

CONTEMPORARY CERAMICS IN THE UNITED STATES

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PREFACE

Great strides have been taken in the field of ceramics in the United States in the last few years, so much so that Americans have become less and less dependent on foreign potteries for their tablewares. This thesis has grown out of a desire to secure information about contemporary ceramics in the United States; and, since the field is a large and varied one, the writer has chosen to confine the study to a discussion of fine china and mass-produced tableware, kitchenware, and studio pottery.

The writer has endeavored to show how, in the development of this particular phase of the ceramic industry, manufacturers are now, more than ever before, considering the materials used, new and improved methods of producing wares, and new types of machinery installed in plants. Too, manufacturers are tending to be more and more aware of the part played by design in the production of ware that is sound in shape and decoration. Designers of recognized ability have been employed in the design departments of our most progressive factories. Trained chemists work to create new glazes and to improve old ones. Experienced engineers are making possible inexpensive productions of excellent quality. Ceramic departments in our schools, colleges, and universities, as well as

the studio potter, have played an important part in this great development of the ceramic industry.

The tendency today is toward an observance of the problem of industry development as a joint task of the great body of workers that make up the industry--the common workman, the skilled workman, the designer, the chemist, the technician, the engineer, and the firm executives. This cooperation of the whole group has been one of the big factors in making the ceramic industry what it is today.

Sincere thanks is extended to Miss Mattie Lee Lacy, director of this study, and to Miss Mary Marshall for their helpful suggestions and encouragement; also, to the many manufacturers, studio potters, heads of ceramic departments in schools, colleges, and universities, ceramic association heads, and directors of museums, who sent much valuable material in the form of letters, bulletins, and advertising folders.

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CHAPTER I
INTRODUCTION

The potter's craft was known in the most remote ages. All primitive races seem to have used pottery in some form or other. Pottery made by the primitive races was principally for domestic use, and the shapes, as a result, were simple and suitable for their purpose.¹ As the ages rolled by, fired clay was used for an endless variety of purposes.²

The first pottery, of course was unglazed. Some fine unglazed wares were made in ancient Egypt and Babylonia. Much of this ware was polished; some bore incised-line design, or was painted with slip-decoration. The culmination of the simple process of slip-painting is represented by Greek vessels of the Fifth and Sixth centuries B.C.³ This Greek ware attained a quality and beauty of form never surpassed.⁴ As civilization progressed, and vessels that would hold liquids became necessary, the use of glazes arose.⁵

¹Charles J. Noke and Harold J. Plant, Pottery (London: Sir Isaac Pitman and Sons, Ltd., 1921), p. 1.

²H.P. McIlhenny, "Pottery, Its History and Technique," Bulletin of the American Ceramic Society, Vol. 15, May, 1936, p. 195. -

³Ibid., p. 196.

⁴Noke and Plant, op. cit., p. 4.

⁵McIlhenny, op. cit., p. 195.

As early as the Twelfth century A.D., the superior pottery of the Moslem nations had attracted the notice of the European countries.¹ The Persian potters have left us some of the finest ceramics known; however, their ware is most frequently seen in the form of glazed tiles for wall decoration.² To the Arab belongs the credit of introducing the making of glazed pottery into Europe. This pottery was brought into Europe through Italy and Spain. The French derived their knowledge of glazed wares from Italian potters working in France. From France the manufacture of glazed wares spread to Germany, Holland, and England.³

The potter's art had flourished in China for centuries prior to the Christian era.⁴ During the fifteenth and sixteenth centuries, Chinese porcelain began to find its way into Europe.⁵ European potters tried in vain to imitate the marvelous translucent body of Chinese porcelain, but it was not until the eighteenth century that the secret of its composition became

¹"Pottery and Porcelain," Encyclopedia Britannica, 1943 ed., XVIII, 339.

²Noke and Plant, op. cit., p. 9.

³Richard Lunn, Pottery (London: Chapman and Hall, Ltd., 1903), pp. xi-xii.

⁴Charles F. Binns (editor), The Manual of Practical Potting (London: Scott, Greenwood and Son, 1922), Fifth revised edition.

⁵Encyclopedia Britannica, XVIII, 339.

known. At this time all the countries of Europe began seeking the raw materials necessary to the manufacture of porcelain equal to that made by the Chinese. For years numerous experiments were carried on which led, eventually, to the production of the fine porcelains we know today--Sevres, Dresden, Staffordshire.¹

Historically, the development of pottery and porcelain in the United States was practically a duplication of the progress of the ceramic history of the world, except that the development here took place within about three hundred years, while the world development had been going on for many centuries.² We have few records telling us about the establishment of the earliest potteries in the American colonies. We do know that among the earliest settlers there were craftsmen who could provide the colonists with household articles that were considered indispensable.³ The customers of these craftsmen were severely practical, and demanded products made for hard use. Potters were kept busy making crocks, jugs, pots, churns, mugs, bowls, and pitchers.⁴

In the colonies the craft of the potter did not meet

¹Noke and Plant, op. cit., pp. 6-7.

²Encyclopedia Britannica, XVIII, 373.

³Helen E. Stiles, Pottery in the United States (New York: E.P. Dutton and Co., Inc., 1941), p. 50.

⁴John Ramsay, American Potters and Pottery (Clinton, Massachusetts: Hale, Cushman, and Flint, 1939), p. 27.

with the success experienced by the other crafts.¹ There were many difficulties to be overcome by the pioneer potter. He must experiment with local clays. He must often create his own tools, and, in many cases, must transport some needed materials for glazes long distances.² The earliest pottery of this country shows its European origin closely; but distinctive American types, modified by American materials, likes and customs, appeared very shortly.³

In the seventeenth century many pioneer potters were established in America, though the exact date and location of the first potter is not known. There are indications that potteries existed in Jamestown, Virginia, at the time of Captain John Smith; and it is known that as early as 1650 several potteries were established in Virginia. Peter Craven, the first of the Jugtown, North Carolina potters, is said to have come from Staffordshire about 1750.⁴ Mr. Ramsay, in American Potters and Pottery, states that:

the present-day Southern potters are almost unanimous in the opinion that they are descended from immigrant Staffordshire potters, and that the trade has been carried on, in many cases, through generations of the same families. This opinion is probably based on fact, but

¹ Stiles, op. cit., p. 33.

² Ibid., p. 50.

³ Ramsay, op. cit., p. 115.

⁴ Encyclopedia Britannica, XVIII, 373.

has been largely disregarded [in Mr. Ramsay's list of potters,] because so few names and dates are available.¹

At any rate, from that time to the present date, Jugtown potters have supplied the needs of the community.²

Since redware clays are found in all the original colonies, in almost every state of the Union, in fact, it was natural that redware pottery should appear among the first wares produced.³ This ware was made of a coarse clay which burned red; consequently, it has been termed redware.⁴ Early pottery of the South was redware with a lead glaze and very little decoration. The Moravians who settled in North Carolina about 1750 produced wares very much like those of the Pennsylvania Dutch.⁵ Since there was an abundance of stoneware clays throughout the South, much stoneware was produced.⁶ The possibilities of the white burning clays of Georgia were discovered as early as 1738.⁷ Josiah Wedgwood, greatest of the English potters, experimented with Carolina clays in the making of white-bodied

¹Ramsay, op. cit., p. 85.

²Encyclopedia Britannica, XVIII, 373.

³Ramsay, op. cit., p. 8.

⁴Stiles, op. cit., p. 53.

⁵Ramsay, op. cit., p. 83.

⁶Ibid., p. 91.

⁷Ibid., p. 83.

earthenware. These clays impressed him so favorably that he wrote to a friend in 1765, " . . . they have every material there, equal if not superior to our own, for carrying on that manufacture."¹ The democratic and progressive society of New England appreciated their fine, durable wares, and the Pennsylvanians loved their redware.² Wares produced by potters of this section of the country were used on the table or displayed in cupboards; so the potters did their best to produce wares worthy of such positions. In the South, on the other hand, the luxury-loving planters were completely uninterested in crude pottery. Such ware was used in the kitchen or in the slave quarters and, quite naturally, the potters had no inducement to make any but the plainest and cheapest ware. The Civil War intensified this tendency to crude simplicity, as the scarcity of manufactured goods developed the domestic pottery industry. The potters in the South were exempt from military service so great was the demand for their wares. They made mugs, bowls, and jugs for the Confederate hospitals, as well as for tableware and domestic use. The equipment was and still is, in many cases, extremely simple.³ The great development of the ceramic industry in the Southern states has taken place in the last twenty-five years. Many of the firms today produce tiles, electrical porcelain, and utility ware. Some very attractive semi-vitreous ware is being produced at Southern

¹Ibid., p. 97.

²Ibid.

³Ibid., pp. 88-89.

Potteries in Tennessee.¹

It was in New England and as far south as Pennsylvania that the first important pottery centers of the United States developed. The New England redware reflects the hard simplicity of early New England life.² Some of the finest redware was that produced by the Pennsylvania Dutch. In addition to using colored glazes, they decorated their ware in other ways such as incised-line decoration, Sgraffito, and slip-painted designs.³ Stoneware, being stronger and more durable than redware, came into popular favor about 1800.⁴ The stoneware produced here usually had a gray-white salt-glaze surface with blue decoration. Stoneware was partially supplanted by brownware and yellowware, so called because of the glazes used. Brownware and yellowware was made in molds, and, being thin and light in weight, was used as tableware.⁵

The territory beyond the Alleghany Mountains was a wilderness until after the Revolution. When the West was opened and industries came in, they were natural extensions of those already in existence in the country. The great drive to the West continued throughout the nineteenth century. Pottery made in the West was for many years influenced by the pottery of the

¹Ceramic Trade Directory, 1943 (Newark: New Jersey, Ceramic Publishing Co., Inc., 1942).

²Ramsay, op. cit., p. 57.

³Ibid., p. 15.

⁴Ibid., p. 8.

⁵Ibid., pp. 19-20.

East. The pottery center which developed in Ohio has been an important producer for generations. Ideal raw material, fuel, and its great artery of transportation made the Ohio River Valley a pottery center of national importance.¹

After the beginning of the nineteenth century there were some attempts on the part of American potters to make wares of a better quality.² The Revolution naturally put an end to attempts to produce fine wares, as it did to most American business; but the years after the American Revolution saw a great increase in the amount of pottery produced in this country. Imported wares were still expensive and difficult to secure; consequently, the majority of the American people were forced to buy the cruder, less durable American ware.³

By the opening of the nineteenth century, inventions, machines, and factory methods had brought about the Industrial Revolution. Its influence was especially felt in the production of china and earthenware.⁴ A complete absence of good taste was the dominant factor, not only in the English arts and crafts of this period, but in the great mass of European china and earthenware, which is now considered crude and uninteresting. Since better relations had grown up between England and the

¹Ibid., p. 66.

²Stiles, op. cit., p. 51.

³Ramsay, op. cit., pp. 58-59.

⁴Stiles, op. cit., p. 37.

United States after the War of 1812, great quantities of English wares were imported to the United States. Much, too, came in from France, Germany, and China. Quantity-production was the chief concern of most factories.¹ In our own country, after 1825, the factory method of reproduction had gained a foothold. Here, too, was the same tendency to bad design, the same desire to produce cheap articles which would have a large sale and bring big profits.²

Because of this extensive trade, our own efforts at making tableware and ornamental ware were considerably retarded.³ At the present time, American porcelain and earthenware are as fine as any made, but it has taken over one hundred and fifty years to reach that point.⁴ During the years in which problems of new materials were being overcome, and better ware was being developed, the American potter had to deal with a public prejudice against American-made ware. Sometimes this prejudice was due to the fact that American-made ware was more crude, but often people considered it elegant to use imported wares. European manufacturers encouraged this feeling, sometimes flooding the markets with wares to be sold at a price local manufacturers could not meet. Prejudice against American-

¹Ibid., pp. 48-49.

²Stiles, op. cit., p. 67.

³Ibid., p. 31.

⁴Ramsay, op. cit., p. 95.

made ware lasted well into the twentieth century.¹ In fact, up to the present world upheavals, we imported the greater part of the better grade of tableware and ornamental ware.²

The revolt against the nineteenth century "mass production of ugliness"³ originated in England and later spread to Europe and America. The leader of the revolt was William Morris, whose statement--"I would have nothing in my home that I do not know to be useful or believe to be beautiful"--expressed his doctrine.⁴ Morris's great mistake was his violent dislike for the machine and its products. He was appalled at the waste of human material, the low wages, and the conditions under which factory employees worked and lived. He connected all this, to some extent, with machinery. Morris, however, is mainly responsible for bringing new life into all of our industrial arts. The movement had a definite and world-wide reaction on pottery production.⁵

In this interesting period of development and of new ideas, pottery has had to face its problems like the other crafts, and to adapt itself to the needs and ideas of the

¹Encyclopedia Britannica, XVIII, 373.

²Stiles, op. cit., p. 67.

³Gordon Forsyth, 20th Century Ceramics (London: The Studio Limited, 1936), p. 31.

⁴William Morris, The World Book Encyclopedia, 1937 ed., Vol. XI, p. 4662.

⁵Forsyth, op. cit., p. 32.

day.¹ Production has developed with the successive introduction of mechanical devices. The progress in the industry, no doubt, has been considerably retarded because of the gulf which has separated the studio potter and the large-scale manufacturer. However, this gulf is narrowing, for we find studio potters in all countries influencing industrial output. Many first-class studio potters, who were having a struggle as individual manufacturers, are well-employed within mass-production concerns without loss of their own individuality or lowering their own ideals.² The past twenty-five years have brought a revolutionary change of ideas of industrial art. There has been a healthy return to simplicity of form, color, and decoration.³ Whatever the achievements of the past have been, they can only be rivaled by an attempt to meet the needs of today in the making of a distinct and characteristic product of the twentieth century.⁴

¹Ibid., p. 7.

