reliable glaze base.

CLASS BLACK

Add 2 percent copper carbonate to the Class Base to get a rich black.

CLASS BROWN

Add 8 percent black iron oxide to the Class Base for a very rich brown color.

Adapted from Richard Zakin, Ceramics: Mastering the Craft, Chilton Book Co., Radnor, PA 1990. The adaptation is by permission of the publisher.

Richard Zakin is professor of art at the State University of New York, Oswego. He is also the author of Electric Kiln Ceramics.



In 1987 a symposium sponsored by STUDIO POTTER, entitled "The Case for Clay," was held at New York University in New York City and dealt with secondary art education. Six teachers were chosen as exemplary teachers through a national selection campaign and honored at that conference. A second symposium was to be held at San Jose, California in 1989, and exemplary teachers were nominated from schools across the country. A jury of peers singled out six teachers for their innovative curricula and dedicated teaching methods. Although the San Jose conference did not materialize, STUDIO POTTER is pleased herewith to honor those six teachers chosen for their outstanding school programs and for the critical role they play in nurturing the future generation of potters and clay artists.

STUDIO POTTER also is pleased to acknowledge a generous grant from Skutt Ceramic Products of Portland, Oregon, specifically awarded to assist STUDIO POTTER in the selection and honoring of these teachers.

AN ACHIEVEMENT

To teach: to work with the hands;
to reach the heart; to understand the
mood; to communicate the spirit; to
widen horizons; to facilitate art that
lives in three-dimensions:
to understand clay.

IN RECOGNITION OF EXCELLENCE, INNOVATION,
AND COMMITMENT TO EDUCATION AND
THE CERAMIC ARTS,

THE STUDIO POTTER FOUNDATION
OFFERS THIS COMMENDATION TO ONE OF
AMERICA'S OUTSTANDING EDUCATORS.

Larry Vetter
33472 Intra Way
Dana Point, CA 92629

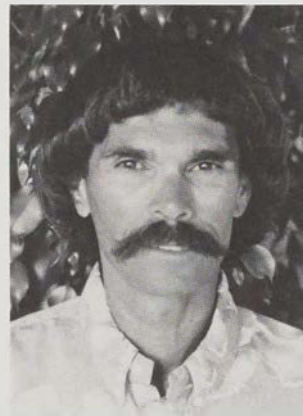
Instructor of ceramics, La Puente High School, La Puente, California. Principal: Stu Reeder. BA, MA California State College at Fullerton.

La Puente High School has a diverse ethnic population: 82 percent Hispanic, 12 percent Caucasian, 4 percent Black, and 2 percent Asian. The ceramics program here has a long, proud tradition, and I am now teaching the brothers, sisters, cousins, nephews, nieces, neighbors and, in some cases, children of former students.

My teaching is focused on providing for the diversity of students that enter the door at Room 50. While we are in a low socio-economic area, I can point with pride to the ceramics program as a model for success of the students, and of the school and community. The spring student sale is legendary.

I teach five ceramics classes and instruct in the academic decathlon program as well. Students entering the program take Art I Ceramics the first semester, which cannot be repeated for credit. The Advanced Ceramics course, however, can be taken as many as seven times for credit. Beginning students have no class fee, but advanced students pay \$10 per semester for which they receive all the clay they can use plus cone 10 glazes and brine and saggar firings.

Our students exemplify what is possible in the United States when attention is paid to hard work and caring for one another. A graduate of La Puente High School recently said: "In the ceramics room it's different—we're all equal, no one better or worse, we all get to help each other, like a family. I wish the world outside was like that, too."





Robert Sherman
135 St. Mark's Place
Staten Island, NY 10301

*Art instructor, Hunter College
Elementary School. Principal:
Elliot Koreman.
BA University of Wisconsin,
MA New York University.*

Hunter College Elementary School is one of the foremost laboratory schools for the education of intellectually gifted children. It is fully subsidized by the City University of New York and serves a diverse group of gifted students chosen through rigorous pre-school testing.

