

THE FLAT TOP KILN, A HISTORY

Mel Jacobson/2021

This is a true story, as I was there, the entire time. Some dates and events may be out of perfect sequence, but are accurate to fact. My life was rich with some very fine potters and artists. And as I said in my first biographic article in Ceramics Monthly, "If you want to be a great potter, hang around great and talented potters." I have done that my entire life. Loyalty and honesty is the best that can be achieved.

I met Nils Lou in 1960-61. He was fresh to Minnesota from the University of Michigan, grad school. He was married with a couple of kids. His wife Nancy had graduated from Oberline College and was a classical piano graduate, and she was lovely and smart.

Nils had studied with J.T Abernathy about the time JT lost his job at Michigan. All I can say is co-eds were in the mix. JT was a kiln genius. That genius had a huge affect on Nils. But, as Nils said often, "kilns designed by engineers are much better than kilns designed by un-trained potters."

My pal Dale Eldred was at Michigan at the time, and met JT and was very impressed by him as an engineer-like potter. JT was in his huge pot period. He had built his own hydraulic wheel from a transmission from a B-29 aircraft. 200 pound pots where coming off that wheel.

Dale went on to become the foremost sculptor in the country and was hired by the K.C.Art Institute, and Dale hired Ken Ferguson and we three became buddies. Ken had a soft brick kiln in his backyard,(and doing back yard sales) but it was a standard arch roof, soft-brick. (I pocketed some cone packs from the ground, and learned that for Ken, cone 10 was melted cone 11. His pots were fantastic, and fired hot. It made me think a great deal.

Nils was hired to be the ceramics and 3d instructor at Hamline University, St. Paul, MN. I had gone to Hamline for two years and also knew some of the same people he was teaching with. That helped bond us as friends. Nils appreciated that I was a teacher, had my Master's Degree, and loved pots. He was more than eager to teach me glaze chem and some other unknown to potter's, thermo-dynamic facts at the time.

I remember he gave a Saturday lecture on Potash, Alumina and Silica. "Real chemistry", I was in the front row, and realized there was not a Twin Cities potter there. Not one. It was my first realization that no one cared. Recipes on the back of note cards was how glazes traveled. Nils just smiled as he was prepared for that sort of skeptic.

Jim MacKinnell was teaching at Iowa State and several times in the early years as I went to KC to see Dale, I would stop just off the freeway and say hi to Jim...we were not friends, just a wave and say hi sort of thing.

I knew Jim was building kilns, but did not really understand it, as I had never seen a soft brick. Jim worked for Babcock and Wilcox in some capacity and knew all about them.

Jim MacKinnell made a set of architects blue prints of some kilns he had designed. Very good plans for sure. Somewhere forgotten I got a set of those plans. Still have them.

It was about 1961-2 and I had just moved into my new home in Minnetonka and was in deep despair over "new painting crap". The New York scene was full of "new age painters" making fun of art and the classics, Andy Warhol and the like. They made me angry and I actually stopped painting. I was unashamed to make beautiful art. I thought that was the point. Now it is all "ideas". But, I say piss on all of it, and paint what I want and like.

That is what turned me to pots for good. I wanted to make things and do things that had fundamental rules, skill and

knowledge. Clay has all of them. So, I thought best get a wheel, but too, get a kiln. And about that time I found Jim's plans. "How/Hard can it be?" I was dumb, but I thought I can learn. That is when "learn it from the ground up came to me." And I became very stubborn about learning it myself. At the time Sharlene would say.."call Warren and get some glaze recipes." That never happened; I found my own, made my own. Leach's 1234 was the very first.

I called the gas company for help with a gas line to my garage, but they said, "can't be done, a kiln will not go to 2375F. " So, I was left to my own wits. I found the gas line in my basement, and it was on a parallel line to my garage, I turned off the gas and cut the pipe with a hack saw, rented a pipe threader, added a T and a 1 1/4 " stub, and capped it off. Turned the gas back on, lit the pilots and all started up fine.