²Ibid., p. 27.

³Ibid., p. 32.

⁴Ibid., p. 7.

CHAPTER II

CERAMICS--ITS MEANING AND SCOPE

The word "ceramics" is derived from the Greek word "keramos," meaning "burnt stuff." Ceramic ware may be defined as ware made of non-metallic, earthy raw materials by firing operations. The term "ceramics" is applied not only to the product, but also to every phase and aspect of the industries manufacturing ceramic products. The term is used in the educational field also. Ceramic colleges and ceramic departments of schools, colleges, and universities offer instruction in art, technology, and engineering.

There are eight groups of ceramic industries: clay products, refractories, glass, cement, lime, gypsum, abrasives, and enameled ware. The clay products industry includes a wide variety of ceramic wares ranging all the way from the mass-scale production of common brick, which is primarily a ceramic engineering operation, to the production of pottery and fine tableware, which is primarily a ceramic art operation.¹ This study, however, is concerned only with tableware, kitchenware, and studio pottery, which are divisions of the great clay products industry.

The following classification of tableware was prepared

¹General Information on the Subject of Ceramics and the New York State College of Ceramics (Alfred, New York: Alfred University, August, 1935), pp. 5-7.

by Professor Arthur S. Watts, Head of the Department of Ceramic Engineering, Ohio State University, and presented as a paper at the annual meeting of the American Ceramic Society, 1937. It is here given for its reference value in denoting the general characteristics of different types of ware.

All tableware may be classified on the basis of the body of the ware and the glaze covering the surface. There are three general types of body and three general types of glaze in use today.

Types of Tableware

Porous body.--one through which no light is visible when the article is held between the observer and a strong light. It is made from natural clays with or without small additions of other materials.

Semi-vitrified body.--one of low porosity through which no light is visible. This body is made from refined clays with additions of materials to promote vitrification and strength.

Vitrified body.--one of practically zero porosity through which light is visible when held between the observer and any source of light. This type of body includes many varieties made from refined materials.

Types of Tableware Glaze

Soft glaze.--one which can be scratched easily or abraded by scouring soaps, and which shows low resistance to chemical attack by alkaline or acid solutions.

Medium hard glaze.--one of moderate resistance to scratching, and high resistance to abrasion with scouring soaps and chemical attack by alkaline or acid solutions.

Hard glaze.--extreme resistance to scratching and abrasion with scouring soaps, and practically complete resistance to chemical attack by alkaline or acid solutions.

Varieties of Tableware

Majolica.--has an extremely porous, opaque, and naturally colored body covered with opaque white or colored soft glaze. Typical examples are the majolicas of Italy and Central Europe, the delftware of Holland, and the highly colored art tableware of the United States.

Earthenware.--has a porous and opaque body covered with soft glaze. Typical examples are the white earthenware of Europe and the United States. (Plate I, Figure 1).

Semivitreous china.--or sometimes called fine earthenware, has a partially vitrified body with medium hard glaze. Typical examples are the so called "semi-porcelains" extensively manufactured throughout the United States. (Plate II, Figure 1 and Plate X).

Hotel china.--sometimes called American china, has a vitrified body of moderate translucency. The body contains a large amount of quartz by which a high resistance to mechanical shock is imparted. It is covered with a transparent medium hard glaze.

This ware is manufactured only in the United States. (Plate II, Figure 2 and Plate VIII).

Bone china.--has a vitrified white body of pronounced translucency due to the content of bone ash. It is covered with a soft glaze, which is not adapted for severe service. This ware is manufactured extensively in England.

Belleek china.-- has a vitrified body of pronounced translucency due to a large content of feldspar glass. It is covered with soft glaze and is not adapted for severe service. Typical examples are the Belleek wares of Ireland. A tableware of similar type, but possessing superior strength, is manufactured in limited quantity in the United States. (Plate V, Figure 2).

Porcelain.--also called fine china, has a vitrified body of pronounced translucency due to the extreme purity of the constituent materials and extreme temperatures employed in firing. It is covered with transparent, colorless, hard glaze. This ware originated in China and is manufactured extensively in Europe today. It is manufactured in limited amounts in the United States.¹ (Plate II, Figure 3; Plates V, VI, VII).

¹Ceramic Trade Directory, pp. 281-284.

