

Richard Steele Papers, 1948-1963
[1 cubic foot; 3 Boxes]

Biography

Richard Steele (1916-1980), a ceramics engineer, was the primary inventor of the Ram press which revolutionized the ceramics industry. Mr. Steele attended classes at Ohio State University after working during World War Two as an aircraft engineer. While working at the Research Foundation at Ohio State, he and another engineer, A. R. Blackburn (commonly referred to by Mr. Steele in the collection as "Blackie"), developed the Ram process in 1948.

Up until this time, the jigger method and slip casting were used to produce ceramics. The jigger method was a manual process which required great strength on the part of the operator. A large amount of time was then required for shrinkage to occur and release the casting. As a result, the process also required a large amount of space to let the pieces dry.

The Ram process, on the other hand, was an automated machine process whereby dies made of special reinforced gypsum cement (as opposed to the plastic ones used in the jigger method), are pressurized on a hydraulic press and come together to mold the piece. Air is then fed into the die to act as a releasing mechanism. The machine is capable of pressing with 60 tons of force, up to 6,000 cycles per eight hour day. This process enables one person to operate the press with ease and to produce approximately five times the number of ceramic pieces as someone using the jigger method.

Scope and Content Note

The collection, which consists of notebooks, journals, photographs, correspondence, memos, brochures, and technical drawings, is divided into three series: Sketches, Drawing Journals and Tests; Ram Company Materials; and Photographs. The papers were selected from among Mr. Steele's files by his son, Christopher. As a result, the papers included are somewhat sporadic and have many gaps. However, Mr. Steele was a conscientious record keeper, so the papers in the collection provide a good illustration of his development of the Ram process. Within the papers there are test results for water release problems, stress tests, plaster permeability tests, designs for different applications of the process, designs for dies, and other documentation. The journals he kept document his daily activities within the Ram Company in a very complete manner. Also included is a list of photographs with captions supplied by Mr. Steele's son Christopher.

Provenance

This collection was donated to the National Museum of American History in December 1983 by Christopher Steele, son of Mr. Richard Steele. The papers were collected as documentation for ceramic objects from the Steele family, including some of the original Nephys ashtrays, which were the first successful experiments done using the Ram process. These artifacts were retained by the Division of Ceramics and Glass and the papers were transferred to the Archives Center in 1984.

Container List

Richard Steele Papers, 1948-1963

Series 1: Sketches, Drawings, Journals and Tests

<u>Box</u>	<u>Folder</u>	<u>Contents</u>	<u>Dates</u>
1		Curtiss-Wright Weight Saving Study	1942-1943
		Resumes	
		Early Press Drawings	1948-1949
		Sketches, Hawk Roller, and Various Applications of Ram, Jigger	
		Sketches	1948-1949
		Journal	
		Sketch Journal	
		Reviews/Sketches	1948-1951
		Journals	1947, 1949
		Early Ram Tests	1948
		Pottery Tests	1949

Series 2: Ram Company (Financial and Business Related Materials)

2		Early Manuals	
		Ram company Stickers, Letterhead and Matches	
		Profit and Loan Statements	1950, 1961, 1962
		Prospective Clients and Inquiries	1949-1962
		Plaster/Gypsum Data	1949, 1960
		Plaster Permeability Tests	1949
		Patent Litigation	1947
		Annual Report	1950
		Memorandum	1947
		Article	1963
		Miscellaneous	1963

Series 3: Photographs

3		Transparencies	
		Reinforcing and Coil Holder Units, Negatives, Ram Press at work	1955-1958

For additional information, contact the Archives Center at archivescenter@si.edu or 202-633-3270

Making Nose Cone Using Ram Process
Miscellaneous Photos

**List of Black and White Photographs
Narrated/Captioned by Curtis Steele, Richard Steele's son**

1. Multi cavity dies – shows 4 slugs/charge (of clay)
2. Operator wiping sponge over the die – (quite common). Water driven off by pressing, would remain in cavity of the die. Acted as lubricant.
3. Same as above
4. Same as above
5. Taking ceramic pieces off top die, blowing out the lower portion.
6. Lids and bottoms of casserole or bowls
7. Ram press with foot pedals. Could be air or oil pressure
8. Die maker – holding die – good example showing gutters
9. Side of ram press?
10. Press with pumping unit behind press
11. Platter made on Universal Press adapted to Ram process
12. Hydraulic lines – possibly also air lines
13. Silent mixer possibly glaze oil
14. Ball mills to hold glaze
15. Rollers
16. Ball mill
17. Same as above
18. Same as above
19. Same as above
20. Plaster mixer
21. Air compressor ????
22. Rotating drying rack
23. Scale, mixer at Hull Pottery in Crooksville
24. Sinks and die rings at (Hull)
25. Storage area (Hull)
26. Two dies – one maple leaf dish die –
27. Free standing cones
28. Same as above
29. Richard Steele on left – Andrew R. Blackburn on right
30. 2nd press to use ram die at Pilot Plant at O.S.U – Press would flex and crack dies because it only had one poster on press.
31. Press with 2 handles as safety feature – so both hands would be on levers and not crushed by press
32. Pumping unit
33. Ram Press
34. Ram Press – after being made at Accurate manufacturing
35. Ram Press
36. Press open