As a working artist, I brought to the program years of experience. I originated a

clay mask-making process in which I utilized breathing, acting intention, and emotional response as immediate catalysts for sculpting clay directly on the face. I have exhibited raku-fired masks and performed clay mask rituals. I was a special participant in the National Geographic Society's program to promote the study of African culture for gifted inner-city youngsters.

At Hunter College Elementary School, I designed a curriculum that allows for sequential construction of clay concepts and skills, focusing the children's intensity and imagination while motivating their aesthetic decision making. Some projects I initiated are:

"The Shaping of America: 1776-1886." A sixth-grade class researched post-Revolutionary America and collaboratively designed and executed a 6- by 4-foot mural in relief tiles. It is now installed in the school lobby.

"The Golem Project." A sixth-grade class read Isaac Bashevis Singer's *The Golem*, viewed an exhibit at the Jewish Museum entitled "Golem: Danger, Deliverance, and Art," then modeled three-dimensional golems out of clay. The Jewish Museum exhibited eleven of them in a special show.

"The Art and Spirit of Modern Primitivism." Grade 2-6 students visited the Michael C. Rockefeller Wing of the Metropolitan Museum of Art and, inspired by an introduction to primitive masks and their history, replicated the features, textural carvings, color, and design motifs of those masks. Then they integrated these techniques into original masks, synthesizing craft and spirit for a modern perspective on the primitive.



Sylvia Netzer
108 Greenwich Avenue
New York, NY 10011

Teacher and advisor, Public School 3 and Greenwich House Pottery, New York, NY. Administrator: Jane Hartsook. Head, ceramics program, City College of New York. Worked with children at Babies Hospital Columbia-Presbyterian Medical Center, St. Vincent's Hospital, and Psychiatric Institute, Columbia University. BA City College of New York, MFA Columbia University School of the Arts.

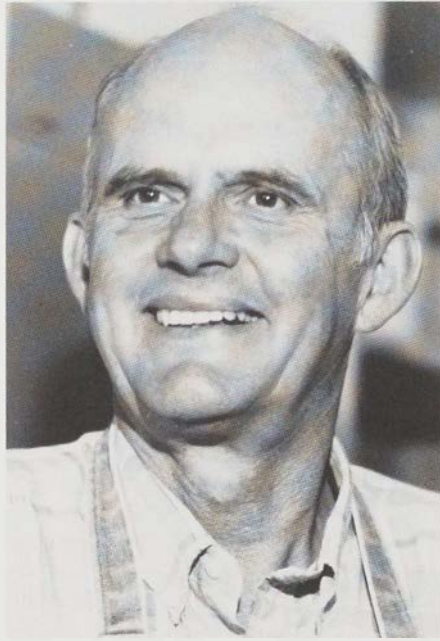
My teaching is based on the premise that instruction must begin at the level appropriate for the student. We must respect abilities, backgrounds, interests, and concerns. To promote active rather than passive learning, I set up a variety of experiences so that each student, no matter of what ability or interest, can become involved. I also introduce students to new ways of looking at art through slides, books, magazines, and the work of other artists. Above all, I try to convey to them my own enthusiasm and lifelong commitment to ceramics.

In 1985 I founded a ceramics program at Public School 3, a New York City school based on the open-classroom Summerhill model. This was a special Arts and Education project, sponsored by the New York State Council of the Arts, in which I worked with five teachers and their classes to provide an enrichment experience.

The curriculum was flexible enough to accommodate students with a wide range of interests. One successful project, *Designing My Neighborhood*, required students to identify what constituted a neighborhood and then to create it in clay. In another, the second and third graders visited the Metropolitan Museum to view pre-Columbian art and relate it to their own experience in pottery.

My experiences at P.S. 3 are a testament to the value of teaching clay in the public school, where a program can take root even without a kiln or previous experience. The effects of such a program last long after the grant period is completed.





