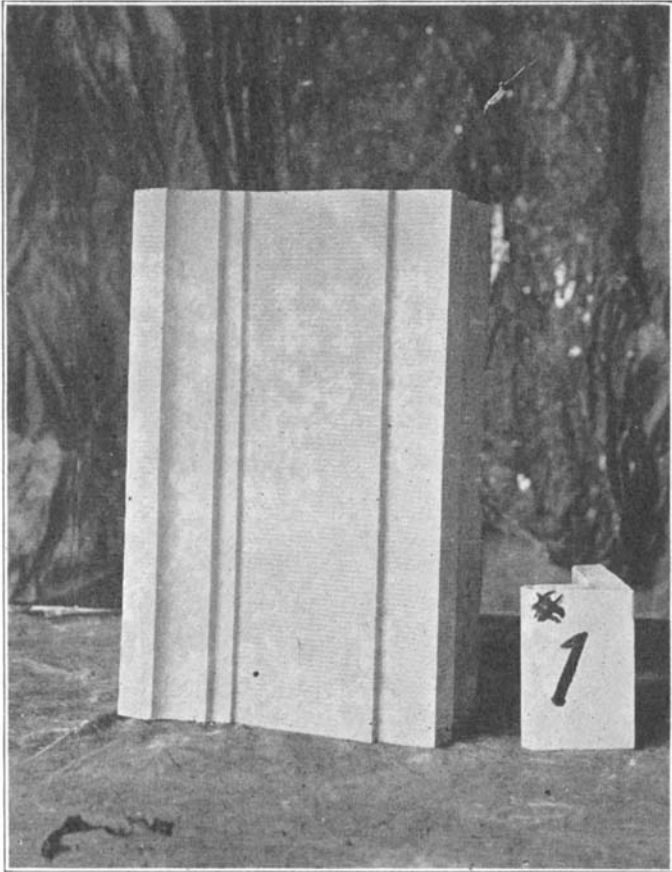


PRESSING TERRA COTTA

By JOHN CLARK

It is my belief that the question of proper pressing of terra cotta should have careful consideration. Failures of terra cotta at the building are more often due to some fault in pressing than to any other cause.

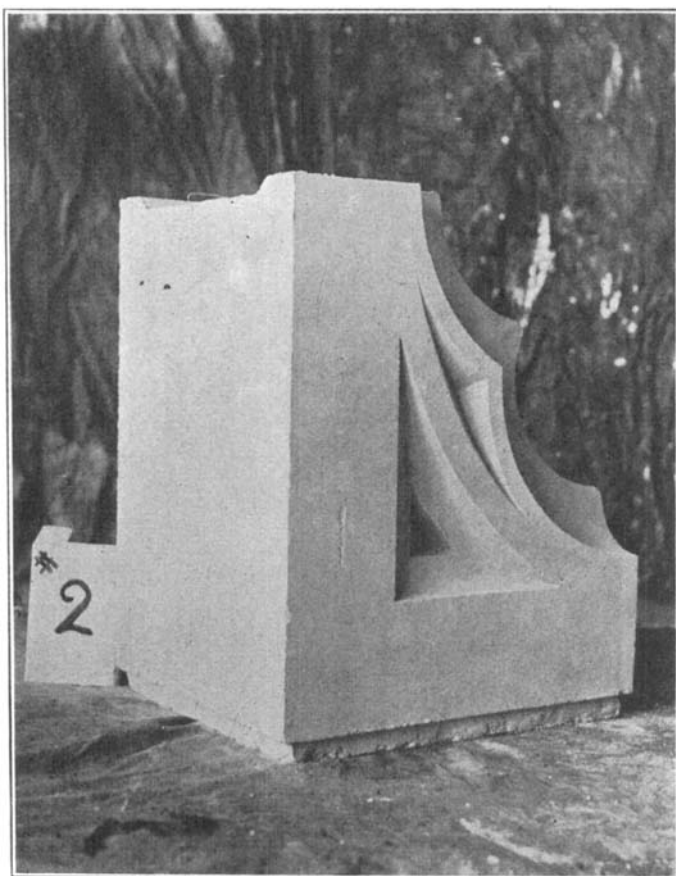


The American Ceramic Society and individual manufacturers have studied the problems of bodies and glazes with resulting great improvements. The work which has not received the study and attention it requires is the pressing. I might also include finishing, but this to my mind is not so important as the pressing.

The preparation of bodies and glazes being well done, it is equally important that the pressing should be well done if the piece is to stand the

strain that is to be put upon it when placed in the building. Given a body of the right proportions of clays and grog, and properly tempered by thorough pugging, it is then for the presser to make the piece, and this is where improvement must be made.