I found a pair of Denver Fire Clay burners for about \$30 bucks each, still use them. They had lots of air, and a quarter inch orifice. What did I know? They worked. I added a gas line underground to my kiln and had it ready to pipe to my burners. It all worked. I used high pressure radiator hose to hook the steel pipe to the kiln/burners . All 3/4 inch. Still use that system 60 years later and it works well. The burners are flexible, can be moved and I change the hose every four years.

I ordered the brick I needed from Babcock and Wilcox. Got some concrete block and laid down a half sheet of asbestos board on the block and started to build the walls. The problem was that I only had full brick, standard norman. I could not bridge anything on the first course...so both the flue and the burner ports where 36 inches square. What did I know?



The plan called for "beams" made by drilling holes for rods in the brick, and bolted them together. There was my flat top. B@W send some kaowool along with my order as a gift I guess. I made a gasket between the top and side walls. A hole was cut for the chimney and I added a Metal-bestos stack to the kiln. Worked Great" It fired to cone 10 in under 8 hours, I was thrilled, but

had no idea why it worked, no gas pressure, small flue, and a flat top. I had a kiln. Never questioned anything until one day Nils stopped to see who made a kiln? It was sort of "What in hell did you do Mel?????" I just said I built a kiln from plans from Jim MacKinnell.

He went on to say "you cannot fire a kiln with a flue that small, you need 81 sq inches, and will that top hold?, What the hell is this??" But I asked him to come back for a firing, see it for himself and as a person of some knowledge about kilns was stunned how well it fired. He got sold on the small flue. And, he got really excited about the flat top design. But he did not like bricks hanging on rod. He knew they would break in time, and he was correct.

At the time, Nils asked me to help him build a flat top kiln on Lake Minnetonka for a wealthy patron. He wanted to build a big kiln, and she was not sure. But we went ahead with the project and I learned as we went. The kiln had 8 100lb propane tanks and some home made burners. We tested everything, and it worked.

The real genius of the Minnesota Flat Top is the roof design that Nils invented. Two pieces of angle iron, welded together with holes drilled for all rod. The bricks were squeezed together in one monolithic piece. And, by lifting the roof up a bit before tightening, a small arch developed. All that was needed was a car jack under the plywood form. Tighten the corners in sequence and take out the plywood. We dumped wet clay and grog mix into all the cracks and that fired in place. No leak top. And, each top brick was dipped into a mix of clay and sand to give the bricks tooth, and to keep from slipping.

The best story is: the first brackets were made from bed frame metal, and Nils used 1/4" all thread. It worked, but it was fragile. He went to steel angle iron with a deep weld and 1/2 "all thread for the next experiments.(The lake Minnetonka Kiln) The world has settled on 5/8th" all thread now. Solid steel brackets.

So, just in this tiny story we have Jim MacKinnell, Nils, JT and myself. Then 3 or 4 more backyard kilns arrived in town. Ken Olson, business man turned potter built one, even a teacher from Minnetonka built a no stack kiln, just one kaowool liner. It too fired fine. I know that Ron Roy from Canada built one, and added a suspension system to support the roof. It worked.

THE MINNESOTA FLAT TOP WAS BORN

Nils hung on to my 36 sq inch flue idea, and turned that into the double venturi flue. It was my clumsy idea, but it worked and it just added to the others that made all sorts of changes. No one was looking for "Credit". We all got kilns that worked well. That was the point.

Nils then started to work on home made book ideas(self publish), and began work on his fine technical book. He sent me a working copy as a doc. And we started messing with the idea of a baby version. The lady that had Nils build the big kiln on the lake decided to move to Arizona and she had me take the kiln down and haul it away, She never did fire it. As I had said, it was far too big. She was frightened of it, and she could never fill a 65 cubic foot kiln, even with girl friends helping. So, I had stored all the brick and it was ready to build a kiln at the farm.