PLATE I

TABLEWARE

Figure 1. Coarse Earthenware

Figure 2. Peasant Pottery from Mexico

Photographs from Better Buyman-
ship, Dinnerware, Household Finance
Corporation

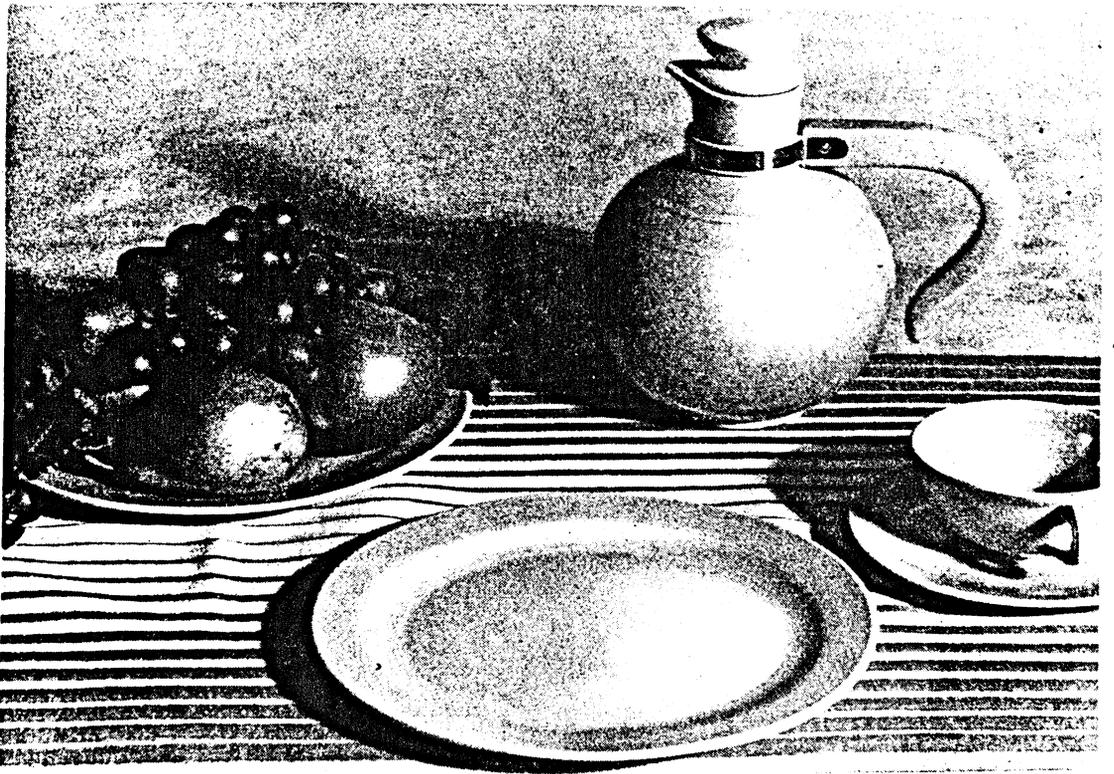


Figure 1

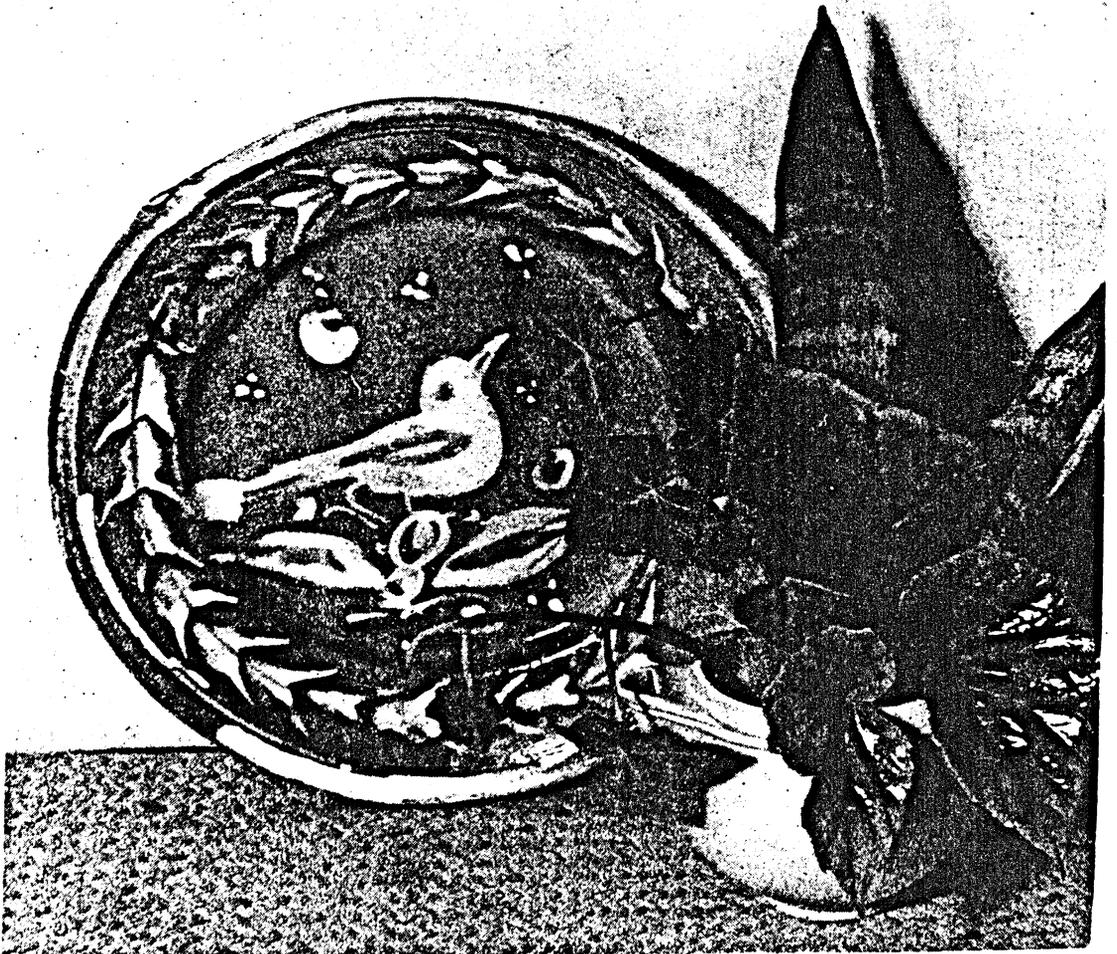


Figure 2

PLATE II

TABLEWARE

Figure 1. Fine Earthenware or
Semi-Vitreous China

Figure 2. Vitrified Hotel China

Figure 3. Fine China or Porcelain

Photographs from Better
Buymanship, Dinnerware,
Household Finance
Corporation

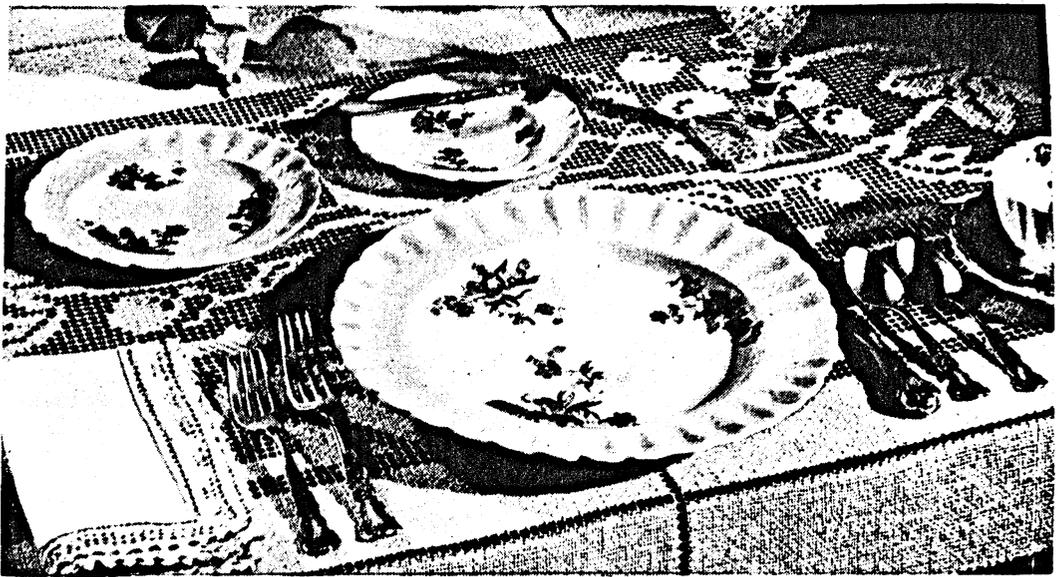


Figure 1

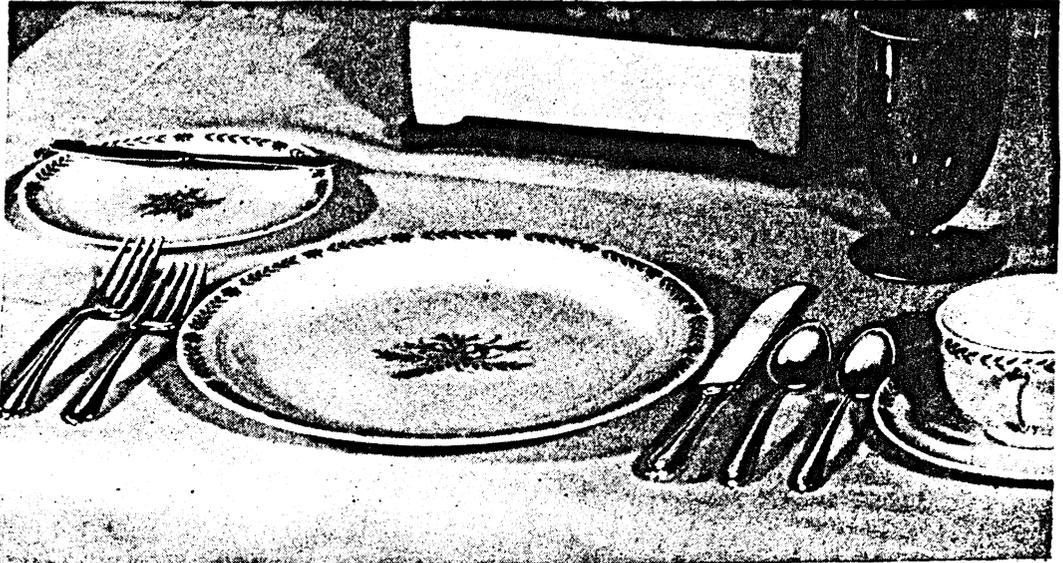


Figure 2



Figure 3

CHAPTER III

THE PRODUCTION OF WARES

Modern ceramic products are the result of the evolution of skill, craftsmanship, and science of untold generations.¹ Most of the fundamental processes in ceramics were known to the Egyptians, Persians, Chinese, and other races centuries ago. In many respects we have not surpassed the ceramics produced by these people. We do have new clays, new glazes, and faster and more accurate methods of mass-production and controlled firing. Power has been applied to turn old machines. Thermostats and thermometers control kilns, and improvements have been made in the chemistry of ceramics to meet the needs of modern living. Fundamental methods, however, are still much the same, and, in some parts of the world, pottery is made today just as it was in ages past.² All of these many developments, which have taken place in the last twenty-five years, are directed toward the improvement of the manufactured product, coupled with the reduction of labor and the decrease in manufacturing costs.³

¹The Mayer China Company, From the Dawn of History (Beaver Falls, Pennsylvania, 1936), p. 2.

²Ray Faulkner, Edwin Ziegfeld, and Gerald Hill, Art Today (New York: Henry Holt and Co., 1941), p. 275.

³Anonymous, "Annual Review Issue," Ceramic Industry (January, 1941), p. 43.

Materials--Clays and Glazes

Clay is the word generally applied to the natural article when it is dug from the earth.¹ Clay is found in many different textures and degrees of hardness and plasticity. Some is coarse and is suited to the cruder type of product, such as brick and tile. Some is fine in texture and is used in better grades of earthenware and porcelain. Clays differ also in the color which they take after firing.² Cane and red clays are colored by the presence of ferric oxide, and are used extensively in the manufacture of brick, tile, and some pottery, such as the peasant pottery of Mexico. (Plate I, Figure 2). Ball clay, so called because it is dug from pits in lumps or "balls," is very plastic. It is used in combination with non-plastic materials to form fine earthenware. China clay, sometimes called kaolin, is fine, white, and non-vitreous. It is used in combination with other materials in the production of fine earthenware and porcelain.³

For the successful production of wares which depend on clay as a basic material, three elements are essential. These are: (a) the plastic element or clay, which allows the clay to be molded into the object desired, (b) the non-plastic element, such as sand or flint, which causes the clay to keep

¹George J. Cox, Pottery for Artists, Craftsmen, and Teachers (New York: Macmillan Company, 1926), p. 19.

²Faulkner, Ziegfeld, and Hill, op. cit., p. 275.

³Cox, op. cit., pp. 186, 188.

its shape in drying and firing, (c) the flux or solvent, such as feldspar, which produces density in the firing process.¹ Few clays used in making better grades of ceramic ware possess these ingredients in the correct proportions; consequently, it becomes necessary to make a mixture in which the proper proportions will be found.²

Clay, after being dug, is dried, broken up, and sieved in order to remove all hard particles. It is put into a blunger, where it is thoroughly mixed with water. The slip passes through a series of sieves, which remove all impurities. At this point, other necessary ingredients are added. After being run through a succession of filter-presses, which remove most of the water,, the mixture is put into a pug-mill, where it is transformed into a plastic mass.³ It is removed through a tubular mouth, cut into lengths, and stored until ready to be used.⁴ (Plate III, Figure 1). The method of preparing clay, as described above, is the one in use in most potteries today. The preparation, if done by hand, is tedious; but many craftsmen working alone find it the best way when searching for clay mixtures suitable for their needs.⁵

¹Faulkner, Ziegfeld, and Hill, op. cit., p. 276.

²Charles, F. Binns, The Potter's Craft (New York: D. Van Nostrand Co., 1922), p. 30.

³Cox, op. cit., pp. 20-21.

⁴Forsyth, op. cit., p. 17.

⁵Cox, op. cit., p. 24.

Notable developments have taken place in the twentieth century in the preparation of materials, which have led to an increase in the types of bodies made. Larger types of blungers have been constructed. Rotary sifters and electro-magnets for removing impurities from clay have been installed in many firms. Pug-mills, which were once used only for earthenware mixtures, are now being used in the china industry.¹

Glaze is a glass-like coating over the surface of wares to add beauty and resistance to moisture. Glazes may be clear, permitting the body color or under-glaze decoration to show; or they may be colored.² Glazes may be classified according to the characteristics of the surface. The bright or shiny types are called "gloss" glazes. They are usually transparent, unless tin oxide is used to make them opaque. If a glazed surface is dull, but has a pleasing smoothness, it is a "matt" glaze.³ The variation that is possible in glazes is unlimited. Glazes are made from clays, minerals, and mineral oxides. Different minerals cause different colors, and varied amounts of a mineral will cause a range of colors. A glaze fired at one temperature

¹Binns, Manual, op. cit., p. xiii.

²Household Finance Corporation, Better Buymanship No. 18 Dinnerware, Bulletin prepared by the Department of Research (Chicago: 1936), p. 9.

³Hewitt Wilson, "Elementary Ceramic Procedure," Keramic Kilns, Bulletin No. 361 (Denver, Colorado: Denver Fire Clay Co., 1938), p. 12.

may vary in color if fired at a higher temperature.¹

In the preparation of all glazes, great care must be exercised in weighing the various ingredients. Glazes are prepared in mechanically-revolved ball-mills. The ingredients are mixed with a measured amount of water to produce a liquid of about the consistency of cream. After the glaze is ground for a specified length of time, it is drawn from the mill and passed over a vibrating screen, which removes lumps and impurities.² Numerous tests are made to determine whether glazes and bodies are suited to each other. In recent years greater attention has been given to the suitability of particular glazes to fit particular bodies. Ware may be dipped by hand, but dipping machinery is coming more and more into force. Spraying is another method of applying glaze that is used in many of the large firms.³ (Plate IV, Figures 2 and 3).

Glazes may be purchased ready for use, but many potters prefer to mix their own, and experiment in getting new colors and textures.⁴ Work of this kind is being carried on by Dr. Lukens at the University of Southern California, and at the Rowantree Kilns in Maine. Dr. Lukens uses clays the color

¹Faulkner, Ziegfeld, and Hill, op. cit., p. 276.

²Edwin M. Knowles China Company, "The Production of Semi-Vitreous Dinnerware," (Newell, West Virginia), p. 7.

³Binns, Manual, p. xiv.

⁴Binns, The Potter's Craft, p. 140.

of desert and mesa. He recently developed a blue glaze made from volcanic ash, which is pronounced as handsome as the blue of the old Egyptian ceramists.¹ From Laura Paddock, manager of the Rowantree Kilns, came a letter and illustrated leaflets. Local marine clay is used in the production of their wheel-thrown ware. Most interesting are the glazes which are developed at this pottery. Blue Hill has a wealth of minerals, especially those used in glazes. These rocks--copper, iron, lead, manganese, quartzite, and various granites are collected, ground to powder, and used to produce the Rowantree glazes.²

Twentieth century potters should, however, avail themselves of the wonderful range of glazes that modern research has placed at their disposal.³ More than fifteen thousand different hues for pottery, china, and other ceramic products have been evolved at the DuPont Laboratories, Perth Amboy, New Jersey. Now engaged in vital war work, this plant has had to discontinue its glaze experimentation until after the war. Materials were brought from every corner of the earth to be used in these experiments. Cobalt from South Africa, antimony from China, "ice rock" from Greenland, titanium from India, borax from Death Valley in California, all went into the making of these ceramic hues. Metals, such as uranium and vanadium, were used to yield

¹Anonymous, "Egyptian Tint--a New Pottery Glaze," Ceramic Age, November, 1939, p. 152.

²Rowantree Kilns, Rowantree Pottery (Blue Hill, Maine).

³Cox, op. cit., p. 123.

richer colors. For centuries, the art relics of ancient China and Persia and early European civilizations have been highly prized for their excellence of color; but, today, their beauty is being challenged by the products of our own modern chemical research laboratories.¹

Methods of Shaping Ware

Before the potter's wheel was invented, primitive tribes made their clay utensils by scooping out the center of a clay ball, and then shaping and smoothing the wall of the vessel with the fingers. Later, vessels were probably made by building up the clay against a framework of twigs, which was removed when the vessel was finished or was burned away in the firing.² The coil method was the first refinement in the art of potting.³ This method of making pottery is still carried on in the United States among the Pueblo Indian tribes of the Southwest. The most famous of the Indian potters are Marie and Julian Martinez, makers of the celebrated blackware of San Ildefonso, a village near Santa Fé, New Mexico. The potter's wheel was unknown before the coming of the white man and has not been adopted. The jars and bowls are built up coil upon coil. When leather-hard, the pieces

¹John E. Lodge, "Rainbow Makers," Popular Science, Vol. 133, November, 1938, pp. 81-85.

²Mayer China Co., Bulletin, op. cit., p. 3.

³Faulkner, Ziegfeld, and Hill, op. cit., p. 277.

are covered with slip and polished with a smooth quartz pebble. Designs are painted on the ware before it is fired in a crude outdoor kiln. San Ildefonso ware is found in museums and homes throughout the country.¹

The first potter's wheel which came into use was probably not a wheel at all, but a flat stone. The potter could build up the sides of his vessel, turning the stone about as he worked, thus facilitating the making of more evenly rounded pieces.² As time went on, improvements were made, and we find the first crude wheel, a heavy disk, pivoted in a central point, to be set going by the hand, as the potter squatted on the ground. About the time of the Christian era, and in Egypt, apparently, a wheel to be rotated by the foot was introduced.³ A further improvement was the kick-wheel, in which the lower balance wheel was set in motion by a lever operated by the foot of the potter like the treadle of a grindstone.⁴ In the nineteenth century, man-power was supplanted by steam. In our own generation, the potter's wheel or jigger is driven by electricity.⁵

Before being shaped, a lump of clay must be thoroughly wedged by hand. This process removes any air-pockets in

¹Te Ata, "The Creation of an Indian Jar," Natural History, April, 1943, pp. 180-185.

²Mayer China Company, Bulletin, op. cit., p. 3.

³Encyclopedia Britannica, XVIII, 339.

⁴Faulkner, Ziegfeld, and Hill, op. cit.

⁵Mayer China Company, Bulletin, op. cit., p. 4

the clay which could cause trouble later on. The clay is then thrown on the center of the wheel, which is set in motion. As the disk revolves, the potter shapes the ware with his hands. (Plate III, Figure 2). When extreme finish is required, the piece is turned to desired thickness or is polished to an even surface.¹

In mass-production factories, ware is usually produced either by jiggering or by casting in slip.² Cups, saucers, bowls, plates, and platters, and now elliptical dishes, are usually made on a jigger and a jolley. The jigger has a revolving head, fitted to receive molds. The jolley has a pivoted arm to which different profiles may be clamped.³ A plaster disk, having the profile of either the inside or the outside of the object to be jiggered, is fastened on the jigger. As the disk revolves, the jolley arm bearing the profile of the other side of the object is lowered over the disk, upon which has been pressed a clay pancake. Thus the object is formed much faster and with greater standardization than is possible for the potter who works without such a machine. Plates are usually made with the upper surface formed by the plaster disk; while cups and bowls are made in the reverse fashion. (Plate III, Figure 3). Jiggered pieces must be allowed to dry slowly. They must shrink

¹ Forsyth, op. cit., p. 18.

² Ibid.

³ Cox, op. cit., p. 51.

away from the sides of the mold before they can be removed for finishing and drying.¹

Hollow ware, such as vases, coffeepots, teapots, and pitchers, are usually cast in molds. Slip is poured into dry molds and allowed to remain until a layer of clay has adhered to the sides of the mold. (Plate IV, Figure 1). The remaining slip is poured out, but the clay piece inside the mold cannot be removed until it has dried and shrunken away from the sides of the mold. When the piece is taken from the mold, all seams are smoothed, and handles, knobs, or spouts are fastened on. (Plate III, Figure 4). The piece is now ready for drying, which must be done slowly and evenly in order to keep the clay from cracking or warping.²

Among the mechanical operations connected with the making of pottery articles, there have been remarkable strides in the past few years. Oval pieces can now be jiggered, and china, also. This was at one time considered impracticable. In large firms special mechanical devices have been installed for automatically filling and emptying molds.³ The Homer Laughlin Company recently installed machinery which conveys molds to an automatic jigger and then delivers the finished pieces to the

¹Faulkner, Ziegfeld, and Hill, op. cit., p. 279.

²Ibid.