Leo Olson
2914 Miles Avenue
Billings, MT 59102

*Art teacher, department chair,
Billings Senior High, Billings,
Montana. Principal: James
Rickard.*

*BA Eastern Montana College,
MAA Montana State University.*

We were one of the first high schools in Montana to offer ceramics, and when we started off a dozen years ago there was one wheel and 400 pounds of clay. I noticed, as time went by, that students were hooked by clay in a manner unmatched by any other medium. If the medium so totally captivated them, I said to myself, it must have an enormous potential for art education.

An opportunity presented itself when some shop classes moved out of the building,

and I fought successfully for the use of the largest space. I applied for and received a Title IV grant to build an expanded ceramics and sculpture facility. Title IV grants are designed specifically to alleviate cultural deprivation; we were a shoo-in as the whole state of Montana is considered culturally deprived. That summer I went back to school to take my first ceramics course.

Our facility now is spacious and well equipped. There are eight kickwheels and six electric wheels, a pugmill, a ball mill, and a table with bins for raw materials. We have two electric kilns and a 40-cubic-foot updraft gas-fired kiln in a separate room and a raku kiln constructed by the students. We also have facilities for welding and casting. With five classes of thirty students each per semester, we go through 6½ tons of clay a year.

Our basic program, entitled Ceramics and Sculpture, can be taken for either one or two semesters. Students in the second semester are placed at random with the first semester students and work on a quasi-independent basis. Keeping track of grades in such a mixture is a nightmare, so I designed a template to fit the Apple Works Spread Sheet program.

The semester is short and I have distilled the curriculum to its current assignment load. The students have to work every day to accomplish their tasks. From time to time I have thrown nutsy assignments at my kids and, on reflection, it probably was more for my benefit than for the kids'. All of ceramics is new to them and inherently interesting. In Montana, what is innovative is that we have ceramics on a high school level.





Chris P. Chapman
1632 River Road
Brunswick, ME 04011

Art Teacher, Mt. Ararat School, Topsham, Maine. Principal: Carolyn MacManus. MA Teachers College, Columbia University, MA New Mexico State University.

I want my students to experience clay in an integrated way: to connect with it and to grow by learning its skills, owning its technical information, honoring its history, and gaining a global perspective through its rich association with human culture.

Recently, students of ceramics from my school and the high school participated in a Studio-Based Learning project at Haystack School, Deer Isle, Maine. Designed by the two schools and funded through the Maine Department of Education as an Innovative Grant, the three-day residency was a model for life-long learning by experiencing the arts in a supportive environment. The project provided 16 hours a day, instead of the usual 45 minutes of school studio time, with Maine artists in blacksmithing, metals, mixed media, basketry, and clay. The students were hungry to discover new ways to learn, and connections made during the session created ripples still being felt by students and teachers alike.

Students are always excited by clay; it speaks to them as no other material can. There seems to be a genetic memory that invites students into clay, that says, "Here I am, make something of me!" Clay supports and encourages essential elements of education: the desire to learn and the satisfaction and self-worth that come from self-motivated experiences.





Mary C. Giammatteo
6603 Gude Avenue
Takoma Park, MD 20912

Teacher of adult and children's classes, Langley Park Community Center M-NCPPC; Instructor of ceramics and general art, Fillmore Art Center, Washington, DC. Principal: Patricia Mitchell. AA Montgomery College, BS University of Maryland.

A successful arts education program in the public schools incorporates the needs of the children it serves, provides arts literacy and student hands-on participation in all art disciplines, and brings the expertise of the artist/teacher into the classroom as a role model for the student's future life experiences.

At present I am in my thirteenth year of teaching at the Fillmore Arts Center, part of the public school system of the District of Columbia. The student population is diverse, with children from different countries as well as the inner city. Most of them are enthusiastic when they come to class and don't need motivation so much as direction. I always include lessons on the relationship between clay and archaeology, architecture, science, computers, geography, geology, and the current and future industrial uses of ceramics.