After a piece of work is turned out of the mold it should show no seams either on face or sides, and the struts or partitions should be so well worked

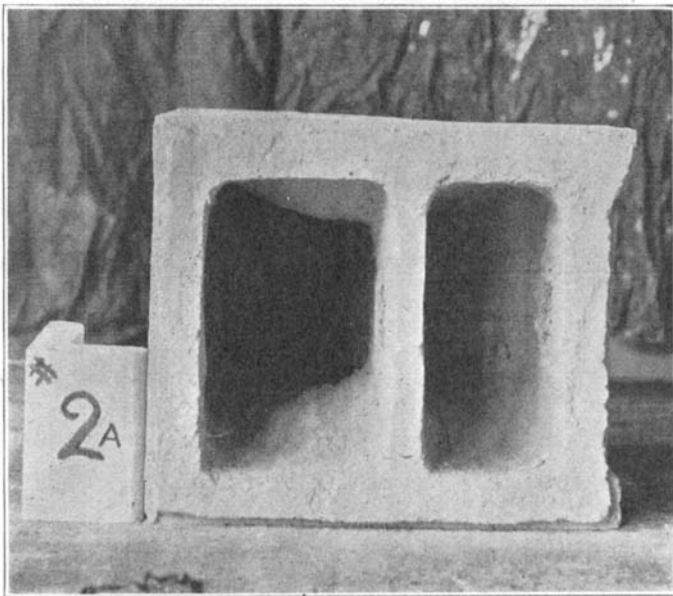


and welded into the sides that to all intents and purposes it is one piece of clay. In many cases when a piece is turned out of the mold, instead of one piece of clay there are five, the sides, ends, face, and as many more as there are struts in the piece.

To get a good press the clay must be pressed: Pressure must be applied to the clay after it has been put into the mold, and all of the vertical and horizontal corners welded together. The presser, after the face is in place,

generally puts in the ends next, and brings it up to the required thickness. This is not the way to produce the strongest piece of work. The sides should be put in first and the ends last, so that there is a greater opportunity to wedge the ends to the sides.

Too many pressers in working up the face bring up some of the clay to a distance on the sides of the mold until it is as thin as paper. This is a bad practice for if the molds are at all dry this thin clay dries out very rapidly, and when the upper layer is put upon it proper adhesion between the two can not be had. This shows after burning by this thin layer having shrunk away. The point of a knife inserted between the two surfaces will

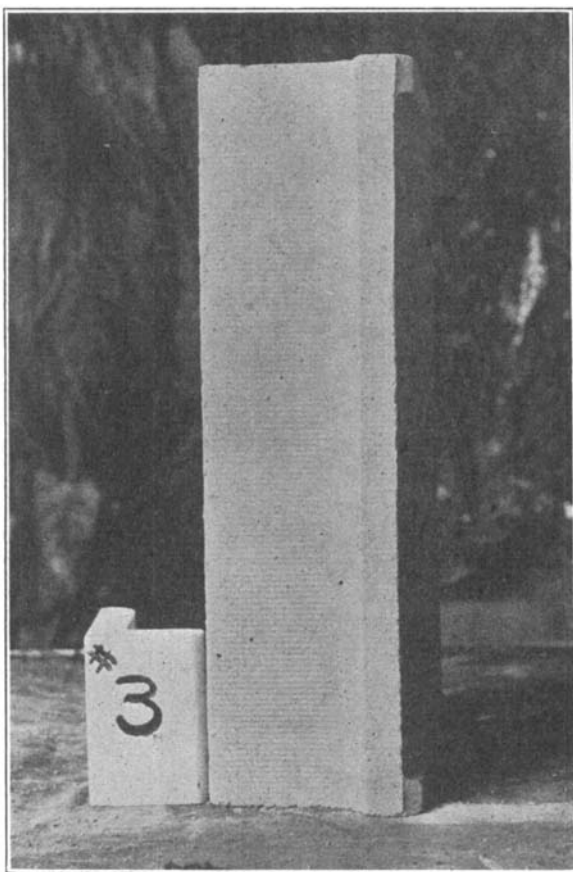


cause this layer to split off readily. The same thing would result from freezing.

Too many pressers do not understand the nature of clay. Because it is a soft sticky material they expect it will easily bond together and that placement in the mold is merely to give it shape. There is a common notion also that it is only necessary to press the face well, doing the rest of the piece in the easiest and quickest way possible.