³Binns, Manual, p. xiii.

drier.¹

Molds play a decidedly important part in the production of ceramic wares. Fred H. Bailey, author of articles appearing in recent issues of ceramic magazines, has spent many years in the pottery industry. He states, "Quality production of molds is essential to the manufacture of quality ware."² He stresses the importance of ceramic students obtaining more knowledge of mold production. Porosity of plaster should fit the different ceramic bodies. Since plaster is manufactured under scientific control and its chemical properties can be determined, the problem of fitting mold and body is not a difficult one. Most faults found in ware after firing can be traced to defective molds. Redesigning of molds and improvement in mixing plaster will help solve many of the problems of the ceramic industry.³

A new method of simplifying mold construction for teapots was devised by the Purinton Pottery, Shippenville, Pennsylvania. (Plate IX, Figure 1). The teapot and its lid are cast in one piece. When the teapot is removed from the mold, the top is cut away, and the large opening in the pot is finished. About one-half of the flange that formerly connected the two pieces is then cut off and the balance remains

¹ Lucille Cox, "Development of the American Pottery Industry," Ceramic Industry, February, 1941, p. 37.

² Fred H. Bailey, "Why Not Better Plaster Molds?" Ceramic Age, August, 1943, pp. 51-52.

³ Fred H. Bailey, "Better Plaster Molds Can Cut White-ware Casting by One-Third," Ceramic Industry, October, 1941, pp. 56-58.

on the lid, which allows it to fit firmly on the pot.¹

Kilns and Firing

After ware is thoroughly dry, it is given its first or "bisque" firing. Most ware is fired at a very high temperature in the bisque firing. After glaze has been applied to the ware, it is fired again, this time at a lower temperature. This is called the "glost" firing.² There are several ways of controlling the temperature inside the kiln during the firing processes. One method used extensively in small-scale production is the pyrometric cone method.. Cones, made of suitable clay mixtures which collapse when the desired temperature is reached, are placed inside the kiln where they can be watched from the outside. Another way of controlling temperature is with the use of a pyrometer, which indicates the temperature of the kiln at all times.³ The new tunnel type kilns have automatic heat controls.⁴

In the bisque firing, since clay bodies do not soften enough to cause them to adhere to each other, ware is "stacked" in the kiln, so as to fill the space most economically.⁵ In setting a kiln of glazed ware, however, care must be taken to

¹Anonymous, "How to Cast Teapot and Lid at One Time," Ceramic Industry, April, 1941, p. 78.

²Wilson, op. cit., p. 9.

³Ibid., p. 18.

⁴Mayer China Co., Bulletin, op. cit., p. 15.

⁵Wilson, op. cit., p. 9.

keep the surfaces of the various pieces from touching, or one will adhere to the other during firing.¹ Ware must be protected from the direct action of the flames by saggars, or else it must be fired in a muffle-type kiln. In a muffle kiln, the fire is carried around the ware through fire-clay tubes. This type kiln is very efficient, and is probably the most satisfactory type for firing pottery on small-scale production. In the sagger method of firing, the ware is protected from the fire and gases by being placed in saggars made of fire-clay. (Plate III, Figures 5 and 6). Saggars are usually shaped like round baking pans, with flat bottoms and straight sides. Two pieces form a complete sagger, one the bottom and one the cover. The sagger method of firing is used principally by large firms.²

Vitrified china must be fired at a high temperature, even in the bisque firing. In order to keep thin ware from warping, it is embedded in sand or placed on beds of powdered flint, so that it is evenly supported. With such support, it cannot fall out of shape during the vitrification period. In glaze firing, all flatware is placed on three small china pins, which are inserted in the sides of the saggars. Other pieces are placed on small three-pronged china stilts. This precaution must be taken in order to keep the glazed surfaces of the ware from adhering to one another. After the firing, the

¹Ibid., p. 15.

²Ibid., p. 16.

small marks left on each piece by the pins are removed with special tools.¹

In the firing of pottery and china in large-scale production firms, the intermittent kilns are rapidly giving way to the continuous types, such as (a) the chamber kiln, in which the fire moves to the ware, and (b) the tunnel kiln, in which the ware moves to the fire zone.² The tunnel kiln is undoubtedly the most important invention of the ceramic industry for many years. Saggars containing the ware are placed on insulated steel cars, which move directly into the kiln. The cars move gradually through the long tunnel, in which the heat is automatically regulated, so that the ware is gradually brought to the maximum desired temperature. The cars move on through graduated cooling zones, until, by the time the ware reaches the end of its journey, it is cool enough to be handled with gloves.³ Some of the newer tunnel kilns used for rapid production are circular in form and are so constructed that the use of saggars is not necessary. Ware to be fired is placed on shelves made of refractory material, which are built on tables. During the firing operation, these tables are constantly moving.⁴

¹Mayer China Company, Bulletin, op. cit., pp. 21-22.

²Binns, Manual, p. xv.

³Mayer China Company, Bulletin, op. cit., p. 15.

⁴Stiles, op. cit., p. 90.

Decoration

Much ceramic ware needs no decoration other than its shape and glaze, which are completely adequate. On other products, however, some types of decoration may be desirable.¹ The types of decoration are many, but may be classified from the point of view of process, as decoration applied: (a) before bisque firing, (b) before glost firing, and (c) after glost firing.²

While a piece of thrown ware is in a plastic state, or even while it is still on the wheel, it can be decorated in various ways. One way, best suited to large plates, bowls, or jars, is incising concentric rings in the body of the ware. (Plate XII, Figure 4). Another way is making thumb-print or finger-nail borders.³

After ware has become leather-hard other types of decoration can be applied. One of the oldest forms of decoration still in use today is slip-decoration. Light-colored slip is applied to a dark body, and vice versa. The slip is applied in lines of varying width with a brush, or more easily with a paper cornucopia, medicine dropper, or small syringe. Light-colored slip may be applied to dark-colored ware, and then the design scratched through the slip covering to show the dark body beneath. This way of decorating is called "sgraffito."

¹Faulkner, Ziegfeld, and Hill, op. cit., p. 281.

²Ibid., p. 282.

³Ibid.

Sgraffito and slip-decorated ware have transparent glazed surfaces. Ware of this type is seen in Mexico, and in the United States in the work of Mrs. Naaman Keyser of Plymouth Meeting, Pennsylvania¹ (Plate XIII, Figure 3) and Mr. Isaac Stahl of Lehigh County, Pennsylvania. These potters (Thomas Stahl worked with his brother Isaac until his death about a year ago.) carry on the traditions that came across the seas with the first Pennsylvania Dutch.² Tube-line decoration, another form of slip-decoration, was known to the early Ming potters. Thin lines of clay are raised on the surface of the ware to keep in place the colored slips, which form the design.³

Other ways of decorating wares while they are in a leather-hard state are incising and excising designs, stamping patterns and carving. These methods are familiar in all historic styles. Recently discovered Sumerian pottery shows stamped and incised designs, and the Chinese used incising and carving extensively.⁴ Inlaying dark clay on a light ground or vice versa was used by medieval potters, but this method of decoration is still in use today. Sprigging is a type of decoration used chiefly on china. Clay is pressed into a delicately modeled mold, and the resulting piece is fixed to the

¹Mary G. Ramsay, "It Beats the Dutch," Country Gentleman, May, 1941, p. 72.

²Ann Hark, "Pennsylvania Pottery," House and Garden, April, 1943, p. 21.

³Forsyth, op. cit., p. 22.

⁴Ibid.

ware. Wedgwood's Jasper ware is sprigged china.¹

Another type of decoration, but one which is not used extensively, is that in which designs actually pierce the clay, the holes being filled by the subsequently applied glaze.² The lovely Chinese porcelain Rice Ware illustrates this method of decoration.

After the bisque firing, other types of decoration may be applied to ware. Designs may be painted with under-glaze paints, or under-glaze crayons may be used. The latter method gives an effect much like that of pencil drawings. Designs in paint may be applied with brush, sponge, or rubber-stamp.³ A method of under-glaze decoration, used extensively in mass-production factories, is print decoration. (Plate IV, Figure 6). Prints taken from engraved copper plates, or decalcomanias, which are lithographic prints, are applied to bisque ware. The prints are taken on thin paper, which is applied to the ware and rubbed down. The paper is then washed off, leaving the color adhering to the ware. These wares must be fired at a low temperature to eliminate the oil before being glazed.⁴ Silk-screen decoration is a new process based on the old silk-screen method of printing. Decoration of this

¹Forsyth, op. cit., p. 22.

²Faulkner, Ziegfeld, and Hill, op. cit., p. 282.

³Ibid.

⁴Forsyth, op. cit., p. 25.

type may be applied under the glaze as well as to glazed ware.¹ Prints, as well as enamel colors, gold, silver, and other metallic lustres may be applied to either bisque or glazed ware.² (Plate IV, Figure 5). A decorative process which is used only on certain types of ware is "acid etching." An exceedingly rich effect is obtained by etching the design into the glaze with acid and then covering the design with several layers of gold.³ The most serviceable decorations on tableware are produced under the glaze,⁴ although experiments are being carried on at the present time to develop over-glaze printing that will show more resistance to solution and abrasion.⁵

Although ceramic products are used in hundreds of ways that affect our daily living, we have only begun to explore the possibilities of the ceramic industry.⁶

The modern production of pottery on a commercial scale, from the raw materials to the last touch of decoration, is tantamount to a more or less co-ordinated effort of the chemist, the engineer, the technical expert, and the artist.⁷

¹Ibid., p. 26.

²Forsyth, op. cit., p. 25.

³Theodore Haviland and Company, The History of a Name (New York).

⁴Forsyth, op. cit., p. 26.

⁵Arthur S. Watts, "Various Color Fluxes Are Tested and Experimental Fluxes with Improved Chemical Resistance Are Reported," Journal of the American Ceramic Society, Vol. XXIII, Nov., 1940, p. 341.

⁶Faulkner, Ziegfeld, and Hill, op. cit., p. 284.

⁷Binns, Manual, p. xv.

PLATE III

PROCESSES IN THE PRODUCTION OF WARES

- Figure 1. Clay Columns Coming from the Pug-Mill Ready for Use--Shenango Pottery Company
- Figure 2. Throwing--Pickard, Incorporated
- Figure 3. Jiggering a Plate--Pickard, Incorporated
- Figure 4. Affixing Handles to Cups before Drying--Shenango Pottery Company
- Figure 5. Stacking Ware in Saggars--Shenango Pottery Company
- Figure 6. Kiln Cars, Loaded with Saggars, on the Way to the Kiln--Shenango Pottery Company



Figure 1



Figure 4



Figure 2



Figure 5



Figure 3

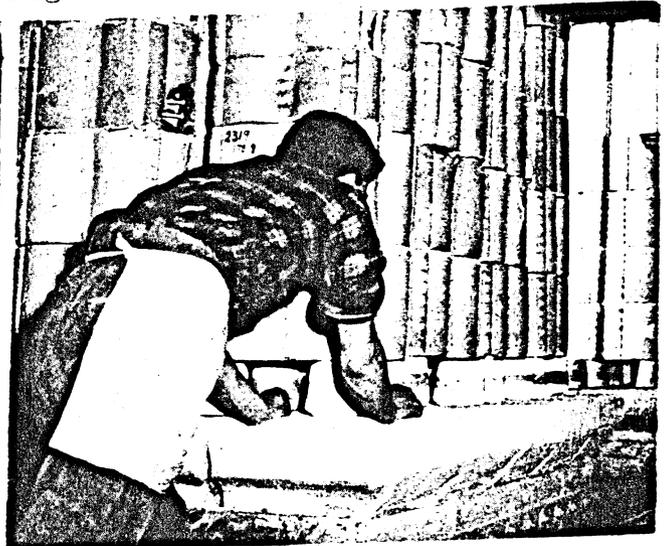


Figure 6

PLATE IV

PROCESSES IN THE PRODUCTION OF WARES

- Figure 1. Pouring Slip into a Mold or Casting--
Lenox, Incorporated
- Figure 2. A Method of Applying Glaze to Ware
or Dipping--Pickard, Incorporated
- Figure 3. Applying Glaze to Ware with a Spray-
Gun--Pickard, Incorporated
- Figure 4. Making a Plaster Model--Lenox, Incor-
porated
- Figure 5. Applying Gold Decoration to Ware--
Lenox, Incorporated
- Figure 6. Printing Transfers, Which Are Later
Applied to Ware--Lenox, Incorporated



Figure 1



Figure 4



Figure 2



Figure 5

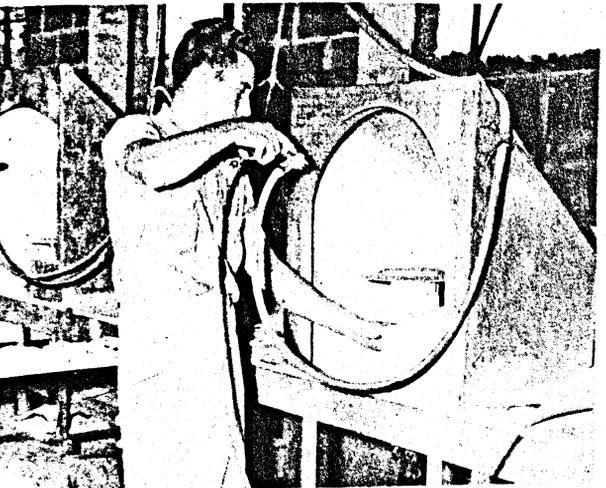


Figure 3

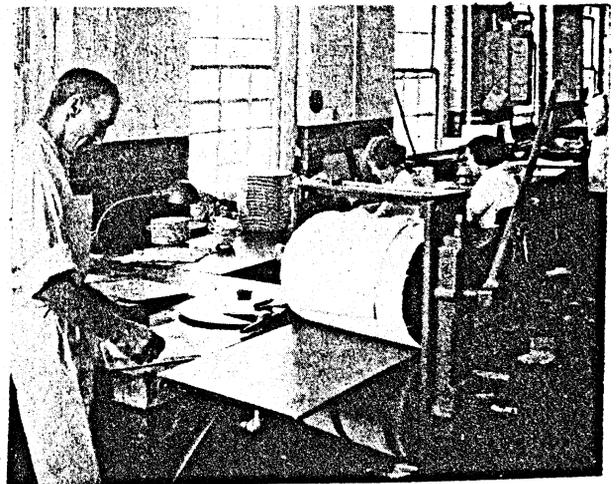


Figure 6

CHAPTER IV

CONTEMPORARY AMERICAN TABLEWARE, KITCHENWARE, AND STUDIO POTTERY

The first potters of America were individual craftsmen whose ware was strictly utilitarian in character, since it was made to fit the household needs of the communities. As the country developed, potters' shops grew into small factories. With the coming of the machine, these factories developed into large organizations whose chief aim was quantity-production of low-priced ware equal to that imported from Europe and the Orient. This, American potters have succeeded in doing.¹ The twentieth century finds the United States producing fine china equal to any produced abroad. The United States is the leading country for mass-produced tableware, also.² This ware, which may be purchased even in our low-priced stores, is semi-vitreous china, and much of it is of an excellent quality.³

As early as 1894, Ohio State University had established a ceramic department. This was done through the efforts of Edward Orton, Jr., the founder of the American Ceramic Society, an organization the purpose of which was to coordinate ceramic

¹H.R. Bacher, "Problems of Present Day Art Potters," The Bulletin of the American Ceramic Society, Vol. XVII, August, 1938, p. 332.