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37. Ram Press closed
38. Instrumentation on Press
39. Instrumentation on Press showing dwell time
The more you “dwelled” the more water driven out
41. Electronic circuitry
42. Same as above
43. Same as above
44. Bars on Press controlling initial air, slo-down, dwell, final air, open limit with stops
45. ? Values controlling air to dies?
46. ? Boots around posters to protect them for day, dirt etc.
47. Same as above
48. Same as above
49. Connections from pumping unit to press
50. Same as above
51. Pumping Unit
52. Same as above
53. Oil lines on top of oil tank
54. Same as above
55. Inner workings of Press
56. Same as above
57. Same as above
58. Electrical Circuitry

Transparencies

59. Press with pumping unit on top, multicavity die
60. Tru Porcelain Ram press
61. Ram Press showing the inner workings of the press – earlier design
62. Tru Porcelain pumping unit – re: to #60
63. Ram Press from Hull Pottery – an early user of ram in Crooksville. Refer to 32, 33, and 34
64. Pumping unit
65. Charge or slugs being put into the dies
66. Showing three individual dies (male)
67. Same press as 66, showing bottom members
68. Steam – Water being blown out when air is being put through die – makes pieces drop down on board
69. Bar with screws in different positions controlling certain process of press
70. Other side of press in (69)

Black and White Photographs in RED ALBUM

71. At Glidden – January 1958 – Stops so press won’t come down and crush the die or operator’s hands. Shows operator removing pieces from top dies while wiping bottom die.
72. Glidden’s Show room
73. Press
74. Pumping Unit

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75. Operator sponging dies
76. Press in closed position (June 1955)
77. Multicavity die (June 1955)
78. Same as (77) with operator taking (2) dishes off mold
79. Ram Press
80. Ram Press making cup
81. Woman cutting holes in finger hole of cup
82. Woman cutting holes in finger hole of cup and drying racks.
83. Can see detail in die (designer's) name making a clock face
84. Same as above
85. Clock face
86. Clock face with flash
87. Finished clock face May 55
88. Russell clock face May 55
89. Press adapted to Ram process or an earlier Ram Press
90. Same as above
91. Two postered Ram Press (making a tile)
92. Two postered Ram Press (making a tile) in closed position
93. Same as above
94. Man cleaning tile
95. Woman operating press
96. Two people operating Ram Press
- 97A. Shows small Ram Press woman on left taking off piece – shows how firm the piece is
- 97B. Two women operating Ram Press
98. Operating Press
99. Same as above
100. Same as above
101. Same as above
102. Same as above
103. Same as above
104. Press adapted to Ram Process
105. Same as above
106. Press adapted to Ram Process with drying racks
107. Same as above
108. Ram Press
109. Two operators working Ram Press
110. Press producing dish.
111. Press with man controlling air valve
112. Press closed with woman operating (June 55)
113. Woman operator using sponge
114. Same as above
115. Man in plaster shop with large assortment of dies (March 20, 1953) Possibly Hull
116. Possibly putting die on press – inter die ring
117. Die
118. Die
119. Two poster press
120. Negative of Press
121. Poster press

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122. Press producing large dish or platter
123. Same as above
124. Press producing plate – shows steam
125. Closed press Note poster: “You keep those Big Fat Hands Out of the Machinery”
126. Die shop, look at 127 and 128
127. Production of lazy susan type dish, snack dishes
128. Glidden showroom
129. Finished piece from (127)
130. Finished clock face May 54
131. ? electrical fixture
132. Outer liner of planter
133. Snack dish
134. Glidden casserole
135. Glidden
136. Glidden casserole
137. Coffee cup and saucer
138. pieces
139. Same as above
140. Ceramic pieces – including poodle plate
141. Glidden showroom
142. Large bowl
143. ?
144. “Abbott” dish
145. cups
146. Large drain tiles
147. Orchid pot
148. Same as above
149. ?
150. drain tiles
151. Ashtray
152. Cup
153. Server
154. Ram ashtray, R. Steele used to give these to clients as promotion pieces
155. Examples of pieces
156. Press, June 55
157. Press, March 22, 1955
- 158.

87 – photographs possibly Princeton Project Making Nosecone

10 - photographs – Reinforcing and Coil Holder Units

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