Care Required in Drying.—After the piece has been pressed, care should be taken that it does not stay too long in the mold before being turned out on to the board, especially when there are projecting parts on the face or sides, such as dentils, slots for steel forms, and in large

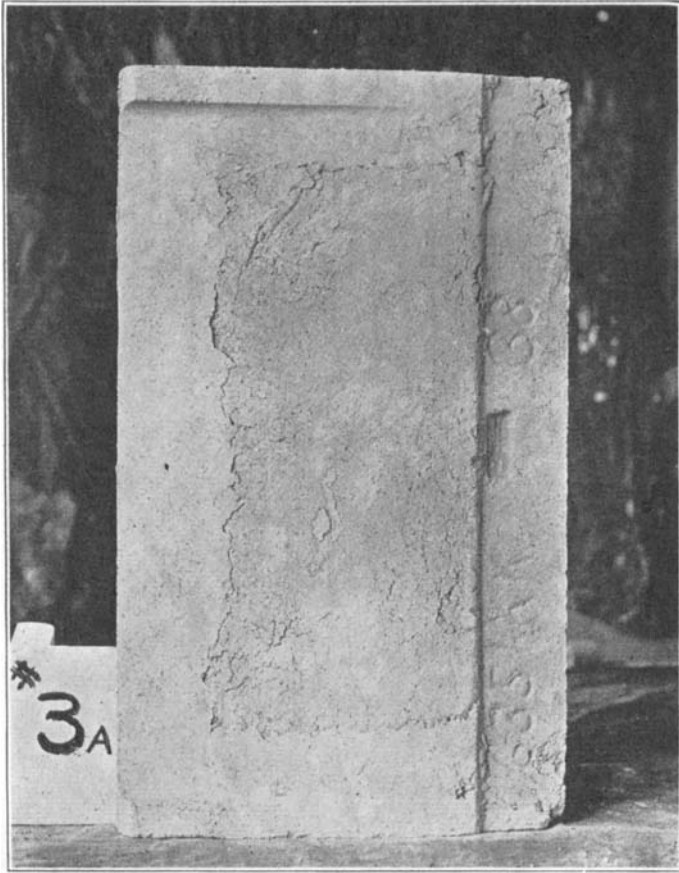
cornice sections where the washes, instead of having an angle back to the bond, have a curve. All of the projecting parts on the interior of the mold begin to act as a wedge as soon as the clay is placed between them, by reason of the shrinkage of the clay. Those pieces having a curved wash in many cases develop an incipient crack owing to the greater projection pulling away from the bond while in the mold, which upon turning out



on to the board is invisible and does not show until the piece is thoroughly dry, and in some instances not until it comes from the kiln. If such a piece of terra cotta is put into a building these projecting parts, especially ornaments, will shelve off due to lack of sufficient bond to withstand the disrupting action of freezing water.

Finishing of Terra Cotta.—A well-pressed piece needs very little finishing, especially where it is tooled. Smooth ashlar work may be made

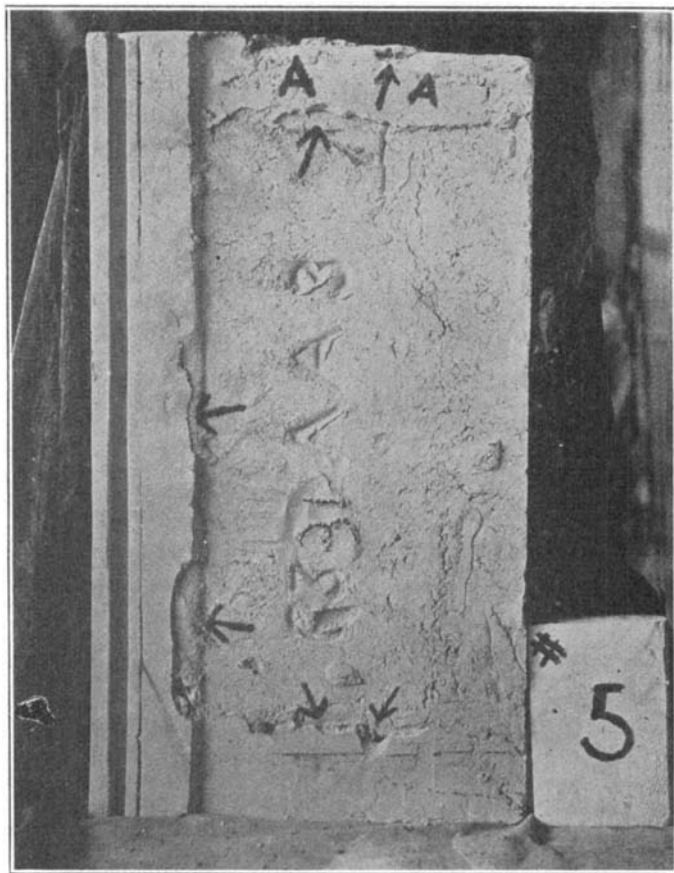
out of shape by the movement of the clay structure, while the finisher is working upon it. The filling up of seams is a subterfuge, because the clay is only rubbed over the surface and smoothed with the scraper. The piece can, in many cases, be pulled apart showing the seam almost through to the interior. These seams may go through the various stages of manufacture, and after the pieces have been placed in the building, they may open up by the expansion and contraction due to heat and cold.