²Forsyth, op. cit., p. 27.

³Faulkner, Ziegfeld, and Hill, op. cit., p. 27.

interests and to further progress. In 1900, the New York College of Ceramics, with Charles F. Binns as director, was established. In the years that followed, other schools and colleges for the study of ceramics were established in various sections of the United States. As trained ceramists were gradually absorbed into American potteries, they greatly influenced production.¹ Better glazes and bodies have been developed through the use of new materials and improvements in the methods of production and firing of wares. Mass-produced wares have reached a high degree of technical excellence.²

On the artistic side, however, the same high standard does not prevail, since emphasis has been placed on science and technology at the expense of good design.³ There are still reproductions of old styles being made.⁴ Much of the ware that we see in the shops is poorly designed. However, the majority of our manufacturers are aware of the fact that inexpensive wares need not be ugly or in poor taste, and in many instances, they have brought into their factories designers of recognized ability.⁵ Arthur Baggs of Ohio State University states:

Industry can use the designer who is not only an alert student of his own and allied fields, but one whose standards

¹Encyclopedia Britannica, XVIII, 373.

²Stiles, op. cit., p. 77.

³Encyclopedia Britannica, XVIII, 373.

⁴Forsyth, op. cit., p. 32.

⁵Stiles, op. cit., p. 103.

of honesty and sincerity will hold him back from the pursuit of cheap trashiness in the effort to "give the public what it wants." The public is probably ready to welcome better, simpler designs than many manufacturers are offering. Automobiles, refrigerators, and washing machines are proving that functional efficiency, simplicity of line and form, and restraint in ornament are potent sales factors. Ceramic product designers who put this sort of straight-forward, common-sense sincerity into their work should find a receptive market.¹

A Philadelphia firm was the first to produce true china or porcelain in the United States. This was in 1769. Over fifty years passed before the making of china was again attempted. In the years that followed, several firms produced china; but competition with the European craftsmen evidently proved too great, for they did not long survive. In 1865, the Etruria Pottery became the first to manufacture Belleek ware. Another firm, the Willetts Manufacturing Company, also produced Belleek ware. In the early 1890's its products were competing favorably with those of Limoges, Dresden, and other foreign concerns.²

The making of fine china or porcelain is a most exacting and delicate process. Mass-production is impossible since much of the workmanship must be done by hand.³ The many steps involved in the production of even the humblest piece of china, from the mixing of the clays to the final firing of the decoration, are beset with risk and trial for the manufacturer.⁴

¹ Arthur E. Baggs, "The Ceramic Artist's Job," Design, April, 1935, p. 16.

² Harry A. Brown, "The Story of American China," House and Garden, October, 1942, p. 35.

³ Ibid., p. 84.

⁴ Castleton China Company, Perfect China (New York City).

Much time, thought, and money have been expended by the manufacturers of hotel china in making an attractive product that will be durable and lasting. Most factories producing the best hotel china are equipped to place on the market fine china for home use.. Hotel china must of necessity be a completely vitrified ware able to resist rough handling, and possible breakage and nicking. Hotel china is made in four thicknesses, from the double-thick ware, which is made to resist the hardest use, to a light-weight ware, which is used chiefly for home service, but may be found in exclusive hotels, clubs, and other institutions.¹

Walter Scott Lenox is perhaps the greatest figure in the development of fine china in America. Despite blindness and paralysis, which deprived him of the use of his legs, Mr. Lenox continued to visit his factory regularly until his death in 1920.² With the help of Harry A. Brown, who worked constantly at his side, Mr. Lenox' efforts to make a china comparable to the best in Europe, resulted in the present-day Lenox china. Lenox Incorporated, Trenton, New Jersey, with Harry A. Brown as president, continues to manufacture this fine china, a Belleek-bodied dinnerware. (Plate V, Figure 2). Frank G. Holmes is the designer for Lenox ware, all of which

¹Stiles, op. cit., pp. 124, 125, 128.

²Brown, op. cit., p. 84.

bears over-glaze decoration.¹ The china itself is all one grade, the difference in price depending on the character of the decoration, much of which is very elaborate. Lenox china has been used at the White House since 1918, and an additional set was selected during the present administration.²

Another Trenton firm, the old Maddock Pottery, which was making hotel china in 1889, is now known as the Scammell China Company. It is still producing china for hotels, restaurants, and steamship lines. This company also manufactures Lamberton china, a dinnerware line, for Fisher, Bruce, and Company. (Plate VI, Figure 2). Lamberton took its name from the section of Trenton, "Port of Lamberton," in which the old Maddock Pottery was located.³

In 1888, the Onondaga Pottery Company of Syracuse began making Syracuse China, a white, translucent, lightweight dinnerware. It has been made continuously ever since. This company produced the first American-made ceramic decalcomania. The creation of the process of the under-glaze decalcomania by Onondaga is probably the outstanding contribution of American potters to the art of chinaware decoration.⁴ Besides dinnerware for home use, the Onondaga Company manufactures a fine grade of hotel china. One of the newest wares

¹Stiles, op. cit., p. 109.

²DuPont Style News Service, Lenox China, An American Triumph (New York: DuPont Style News Service, June, 1939).

³Brown, op. cit., p. 84.

⁴Ibid.

is Shelledge China, designed by R. Guy Cowan. (Plate VII, Figure 2). This ware was planned for use on such occasions as teas, parties, and special service plates for the dinner table, or for tray service in finer hotels.¹ Another one of Mr. Cowan's designs is Econo-Rim Hotel China. This pattern was designed expressly for use where economy of space is necessary, such as the drugstore, lunch counter, hospital tray, or cafeteria.²(Plate VIII).

Since 1937, several firms have begun producing fine china for home use.³ The Shenango Pottery Company of New Castle, Pennsylvania, makers of vitrified hotel china, are manufacturing two fine china dinnerware lines. One of these is Haviland China. This firm, owned and operated by Americans living in Limoges, France, has catered to American trade for many years. Since the present war has stopped importations from France, the American concern has carried on the work here in the United States. Formulas and patterns used by the Haviland Company in France have been brought to this country, accompanied by French potters who superintend the production of the ware.⁴ (Plate VI, Figure I). The other fine china line, which Shenango began manufacturing in 1940, is Castleton China, a ware similar in quality to Lenox China. This

¹Stiles, op. cit., p. 129.

²Ibid., p. 131.

³Brown, op. cit., p. 84.

⁴Stiles, op. cit., pp. 131-132.

ivory-bodied ware is extremely light in weight, translucent, and has a lustrous hard-wearing glaze. It is manufactured under the direction of James M. Smith, president of the Shenango Company, who for years has worked to develop a ware made entirely of American materials.¹ (Plate V, Figure 1). One of Shenango's outstanding functional designs in hotel tableware is RimRol, a ware so constructed as to reduce breakage and chipping. A semi-rounded roll is placed on the under side of the plate rim to absorb impact blows and to reinforce the piece. The roll acts as a finger-grip for the person who may be carrying a heavily-laden plate or platter.² (Plate VIII).

Jackson Featherweight China has been made since 1939 by the Jackson China Company of Fall Creek, Pennsylvania, makers of hotel china. English, French, and other European china wares have influenced its designs. Two firms in Antioch, Illinois, are makers of fine china. The Regal China Company was established in 1940. Pickard Incorporated began as a china-decorating plant in 1879.³ (Plate 6, Figure 4).

The Ceramic Directory for 1943 lists twenty-five firms manufacturing chinaware. Of these firms, at least twenty

¹Castleton China Company, Castleton China Makes Its Debut (New York City).

²Shenango Pottery Company, RimRol (New Castle, Pennsylvania).

³Brown, op. cit., p. 84.

produce both hotel china and china for the home.¹ The latest to join the ranks of makers of fine china are Gladding, McBean, and Company of Los Angeles, and Southern Potteries of Erwin, Tennessee. Gladding, McBean, and Company has for years manufactured the colorful earthen dinnerwares, which are marketed under such names as Franciscan, Montecito, El Patio, and Coronado. This ware is made from raw materials found in California, the chief of these being talc rock, which produces a fine white body that is tough and durable.² In 1942, a new line, Franciscan China, was developed.³ (Plate VII, Figure 1). In 1941, after months of research and experiment, Southern Potteries of Erwin, Tennessee, announced the development of a vitrified china line to retail at a moderate price. The body is made from materials found in North Carolina, Tennessee, and Kentucky. It is creamy-white, translucent ware with under-glaze, hand-painted decoration. This ware is marketed under the name, Blue Ridge China.⁴

Whitewares were first made in the East and shipped to the families who had moved to the old Northwest Territory to make their homes. Soon, however, white clays were discovered in Ohio, and it became the desire of the potters living there to produce a serviceable white ware.⁵ Thus began the industry

¹Ceramic Directory, pp. 67-75.

²Gladding, McBean, and Company, Folder (Los Angeles).

³Brown, op. cit., p. 84.

⁴Anonymous, "Southern Potteries Make Vitrified China," Ceramic Industry, October, 1941, p. 25.

⁵Stiles, op. cit., p. 76.

in the Ohio-West Virginia District, which today is the largest ceramic center in the United States.¹ Outstanding among the products of this district is tableware for home use.² Most of the ware is semi-vitreous, but of an excellent quality. It is the opinion of a china and glassware buyer in one of Chicago's large department stores that china sales are too greatly stressed. Table settings with earthenware or semi-vitreous ware can be varied and colorful. It would take long-time promotion to change the popular conception of the superiority of tables set with real china, but there is, he believes, an ever-increasing market for semi-vitreous manufacture.³

Many of the present-day plants in the Ohio-West Virginia District were organized by the fathers and grandfathers of the men who are today the owners and managers. The older firms established in the nineteenth century are: Harker Pottery Company, Homer Laughlin China Company, and the Steubenville Pottery Company. Many of the others were organized in the early years of the present century.⁴

The oldest firm in this district is the Harker Pottery

¹ Ibid., p. 102.

² Ibid., p. 77.

³ Anonymous, "Making the Rounds of the Markets," Ceramic Industry, January, 1941, p. 76.

⁴ Ceramic Trade Directory, pp. 76-91.

Company of East Liverpool, Ohio, which was established in 1840.¹ This company is the maker of oven-ware and also a dinnerware line called Cameo Ware.²

The largest pottery in the world, and also one of our older firms, is the Homer Laughlin Company located in Newell, West Virginia.³ This firm has contributed much to the advancement of American pottery, being one of the first to introduce various types of machinery, such as the placing conveyor, the automatic glazing machine, and the automatic jigger. In glazes, their Fiesta Ware is outstanding. In body development, their finest contribution to American pottery is Eggshell China.⁴ (Plate X, Figure 3). Eggshell dinnerware, a semi-vitreous china, was made possible by new processes and materials. One of its mineral ingredients is tremolite, a substance which makes the ware lighter in weight, yet gives added strength.⁵

The Steubenville Pottery, Steubenville, Ohio, established in 1879, manufactures dinnerwares. One of their interesting patterns is "American Modern," a tableware designed by Russell Wright.⁶ (Plate X, Figure 6).

¹Stiles, op. cit., p. 73.

²Ceramic Directory, p. 81.

³Stiles, op. cit., p. 73.

⁴Lucile T. Cox, "Development of the American Pottery Industry," Ceramic Industry, February, 1941, p. 37.

⁵Homer Laughlin China Company, Eggshell Dinnerware (Newell, West Virginia).

⁶Stiles, op. cit., p. 79.

The Hall China Company, established in 1903 in East Liverpool, Ohio, manufactures cooking ware and teapots.¹ New functional designs include Saf-handle china, which is rounded and compact; a loop-handle water jug with ice-lip that features balance and ease in pouring;² and an infuser teapot, which eliminates the need for tea bags.³

Two other Ohio firms established in the early years of the twentieth century are Edwin M. Knowles China Company of East Liverpool, and the W.S. George Company of East Palestine. The Knowles Company manufactures plain and decorated white dinnerware and kitchenware.⁴ (Plate X, Figure 1). The W.S. George Company manufactures inexpensive dinnerware of various styles, decoration and finish. Some wares are under-glazed decorated; others have colored matt glazes.⁵ (Plate X, Figure 2). The new Georgex teapots are made of material that is extra hard and resistant to any amount of heat except direct contact with flames.⁶

¹Stiles, op. cit., p. 73.