Fillmore believes that art education benefits all students by teaching them to be keen observers of people, events, and the world around them; by providing basic introductory skills in music, dance, drama, and the visual arts; by teaching concepts through the arts for use in academic areas and by the problem-solving and critiquing skills so essential to their future development.



Ageing Potters

In the recent issue of *STUDIO POTTER* (Vol. 18 No. 1), I was struck by several inaccuracies and "ageist" statements made by the contributors. While overall I found the issue interesting, as a young artist I have to say that the comments of people much older than myself on the reasons why younger people are choosing their directions were annoying. [I refer to statements made by] Tom Turner and Ellen Shankin about the lack of younger people making and purchasing pottery.

We are an ageing society, demographically. "Baby boomers" represent only 32.7% of the population. According to the Census Bureau, in 1970 the oldest baby boomer was only 24 years old. This year the baby boomer will be 44. I am a member of the second-to-last year of baby boomers (I was born in 1963), so there are more people older than me. What this means is that there is a proportionally smaller percentage of the population that is younger, and the market is saturated therefore by the work of older potters.

I would also suggest that those people who might be buying functional work cannot afford to buy the work of people such as Tom Turner. I know I couldn't. All the artwork I have was given by friends or traded. I am now looking at housing that is exorbitantly priced. It is impossible for me to buy a house in the near future—or any time for that matter—with the economy uncertain at best. This does not encourage a leap into a career that may result in debt, and with no way out. Up to this time I have chosen not to make functional pots but to pursue architectural ceramics.

Now I am developing a line of commercial tiles in order to support myself (something I have heretofore avoided), thinking I might as well make money in a secure way and reserve clay for myself. I don't have the energy for my own work after 40 hours a week working for someone else, and financial stability has eluded me.

I encourage you to publish an issue on artists in their twenties, including their thoughts on clay, function, and personal/financial fulfillment.

Nan Schmitz

88 Portland, OR

Functional Ware

As a longtime (nineteen years) production potter making functional ware, I was very pleased with the focus of your last issue (Vol. 18 No. 1). I commend you in particular for the interview with Professor Kotz that was informative and thought-provoking. His explanation of the welfare-for-the-rich aspect of government debt financing was the clearest I have ever read.

April Aerni's article was heartening, and even though speculative had the ring of truth. She is right—we potters are a well-educated group of people, and I for one appreciate intelligent words about the non-clay/glaze/firing aspects of our lives.

John Reiger
Sacramento, CA

Hitting Home

I always enjoy *STUDIO POTTER*, but this time you really hit home. My whole family got excited over the Leningrad artists' ceramic review, and we all immediately saw the connection with my own work, which is figurative and rooted in East European traditions, somewhat alien to ceramic styles in the United States.

The next surprise was the Nicaragua connection. My daughter Claire has spent a year designing stamps for the Nicaraguan government. If you receive any stamps from there with butterflies or Latin American portraits you will know the source. She is a ceramist just like her Dad, so you brought us great joy.

Zeljko Kajundzic
Entiat, WA

The Loneliness of the Cross-Country Runner

At fourteen I knew via the great source of adolescent knowledge—instinct—that I wanted to be a potter. That instinct was fortunately nurtured and encouraged. My love for functional pottery grew and was respected as I studied (at Alfred in 1962 and Columbia in 1973). Throughout years of unusual life events I never lost that love, interest, and commitment to pottery, even though my wheel was often still, the kiln cold. During these times I worked at pottery in my heart and head, fed by exhibits, publications, and a few

friends who really understood.

Like running a cross-country race, alone for long stretches, I would arrive at check points—such as the latest issue of *STUDIO POTTER* (Vol. 18 No. 1). Functional pottery is alive and well, valid and strong as ever. Within the din and clamor of the years I have always heard my "still small voice of calm" that speaks of the functional pot and its role in the humble rituals of human history.