Pressing can never be done too well. A well-pressed and thoroughly burned piece, in which the sprays, glaze and body are of the right coefficients of expansion and properly cooled, should stand all that is required of it when set in the building.

Illustrations of good and bad practices: The photographs of pressed or burned pieces submitted herewith illustrate some of these points.

Photograph No. 1 shows a piece which has been well-pressed. It required very little finishing. Had this not been well-pressed the presser would have had to go over the various members with finishing tools. In nine out of ten cases he would not have improved the lines, but on the contrary they would have been more or less awry.



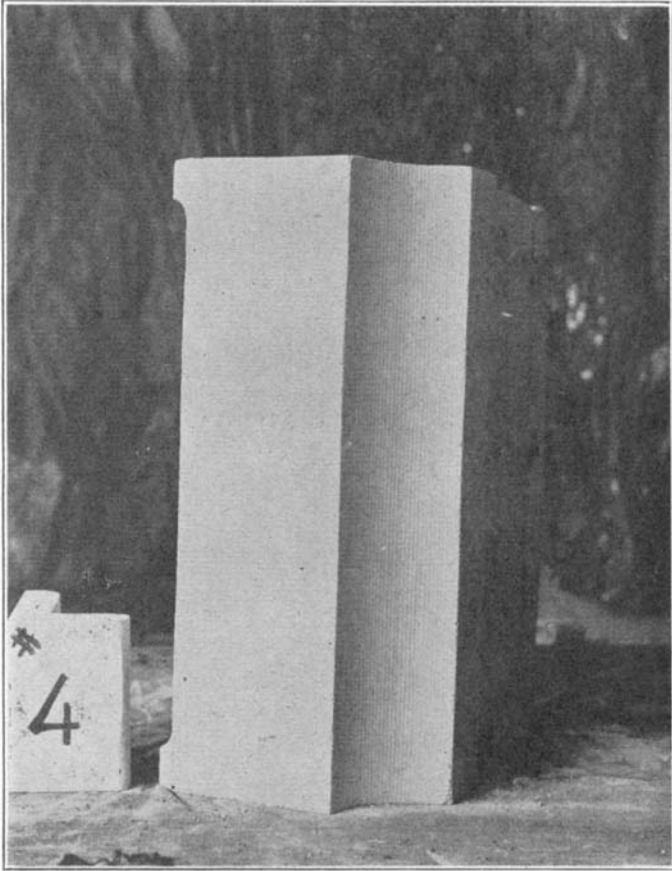
Photograph No. 2 shows a piece that has been well-pressed, with no finishing. This piece although rather complicated is as well bonded as if it were one piece of clay.

Photograph No. 2-A shows the interior of the piece. There is an entire absence of cracks between the ends and sides, and between the struts and the sides.

Photographs No. 3 and 3-A show a piece which is not so badly pressed on its face, but the back or wash of the sill is faulty, due to bringing the

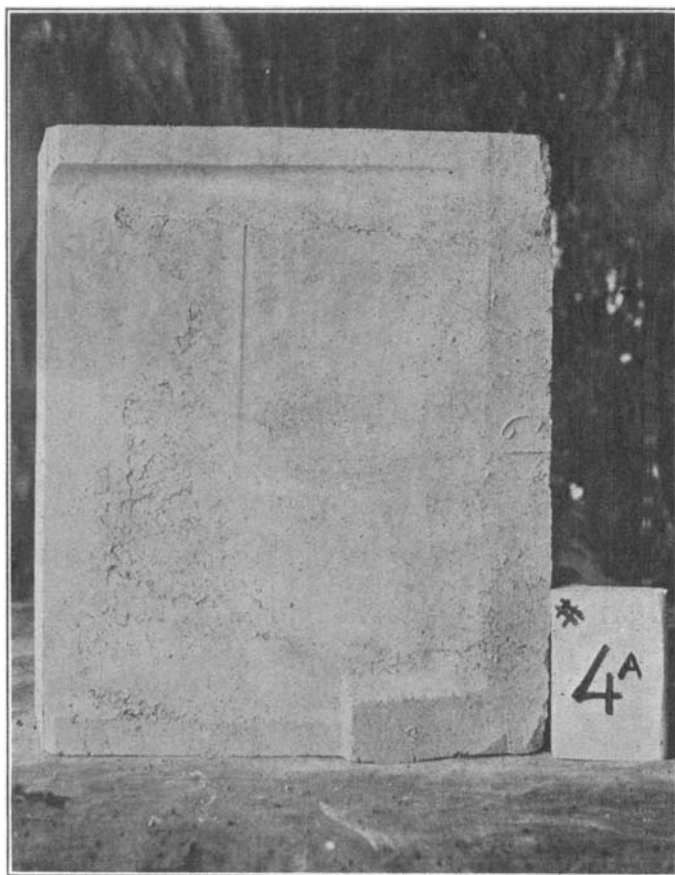
clay up the sides of the mold until it is as thin as paper. Pieces like this can be pulled apart and one can trace the dividing line right through into the interior of the piece. Many cases of shelving of the face of the work at the building from freezing may be directly due to this cause.