²Anonymous, "Simplicity of Design Dominates Hotel Show," Ceramic Industry, December, 1939, p. 50.

³Raymond G. Gibney, "It Can Happen Here," Ceramic Industry, February, 1941, p. 43.

⁴Edwin M. Knowles China Company, Illustrated folder, (East Liverpool, Ohio).

⁵W.S. George Company, Illustrated folder, (East Palestine, Ohio).

⁶Anonymous, "New Teapots Combine Practicality with Charm," Ceramic Industry, December, 1939, p. 31.

The Sebring Pottery Company, the Limoges China Company, both of Sebring, Ohio, and the Salem China Company of Salem, Ohio, are all under the same management. Viktor Schreckengost, famous ceramic sculptor of Cleveland, is designer for these potteries.¹ Among the most interesting of his functional designs are the "Jiffy Ware" refrigerator bowls made at Limoges China Company. The bowls are nested, the smaller bowls and lids fitting inside the larger bowls. The lids are recessed for stacking, and when not used for covering the bowls, may serve as ash trays or coasters. The smaller bowls may be used as individual bean pots, or for other oven-cooked foods.²

The Purinton Pottery Company of Shippenville, Pennsylvania, was established only a few years ago. This firm is especially noted for its teapots. An interesting one is the "Tea-Guard teapot," designed to minimize cleaning and pouring difficulties. It has a new straining device. The round bowl at the base of the spout is eliminated and the spout runs the full length of the pot. The pot has a hold-fast lid.³ (Plate IX, Figure 3).

The California revolution in pottery commenced about fifteen years ago when color was first introduced in table-ware. California is the West's pottery center. For

¹Stiles, op. cit., p. 78.

²Ibid., p. 94.

³"New Teapots Combine Practicality with Charm," p. 31.

mass-production, California pottery belongs to five manufacturers: Gladding, McBean, and Company; Pacific Clay Products; Bauer Pottery Company; Metlox Manufacturing Company; and Vernon Potteries.¹

Gladding, McBean, and Company, now included with the makers of fine china, was organized in 1875. Its first products were vitrified sewer pipes, tiles, and bricks. In 1934 the company began the manufacture of tableware.² (Plate X, Figure 4).

Pacific Clay Products, established in 1881, manufactures stoneware, tiles, electric porcelain, and tableware.³ Two of this firm's functional designs are illustrated. (Plate XI, Figures 1 and 2). One is an oven-proof pie plate with detachable wooden handles. The other is a coffee set, which includes tray, coffee bottle, and mugs with detachable handles.

The Bauer Pottery Company, established in 1909, manufactures porch and garden pottery and ware for kitchen and table use. In 1929 this company produced the first colored tableware which appeared on the market.⁴

Metlox Manufacturing Company and Vernon Potteries both produce colored earthen tablewares. Metlox manufactures

¹The California Pottery Guild, The California Magazine of Pacific Business (Los Angeles, California, 1937).

²Gladding, McBean, and Company, op. cit.

³Ceramic Directory, p. 164.

4. The Bauer Pottery Company, Folder (Los Angeles, California).

colorful wares using both gloss and matt glazes in a wide range of colors.¹ Vernon Potteries produces both solid color ware and under-glaze decorated ware.²

One of the most recently organized California firms is Joaquin Potteries of Stockton. This company manufactures dinnerware and also over-flame cooking ware.³ A Joaquin double boiler is illustrated. (Plate XI, Figure 3).

While tableware and other forms of ceramics were produced in quantity by industrial means, there seemed to be little awareness to ceramics as an art until the last quarter of the nineteenth century. At that time it became fashionable to do over-glaze painting or china painting. American women went to Europe to study the subject, and china painting clubs sprang up in different parts of the United States, the most influential ones being those in Milwaukee, Cincinnati, and Syracuse.⁴

European ceramic exhibits at the Centennial Exhibition in 1876 greatly influenced American potters.⁵ Impressed by Limoges faience exhibited at the Fair, Miss Mary Louise McLaughlin of Cincinnati determined to discover the method of its decoration. Her first under-glaze painted ware was so

¹Metlox Manufacturing Company, Folder (Los Angeles, California).

²Vernon Potteries, Folder (Los Angeles, California).

³Ceramic Directory, p. 82.

⁴Encyclopedia Britannica, p. 373.

⁵Edwin Atlee Barber, The Pottery and Porcelain of the United States (New York: G.P. Putnam's Sons, 1909), p. 304.

successful that others were stimulated to study the art.¹

Several years later she built her own kiln and achieved the difficult feat of making single-fired porcelain.²

A pottery club, with Miss McLaughlin as president, was destined to be an important factor in the development of the ceramic industry in Cincinnati.³ As a result of the club's activity, Rookwood Pottery was started in 1880 by Mrs. Maria L. Storer. It has operated continuously since then, producing wares noted for their fine shapes, glazes, and decorations.⁴ In 1943, Sperti Incorporated, identified with the Sperti Fluorescent Lamp Company, acquired Rookwood Pottery. The new owner has been carrying out modernization and improvements at the plant. The laboratory will be expanded for ceramic research under the direction of Dr. George Sperti. The Rookwood line of ware will be restyled by a Chicago designer, and new glazes will be developed.⁵

Mrs. S.S. Frackelton of Milwaukee was another pioneer in the ceramic art field. In 1892 she organized the National League of Mineral Painters, one of its aims being to aid in the development of a national school of ceramic art. Mrs. Frackelton

¹Ibid., p. 276.

²Ramsay, op. cit., pp. 79-80.

³Barber, op. cit.

⁴Ramsay, op. cit., p. 79.

⁵Anonymous, "News of the Industry," Ceramic Age, August, 1943, p. 45.

experimented with salt glaze in an effort to use humbler materials as a medium of expression.¹

Another pottery which grew out of the vogue for china painting was Pewabic Pottery, established in Detroit by Mary Chase Stratton.² This pottery is noted today not only for its vases and bowls but also for the tile and mosaic decoration installed in pools and fountains, churches and libraries in many cities throughout the United States.³ Classes under the direction of Pewabic Pottery artists are held at Wayne University, Detroit.⁴

A name early associated with the revival of interest in pottery is that of Adelaide Alsop Robineau, who was a student of Charles F. Binns at Alfred University. Her influence was felt not only through her fine porcelains, but in her teaching at Syracuse University. Besides her studio work and her teaching duties, she and her husband found time to edit Keramic Studio, the magazine now known as Design.⁵

It is as a tribute to the memory of Mrs. Robineau that the annual exhibits were instituted at the Syracuse Museum of Fine Arts through the untiring efforts and direction of Miss Anna W. Olmsted, director of the museum.⁶ These exhibits, which

¹Encyclopedia Britannica, p. 373.

²Ibid.

³Pewabic Pottery, Folder (Detroit, Michigan).

⁴Ceramic Directory, p. 54.

⁵Anonymous, "An Outline of American Ceramics," Design, Vol. XLIII, December, 1941, pp. 7-9.

⁶Ibid., p. 9.

began in 1932, mark a definite step in the growing aesthetic expression of American feeling in ceramic art. In them, says Felix Payant, editor of *Design*:

we have a truly characteristic collection of work submitted by outstanding ceramic artists in America from coast to coast--thus giving us a representative showing of the contemporary potters of the country.¹

Many schools, colleges, and universities are now doing outstanding work in various phases of the ceramics field.

Ohio State University has two ceramic departments: the Department of Ceramic Engineering and Technology, under the direction of Arthur S. Watts, and the Department of Ceramic Art, under the direction of Arthur E. Baggs.² The ceramic art department is now developing a project which provides for the production, in a small plant, of wares on a commercial basis, with a view to trying out new designs on the market while giving students experiences simulating those in industry.³

The New York State College of Ceramics maintains three departments for the study of Ceramics: the Department of Technology and Engineering, the Department of Ceramic Art, and the Department of Glass Technology. The aim of the college is to prepare students for a professional career, whereby they may

¹Felix Payant, "The Editor's Page," *Design*, November, 1936, p. 1.

²*Ceramic Directory*, p. 267.

³Letter from Edgar Littlefield, Ohio State University, May 2, 1944 (Columbus, Ohio).

render service as industrial producers.¹

Newcomb College, Tuland University, was founded in 1886. In the early years of the college, the art department was under the direction of Ellsworth Woodward, who decided to establish a pottery where students could make application of their training in design. At first pieces were thrown on the wheel by skilled potters employed by the college, and later decorated by the students. Now students are taught to make the entire piece from start to finish. There is a salesroom connected with the pottery laboratory where approved ware made by the students is sold. The makers of the ware are paid a percentage of the selling price, and the remainder goes to the college for various expenses. The department has never been entirely self-supporting, although it has largely paid its own way. Most of the glazes are of a semi-matt texture, and are applied over blue or green under-glaze colors.² One of the newer glazes recently developed at the college has a gun-metal finish.³

The nucleus of Cranbrook Academy, Bloomfield Hills, Michigan, existed before 1927 in a group of resident artists and craftsmen. The Academy was founded as a center of art creation

¹General information on the Subject of Ceramics and the New York State College of Ceramics, pp. 16-18.

²Kenneth E. Smith, "The Origin, Development, and Present Status of Newcomb Pottery," Bulletin of the American Ceramic Society, Vol. XVII, June, 1938, pp. 257-259.

³Anonymous, "Making the Rounds of the Markets," Ceramic Industry, September, 1940, p. 45.

particularly for the benefit of the students whose ambition was to become professional artists. Then there was a growing demand to have art educators benefit from the Academy's studios and craft-shops. In 1942, the state of Michigan chartered Cranbrook Academy as an institution of higher learning, with the privilege of granting academic degrees. The instruction in the ceramic department is under the direction of Maija Grotell. Emphasis is placed on the development of the understanding of form, color, and texture as related to ceramics, and on the acquisition of skill and technical knowledge which is essential to such an understanding.¹

Mr. Glen Lukens, director of the ceramic department of the University of Southern California, attributes the recent growth of the industry on the Pacific coast to three reasons: (a) the eagerness with which manufacturers have responded to requests for color in ceramic ware, (b) the closing of foreign markets, (c) the steady growth of clay study in the schools of the state, and the publicity gained from school ceramic exhibits.²

A significant example of the application of the arts to meet a wartime crisis was demonstrated at the Los Angeles County Museum in 1943. Articles in this special exhibit were

¹Cranbrook Academy of Art, Bulletin, 1944-1945 (Bloomfield Hills, Michigan: Cranbrook Press).

²Glen Lukens, "New Pots from the Old Clays of the West," Bulletin of the American Ceramic Society, October, 1942, p. 237.

made by Mr. Lukens' students, and consisted of a number of useful and well-designed ceramic utensils to replace kitchen and table utensils formerly made of metal. Mr. Lukens' experiments have been made with native clays and other ceramic materials found in the Southern California area. One of the materials, Death Valley talc, is blended with clays to evolve a strong body capable of withstanding hard use, and exposure to sudden heat and cold.¹ Some of the utensils on exhibit were: frying pans, an electric warming plate for dining table use, small charcoal stoves lined with vermiculite, a heat-resistant material, a griddle, various baking dishes and pans,² and "snack jars," which are thermos jars of glazed terracotta that will keep food hot or cold for several hours. "Snack jars" were designed especially for "swing-shift" war workers.³

The School of Applied Arts and Ceramic Design, University of Cincinnati, offers a ceramic course based on a frank acceptance of modern industry, quantity production, and machine tools. The program of training provides both for commercial design and for the studio artist. The students design wares

¹ Anonymous, "Pots and Pans," Magazine of Art, Vol. XXXVI, November, 1943, p. 275.

² Anonymous, "Development of Ceramic Cooking Ware at the University of Southern California," Ceramic Age, August, 1943, p. 50.

³ "Pots and Pans," p. 275.

of all types, from vases and bowls to kitchen utensils.¹

A few years after the establishment of the College of Industrial Arts, now Texas State College for Women, President Cree T. Work found a clay bank on the campus. He brought a lump to the art department, suggesting that it be tested for making pottery. That was the beginning of the pottery laboratory, which is today one of the best in the South. Under the able direction of Miss Mattie Lee Lacy, students are taught to work directly with materials. In this direct method of working, students feel the relationship between shape and surface pattern.² Experiments are constantly being made in the development of bodies, glazes, and designs. Functional designs created at Texas State College for Women are illustrated. (Plates XVII, XVIII, XIX).

People in America have become "craft conscious". Interest has been revived in the whole conception of craftsmanship.³ There are those who work at a craft from a recreational point of view, others work from a craftsman's interest, and some have become enthralled by the power, rhythm, and perfection of the machine.⁴ Then we know of many that are living in

¹ Anonymous, "Cincinnati's Aim, Pottery With a Purpose," Art Digest, July 1, 1937, p. 11.

² Anonymous, "Genesis in Clay," Southwestern Arts, August, 1932, p. 8.

³ Scott G. Williamson, The American Craftsman (New York: Crown Publishers, 1940), pp. 8-9.