I make pots for use, and for some money. But really I make them for love—sustained by the feelings of energy and excitement first recognized at fourteen that have remained undiminished, growing, and maturing. I intend to do this for a living even though Mom said it would be easier to learn to type. Thanks for your affirmative issue.

Alice Russell
Edgartown, MA

Patrick Siler's Drawings

I can't believe you published those amateurish scrawls by Patrick Siler in the June 1990 issue (Vol. 18 No. 2). I can't believe Patrick Siler would want anyone to know how bad his drawings are. If this is how unprofessional your magazine portrays itself, I think I will stop wasting my time reading it.

Frank Matranga
Manhattan Beach, CA

Quality Reading

I consider your magazine the only one in the field that offers any journalistic quality. It is truly alive.

Ricardo Bensaude
Diamond Creek, Victoria
Australia

Author's Query

I am in the process of writing a book on crystalline glazes on porcelain. It will include a history of the process, methods, firing cycles, and results. I will include glaze recipes and the work of other potters. I invite potters working in this medium to get in touch with me.

Diane Creber
R.R. 2
Odessa, Ont. K0H 2H0
Canada



NOTES FROM ABROAD

III WORLD TRIENNIAL EXHIBITION OF SMALL CERAMICS Zagreb, Yugoslavia

October 7 to November 17, 1990

The III World Triennial Exhibition of Small Ceramics opened on October 7 at the Modern Art Gallery in St. Catherine Square, located in Gradec, the historical center of Zagreb, Yugoslavia. Hanibal Salvaro, president of the Organizing Committee, welcomed the crowd of artists and friends from Zagreb gathered there to celebrate the event. After several more speeches by public dignitaries we went inside to view the exhibition that consisted of over four hundred small ceramic works (less than 6 x 6 x 6 in.) made by artists from forty-four countries around the world. The exhibition was beautifully installed behind sheets of glass that extended from the floor to the ceiling.

The work was extremely well done and clearly indicated to me that the world is one community of artists. I was surprised and pleased to see that basically all of us have similar interests.

The Grand Prize went to Eddie Porck of Holland for his raku vase called "Egg." Other awards went to ceramists from Taiwan, Hungary, Germany, Japan, Austria, Great Britain, Spain, Yugoslavia, Australia, and Korea. Included in the exhibition were functional vases, bowls, cups, teapots, and vessels. Sculptural forms, however, seemed to be predominant and included: social commentary such as "Liberation," "Survival," "You Die Easily Three Times"; the commonplace: "Gossip," "Keys"; humor: "Tootsie," "Batman"; mathematical: "Golden Mean Study X," "Out of the Square"; non-objective: "Form 4, 89," "Form on Form."

Members of the jury were Colin Pearson of Great Britain, Seka Severin Tudja of Venezuela, and Ivan Svrtasek of Yugoslavia, who exhibited out of competition. The catalogue of this excellent show includes photographs of every accepted piece, with the Awardees' work being reproduced in color and the remainder in black and white. Although the photographs are excellent, they can never take

the place of actually seeing the pieces, and I count myself very lucky to have had the opportunity to see them.

A reception took place in the Old Town Hall with the formal award of the prizes and honorable mentions, followed by an unforgettable banquet at the Hotel Esplanade.

CLAY AS POSSIBILITY OF VISUAL EXPRESSION

An International Ceramic Symposium

Zagreb, Yugoslavia

October 8 to 11, 1990

The International Ceramics Symposium: Clay as Possibility of Visual Expression began on October 8th with an address by Marie Therese Coullery, secretary of the International Academy of Ceramics. She surveyed the contemporary world of ceramics quite completely and succinctly, from functional containers and vessels to sculpture utilizing fired clay as a vehicle to express socio/political concerns and to explore geometric form. In another informative presentation, Michael Mason of Great Britain, recipient of the Titograd Prize, made the point that "ceramics is not a small compartment into which one must be squeezed; the spirit of ceramics is a much bigger thing." This attitude probably led him to work in other media for a number of years. He said also that the range of ceramics makes it the best means to educate children totally.