Photograph No. 5 is very similar to photographs 3 and 3-A except that the piece has been burned. Note how it has slivered at all the arrow



points, and at points "A" the corner has fallen off completely. Pieces of the type represented by 3, 3-A and 5 are very dangerous ones in a building. Unless these seams are crammed and the clay well worked into them the water will find its way into these seams and with alternate freezing and thawing, they will be gradually forced apart. As pieces of this type, (sills, washes of cornice, etc.), have a large area exposed to the weather, it is of the utmost importance that they be a well-pressed piece of clay over their entire surfaces.

The face is a fine piece of pressing, but the back (No. 4-A) has not been properly pressed. Photograph No. 4-B shows that it is cracked at each end, and also that the strut has parted from the side. While this piece has been taken in a vertical position its position in the building is a horizontal one. With the cracks at the two corners and in strut it is quite conceivable that when the weight of the wall is brought to bear upon it,

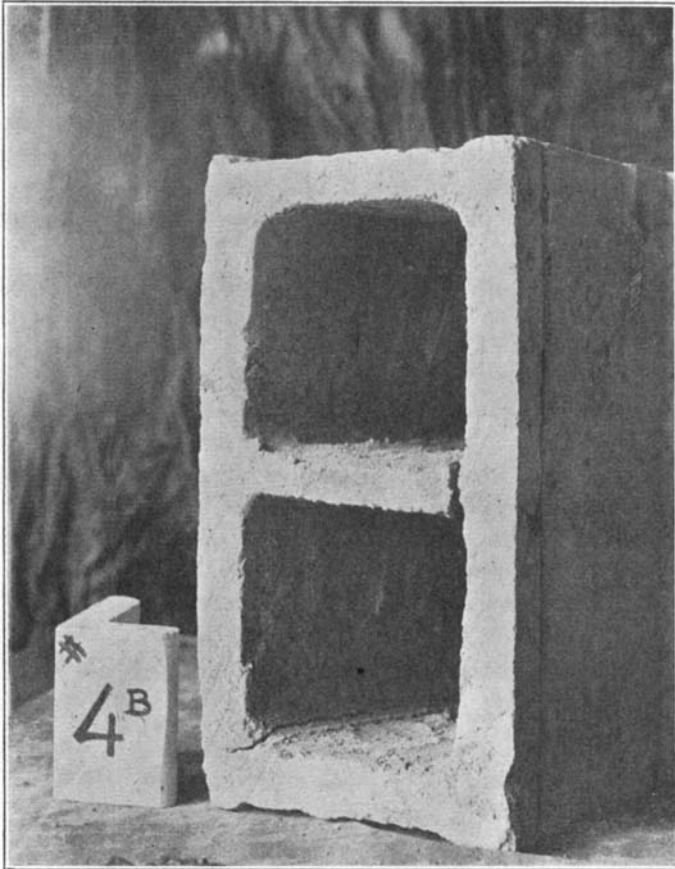


it will give way. This illustrates that the long sides in pieces of this character should be pressed first and the ends last. There is less tendency to crack when made this way, and even if it should crack it is not so serious as when the crack is vertical or nearly so.

These observations have been chiefly made in two plants, and among pressers who have worked in the various plants of the country. From my experience with pressers the tendency to poor work is on the increase

and it is therefore very important that all companies coöperate in training men who will really press work and not produce tonnage only.

There is no process in a terra cotta plant that needs more careful watching than the pressing. The piece produced by the presser is almost the end; all processes previous to pressing are means. The processes after pressing have been well studied and standardized but the pressing has



not received the attention it should. It is of the greatest importance that the pressing be well done if terra cotta is to hold its reputation of being good building material.

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