⁴ Myrtle M. French, "Ceramic Design, Its Background, Needs, and Creative Vision," Design, April, 1935, p. 12.

sections of the country, such as the Southern Highlands, who work at a craft because it is their means of livelihood.¹ In every case, however, the fundamental elements are the same. There are materials from which to create, there are tools to be used, whether fingers, modeling tools, or machinery, and there is the creative urge.² Walter Teague states:

The spirit of craftsmanship is independent of its tools. It can work with steel presses or milling machines as well as with hand planes or chisels, if its aims are honest and its intelligence adequate.³

Many who have taken up a craft as a hobby have turned it to profitable business. Mrs. Naaman Keyser of Plymouth Meeting, Pennsylvania, is a potter whose flourishing studio grew out of a hobby. Her interest in pottery started with the finding of clay along the banks of a stream running through her fields. Mrs. Keyser started making pottery chiefly because she was interested in finding work which would be suitable for use in a clinic where she was doing part-time work. She began making Pennsylvania Dutch pottery at the suggestion of her husband, whose father had written several books on the history of the early Pennsylvania Dutch settlers. Most of Mrs. Keyser's work is done on the wheel or on molds. Her designs in

¹Williamson, op. cit., p. 183.

²French, op. cit., p. 12.

³Walter Dorwin Teague, Design This Day (New York: Harcourt, Brace, and Company, 1940), p. 52.

slip-painting and sgraffito are all traditional ones. Much of the symbolism is religious, and some is humorous, such as the mottoes which form borders around the plate rims.¹

Two other potters who make Pennsylvania Dutch wares are the Stahl brothers of Bally, Pennsylvania, who learned the potter's craft from their father. As young men they gave up the work because there was no sale for their earthen pottery. In 1929, at a county fair, they discovered pie plates, which they recognized as their own, now selling for six dollars apiece. These same plates had once sold for not more than six cents apiece. The brothers decided to go back into the pottery business. Until a year ago, the two old gentlemen worked together in their shop making jugs, plates, pitchers, and jars, decorating them with designs in slip and sgraffito. Thomas, who died about a year ago, used an old fashioned kick wheel. Isaac uses a wheel run by electric power. "What's the difference?" he asks. "The work I turn out is the same, no matter what kind of a wheel I use."²

The Shearwater Pottery in Ocean Springs, Mississippi, is owned and operated by the three Anderson brothers, Peter, Walter, and Mac. The shop was not established until 1928,

¹Helen Painter, "Mrs. Keyser of Plymouth Meeting," American Home, May, 1943, pp. 40, 42.

²Hark, op. cit., pp. 21-22.

although the brothers had modeled in clay when they were small boys. Developing from the hobby stage into a serious interest, pottery making took the boys to college where they studied the subject. Peter was a student of Dr. Binns, Walter went to the Pennsylvania Academy of Fine Arts, and Mac attended Tulane University. Their ware consists of slip-decorated pottery, plain glazed pieces, and under-glaze figurines. Seldom are their designs duplicated, except in the smaller, less expensive pieces, such as ash trays, flower pots, and small bowls and pitchers.¹

The Haeger Pottery of Dundee, Illinois is a large concern that seventy-five years ago was making flower pots as a side line, and then vases and bowls. The firm is noted now for this type of ware and also for small bird and animal figures. The designer for the firm is Royal Hickman, some of whose pieces are illustrated.² (Plate XII, Figure 4).

Frankoma Potteries of Sapulpa, Oklahoma, was started as a small studio by John N. Frank, who was at the time director of the ceramic department at the University of Oklahoma. In 1934 Mr. Frank left the University in order to devote full time to developing the project of which he is now owner. The ware first produced consisted of small vases and bowls.³

¹Shearwater Pottery, Folder (Ocean Springs, Mississippi).

²Haeger Potteries, Folder (Dundee, Illinois).

³Letter from John N. Frank, Frankoma Potteries, May 5, 1944 (Sapulpa, Oklahoma).

In the last few years wares of a more practical type are being manufactured, such as the Bar-B-Q Service, an oven-proof table-ware, and pitchers, jugs, and mugs. Mr. Frank is designer for the company.¹ Two of his functional designs are illustrated. (Plate XI, Figures 5 and 6).

One of the most interesting potteries working today is Rowantree Kilns of Blue Hill, Maine. All of their ware, which consists of bowls, vases, mugs, plates, pitchers, and cups are wheel thrown. Local clays are used, and their glazes are made from materials found in the vicinity of the studio.² (Plate XII, Figure 1).

A few of the many studio potters who are doing exceptional work are: Gertrud and Otto Natzler, Beatriz Wood, Glen Lukens, all of California; Edwin and Mary Scheirer of New Hampshire; Edgar Littlefield of Ohio; and Charles Harder of New York. (Plates XIV, XV, XVI).

Recently a number of government and private agencies have cooperated in developing the crafts to the advantage of the people living in rural sections of the United States. Crafts guilds have been organized, crafts are taught in the local schools, and outside markets for the products have been created. The Russell Sage Foundation is one of the powerful agents in this field.³ This institution was established for

¹Frankoma Potteries, Folder (Sapulpa, Oklahoma).

²Rowantree Kilns Folder, op. cit.

³Williamson, op. cit., p. 183.

"the improvement of social and living conditions in the United States of America."¹

In the Southern Highlands, craft potteries such as Jugtown Pottery and Pisgah Forest Pottery are producing wares that are now in great demand. (Plate XIII, Figures 2 and 4). Jugtown, near Steeds, North Carolina, is under the management of Jacques Busbee. He discovered the potters of this isolated region working in the same primitive manner as had their grandfathers two centuries ago; and he recognized the value of holding to the local tradition of simplicity. He has kept the pottery true in form and color and in harmony with its crude native clays and surroundings.²

Many states have created state crafts boards and projects, as in most of the New England states, to keep craftsmen abreast of the times and to help them market their wares. The American Craftsman's Cooperative Council is a national organization which helps craftsmen find markets for their products through such central outlets as New York City's American House.³

In 1941, Russel Wright, one of America's foremost industrial designers, organized what is known as "American Way." The purpose of the organization is three-fold: (a) the development of American-made products of inherent American design for mass-production and craft-production, (b) wholesale selling of

¹"Educational Foundation," World Book Encyclopedia, Vol. V, p. 2130.

²Jugtown Pottery, Folder (Steeds, North Carolina).

³Anonymous, "New England Promise," House and Garden, November, 1943, p. 23.

this merchandise throughout the country, (c) stimulation of consumer interest and sales of this merchandise by a planned program of advertising and publicity. The general idea of this program is to develop successful home-furnishings merchandise of modern design by American designers, and to stimulate the public's pride in such merchandise.¹

Museums throughout the country are performing notable service in sponsoring exhibits of the products of the organized crafts groups which have sprung up in various sections of the United States. Of outstanding interest are the exhibits held, in the last year or so, at such museums as Worcester Art Museum of Massachusetts,² Los Angeles County Museum, Fine Arts Gallery of San Diego,³ Baltimore Museum of Art,⁴ Cincinnati Art Museum, Syracuse Museum of Fine Arts,⁵ Metropolitan Museum of Art,⁶ and the Museum of Modern Art.⁷ After the war, the Craftsman's

¹Russel Wright, "Industry Looks at Art," Design, Vol. XLII, March, 1941, p. 23.

²Anonymous, "Man or Machine," Magazine of Art, Vol. XXXVI, December, 1943, p. 314.

³Anonymous, "California Ceramics," Art Digest, May 1, 1939, p. 23.

⁴Anonymous, "Machine Age Craftsmen," Magazine of Art, March, 1944, p. 112.

⁵William M. Milliken, "Ohio Ceramics," Design, November, 1936, p. 17.

⁶Eugene Schoen, "Industrial Design: A New Profession," Magazine of Art, Vol. XXXI, August, 1938, p. 472.

⁷Anonymous, "Useful Objects under Ten Dollars," House and Garden, March, 1943, p. 43.

Cooperative Council plans to organize a national exhibition to be held first at the Metropolitan Museum of Art and then to be circulated throughout the United States.¹

The encouragement of craftsmen today has for some people "too many overtones of William Morris and Elbert Hubbard," of whom the latter, with his Roycrofter Shops in East Aurora, New York, carried on in the Morris manner. For people of this type, the pursuit of a craft means retreat instead of progress, of rebellion against the twentieth century instead of acceptance of it.² Morris did a great service, for he demonstrated "the compatibility of utility and beauty;" but it was Louis Sullivan who was the real prophet of our mechanical renaissance. Sullivan reproclaimed the old truth that function determines form. Frank Lloyd Wright preaches the same gospel of functional fitness, but with an added insistence on materials, processes, and machinery as factors which also influence form.³

Our alert and young-minded leaders urge the use of the machine, "so that material resources and powers which it places at the disposal of society shall be used to stimulate rather than retard the reviving impulse to creative workmanship." We are living in an age of science. "Craft is a link which weds science to art, to the benefit of each."⁴

¹"Machine Age Craftsmen," p. 112.

²"Man or Machine," p. 314.

³Teague, op. cit., pp. 51-52.

⁴Williamson, op. cit., p. 10.

PLATE V

FINE CHINA

- Figure 1. Castleton China--Manufactured for Castleton China Company, New York by Shenango Pottery Company, New Castle, Pennsylvania
- Figure 2. Lenox China--Lenox, Incorporated, Trenton, New Jersey

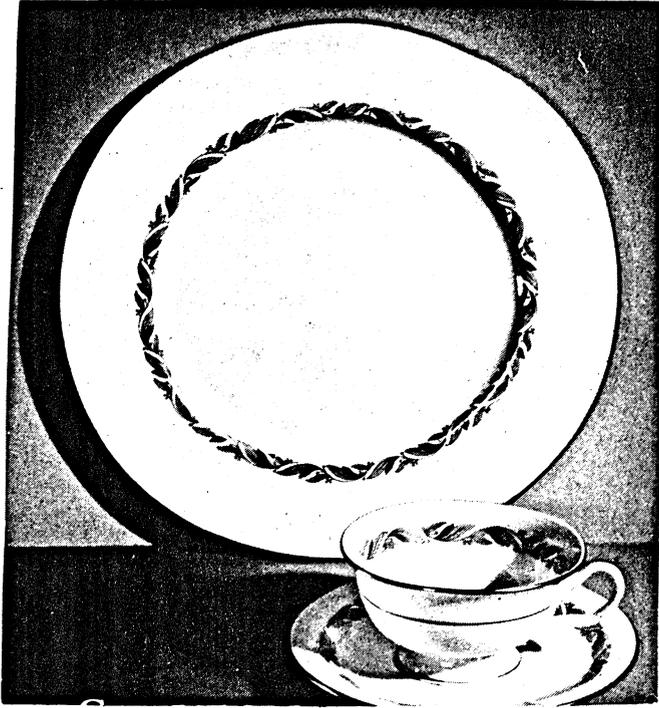


Figure 1

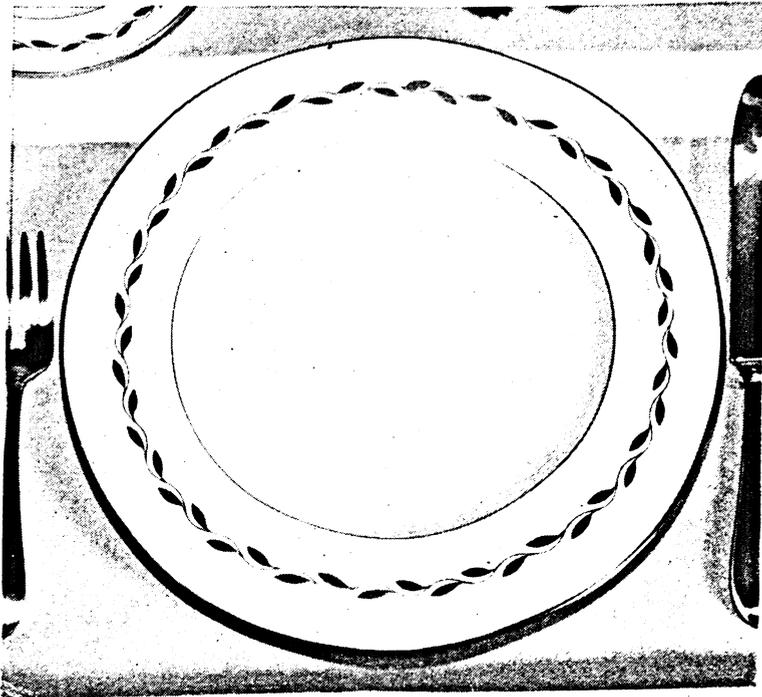


Figure 2

PLATE VI

FINE CHINA

- Figure 1. Haviland China--Manufactured for Theodore Haviland and Company, New York by Shenango Pottery Company, New Castle, Pennsylvania
- Figure 2. Lamberton China--Manufactured for Fisher, Bruce, and Company by Scammell China Company, Trenton, New Jersey
- Figure 3. Syracuse China--Onondaga Pottery Company, Syracuse, New York
- Figure 4. Pickard China--Pickard, Incorporated, Antioch, Illinois