Nils had run into trouble at Hamline, his potter kids were making a quick drug fix and selling it. He was aware and did not turn them in. The police nabbed him as one of his students was working for the Feds. Nils did two years in prison. His life was a mess. He and Nancy moved to Oregon after the jail spell. They started a new life.

And as the fates would have it, the past president of Hamline in St. Paul took over running Lindfield College in McMinnville, Oregon, near Nils. When their clay program went to hell, he hired Nils to come teach at Lindfield. Of course the reason he could hire

Nils was easy, it is a private college, they are not bound by systems of land grant universities and colleges. He was a Felon.

He fit like a glove and did a wonderful job of teaching. He also had a private meeting with the Board and told his side of the drug story and cleared the air at Lindfield. That old story was twenty years in the past. And all the drug fear was no longer in the press.

Nils made his book into a best seller, he added a number of my stories in the book that got me doing more writing, and that landed the idea for my "21st Century Kiln Book. Also a best seller. Nils wrote the introduction to the Kiln Book, I added stories and chapters from many American potters with expertise in various specialties of kiln work. It was a joint effort, and I did not have to plagiarize my good friends, gave them bylines instead.

The Kiln book featured the small "Minnesota Flat Top Kiln." My friend Kurt Wild had copied the farm baby kiln, and settled on a great size for a working potter. We had cad drawings made, did a complete instruction manual on building and firing the kiln. It was a great testimony to Nils.

(for a download of the book, pdf, go to melpots.com and there is a list of my books now free of charge.)

As most of you know, Nils lost his wife Nancy to Cancer, he did join forces with another woman and built a new studio, but as fate would have it Nils died of a massive heart attack. And the irony of all was that Dale Eldred fell from a third story building and died in the accident, and soon after Ken Ferguson died we think of missing Dale and making pots. Jim and Nan MacKinnell are gone. My pal Kurt who was a vital cog in the building of Minnesota Flat tops died at the same time.

(I was able to talk to Nan a few years ago and thank her and Jim for all they did for potters. I also wrote stories on clayart about Jim and his contributions and she was very pleased. She even

sent me a lovely plate made by both of them, from years back. A real treasure for sure.)

Some construction notes on the first kiln.

The roof bricks started to crack after about 30 firings and fall into the pots at the top of the kiln. It became serious, so I added an arched roof.

The Metal-bestos stack burned out after about twenty firings and I re-did the brick stack base and added a kaowool lined pipe. It worked well. Later I invented the use of spiral pipe, and lined with ITC soaked liners. It is a perfect stack.

I added a new kiln room at the back of my studio and totally rebuilt the kiln as a 45 cubic foot, three stacks of shelves perfect for me kiln. It is indoors and I can load it easily, and even in deep very cold winter load and fire it. A door goes from my studio right into the kiln room, with a solid door to keep fumes from my studio. In and out checking of the kiln, let it fire. The kiln has quality baso valves, safety checks, and extreme air flow around the kiln. I use 5 fans when firing.

The flat top of that kiln is perfect. It has not moved a ¼" in 15 years. It is natural gas, with the same meter on my house furnishing the gas flow since the first day in 1961. In fact, that meter cannot measure the amount of gas I use, so it is very inexpensive to use. The fellows at the gas company that told me it would not work were wrong. And, I have learned kilns from the ground up.

The photo below is the Farm/Baby Flat Top. It was the first attempt at a small version. I built it alone, and without question it is a perfect kiln. It is in perfect balance and nearly fires itself.

During camp, with visitors we fire it every day for 9 days straight, it will often fire in under 5 hours to cone 11. We still use it all the time and I am doing "emergency surgery on the roof. The bricks are in a crumble in a few spots, but I am using M-

board and mortar supports. Seems to work and I want to keep firing that kiln for the rest of my life. A new one does not seem to fit my

plans, I like my old wheel, and my old pugmill, and my old kiln. Just used to it, that is all, as I am a really old potter.

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Farm Baby kiln, picture taken fall of 2020.