We spent October 9th at the Brick Yard ILOVAC, Karlovac. After a welcoming ceremony that included bread with salt and wine, all participants in the symposium had the opportunity to work with clay extrusions and were free to use the clay in any way, with the results to be fired in the future. After lunch we visited a castle in the area with a truly magnificent view from the top of the tower.

The following day there were excellent presentations in the auditorium, with translations. The presenters emphasized ideas underlying their work—why, not how, pieces were conceived. Later we adjourned to see the Triennial Exhibition of Small Ceramics or to

visit the museums and galleries with special shows.

The final day featured an excursion to the neighboring Republic of Slovenia where we saw a Cartesian monastery in Pleterje, then to the former Cistercian monastery, Kostanjevica-on-Krka, now the seat of the Bozidar Jakac Gallery and the International Sculptural Meetings ("Forma Viva"). Here we saw large-scale wood pieces produced by the participants in those meetings. Lastly there was a visit to the studio of one of our hosts, then dinner and dancing until midnight.

The Yugoslavian people in attendance were friendly, generous, and warm. They immediately made us feel at home and were willing to share their knowledge and were also eager to hear and listen to others. It was a thoroughly pleasurable event, in addition to being a marvelous learning experience. I would recommend it to anyone.

Harriet Brisson

Rhode Island College
Providence, RI

INTERNATIONAL ACADEMY OF CERAMICS

Edinburgh, Scotland

September 3 - 10, 1990

The International Academy of Ceramics held its biennial General Assembly at the University of Edinburgh, Scotland during the first week of September, 1990. Members of the Academy came from twenty-eight countries including Australia, Japan, Venezuela, the United States, Turkey, Sweden, Norway, and all parts of Europe. The Academy was founded in 1953 as a consultative agent to UNESCO, and is an association of ceramists whose purpose is to foster international cultural understanding around the world. It is headquartered in Geneva, Switzerland.

The Assembly meetings were held in a venerable lecture theatre of the Edinburgh College of Art, presided over by Rudolf Schnyder and secretary Marie-Therese Coullery. Tony Franks, instructor at the College, was the general liaison for the Assembly. Mid-way through the week the Assembly

shifted to the Glasgow College of Art for additional exhibitions, museums, excursions, and a farewell dinner.

Among the Americans attending the conference were Judy Schwartz, Bill Hunt, Dennis and Ben Parks, Zeljko Kujundzic, Diane and Igal Silber, Sana Musasama, Charlotte Speight, Barbara Perry, and Julie and Gerry Williams. A strong delegation came from Japan, led by Professor Yoshiaki Inui and Mutsuo Yanagihara. Canada was represented by Walter Dexter, Ann Mortimer, Ann Roberts, and Les Manning. Several ceramists from the Soviet Union and Czechoslovakia attended for the first time.

Excellent lecture/demonstrations were presented to the Academy by four quite different ceramic artists: Colin Pearson, Archie Moore, Elizabeth Fritsch, and Magdalena Odundo. Elizabeth Fritsch gave a stimulating lecture, explaining the visual relationship of her flattened pots with three-dimensional painting to musical concepts—jazz in particular, but also improvisation, melody, harmony, rhythm, counterpoint. She had a concurrent retrospective exhibition at the National Museum of Scotland in Edinburgh.

The principal business of the Assembly was to review and vote on fifty-five candidates for admission, only sixteen of which were accepted, none American. Afterwards, members visited museums and galleries. While some of us from America had hoped for a more challenging agenda to stimulate discussion of social, political, or environmental concerns critical to the international ceramics community, we learned to appreciate the validity of a European-style academy, even if slightly archaic and privileged. In the end, we were enriched by the personal contacts with potters and ceramic artists from other countries, and realized that networking, after all, was the Academy's most valuable purpose and one that strengthened common cultural goals in times of unstable neonationalism.

Gerry Williams

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