Figure 1



Figure 2

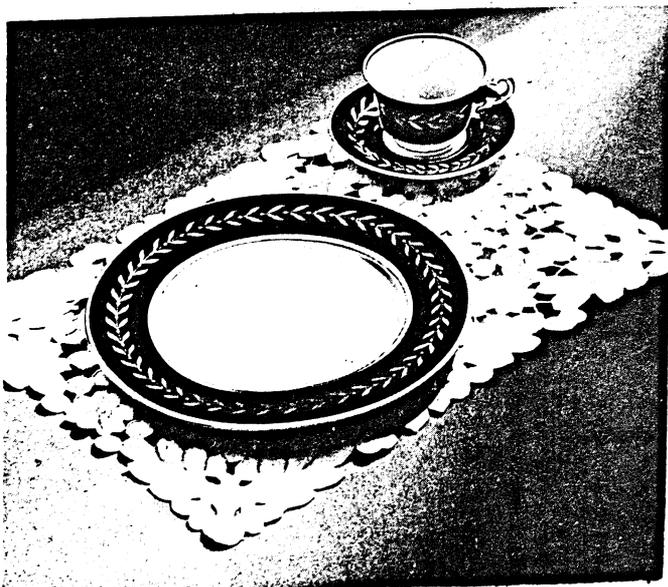


Figure 3

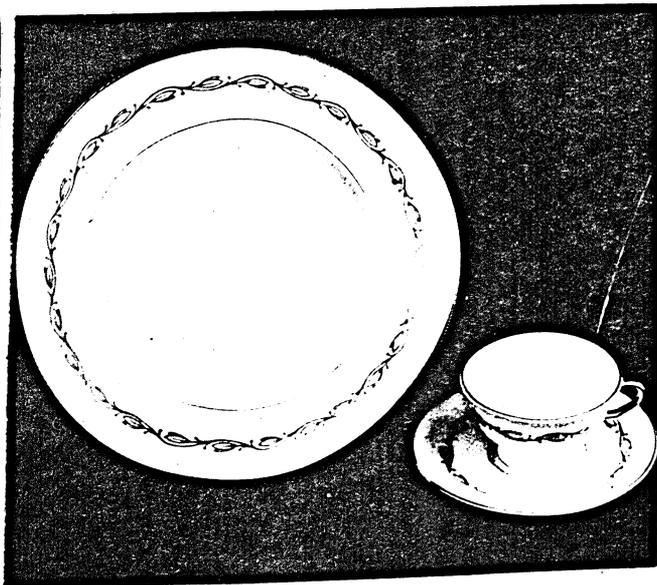


Figure 4

PLATE VII

FINE CHINA

- Figure 1. Franciscan China--Gladding,
McBean, and Company, Los
Angeles
- Figure 2. Syracuse Shellage China--
Onondaga Pottery Company,
Syracuse, New York

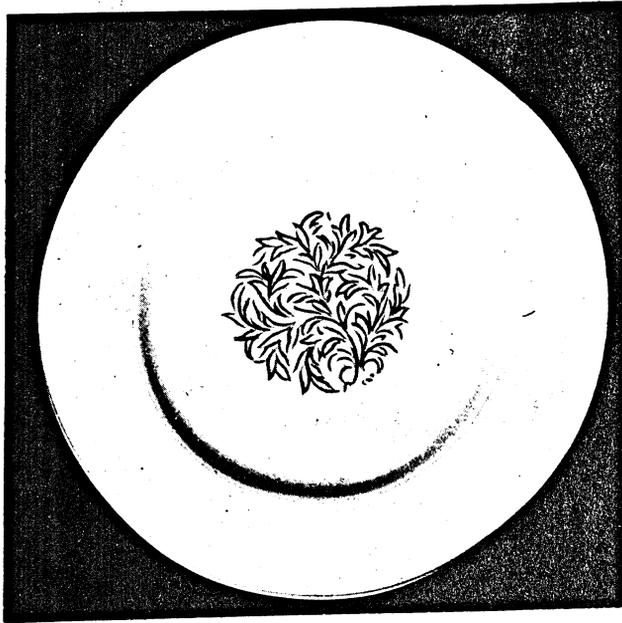


Figure 1

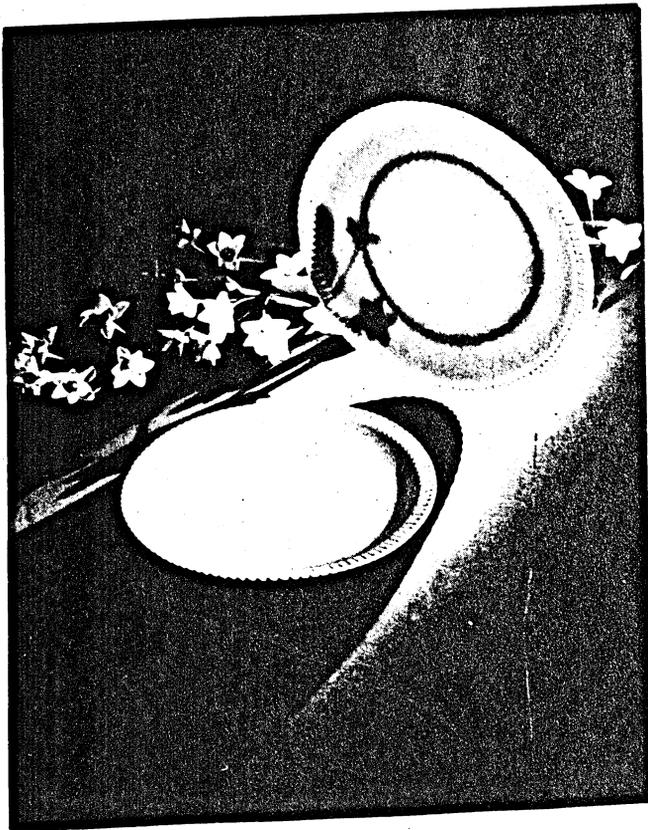


Figure 2

PLATE VIII

HOTEL CHINA

- Figure 1. Econo-Rim China--Onondaga Pottery Company, Syracuse, New York--
Photograph, College Cafeteria,
Texas State College for Women
- Figure 2. RimRol China--Shenango Pottery Company, New Castle, Pennsylvania

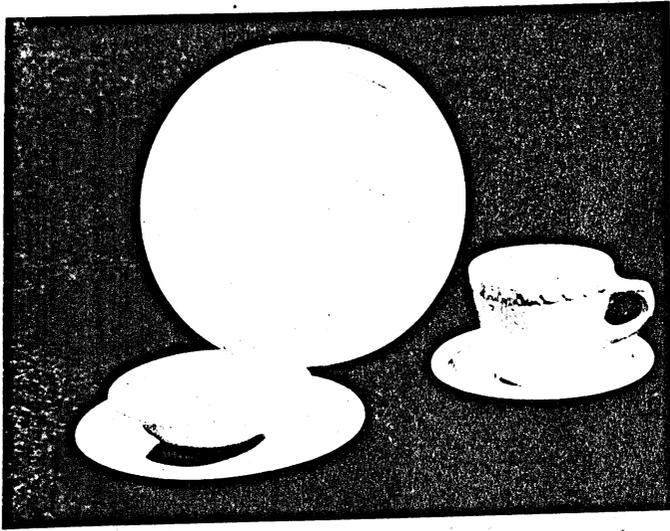


Figure 1

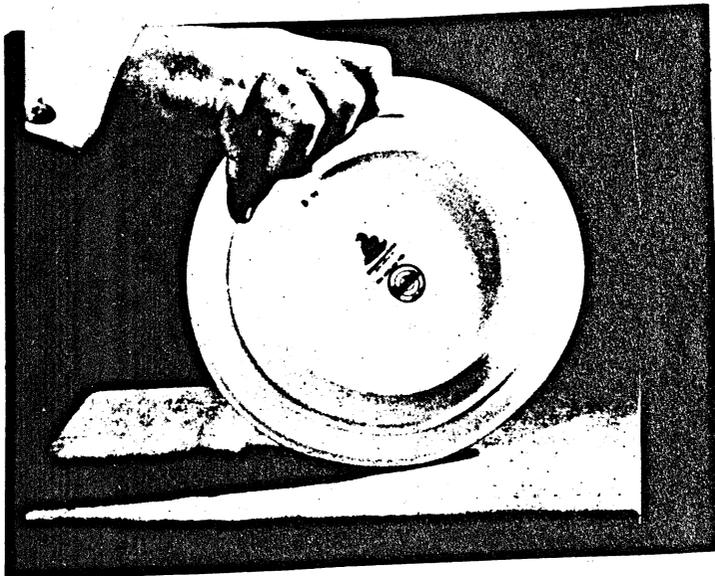


Figure 2

PLATE IX

MODERN TEAPOTS

Figure 1. Teapot Mold--Pot and Lid
Cast in One Piece--Purinton
Pottery Company, Shippenville,
Pennsylvania

Figure 2. Georgex Teapot--W.S. George Pottery
Company, West Palestine, Ohio

Figure 3. Tea-Guard Teapot--Purinton Pottery
Company, Shippenville, Pennsylvania

Photographs from Ceramic Industry



Figure 1

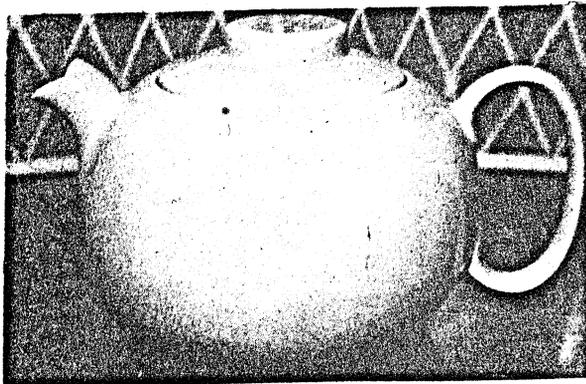


Figure 2

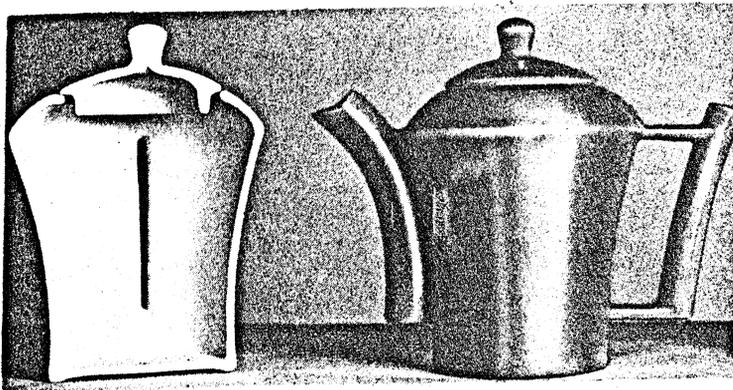


Figure 3

PLATE X

MASS-PRODUCED SEMI-VITREOUS CHINA

- Figure 1. Dinnerware--Edwin M. Knowles China Company, East Liverpool, Ohio
- Figure 2. Dinnerware--W.S. George Pottery Company, East Palestine, Ohio
- Figure 3. Eggshell Dinnerware--Homer Laughlin China Company, Newell, West Virginia--Photograph
- Figure 4. Dinnerware--Gladding, McBean, and Company, Los Angeles, California
- Figure 5. Dinnerware, Limoges China Company, Sebring, Ohio
- Figure 6. Dinnerware--Steubenville Pottery Company, Steubenville, Ohio



Figure 1



Figure 2

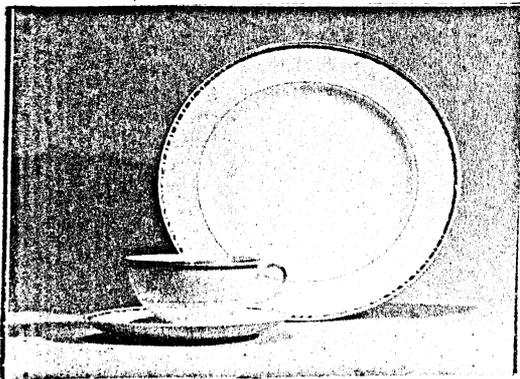


Figure 3

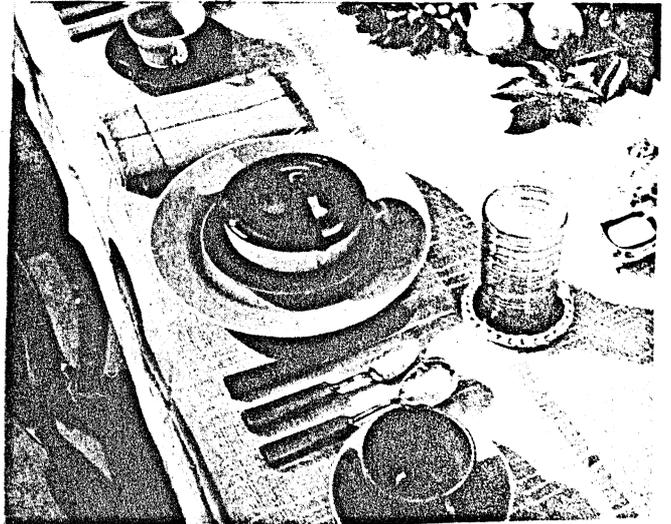


Figure 4



Figure 5

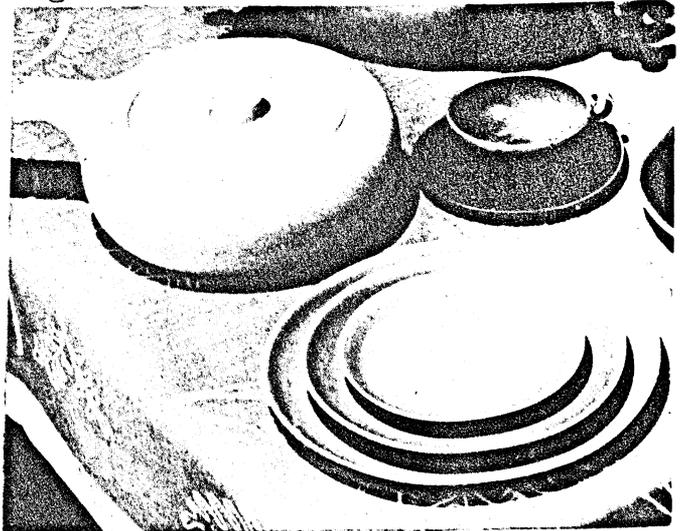


Figure 6

PLATE XI

FUNCTIONAL WARE

- Figure 1. Oven-Proof Pie Plate--Pacific Clay Products, Los Angeles--
Photograph from House and Garden
- Figure 2. Coffe Bottle and Mugs--Pacific Clay Products, Los Angeles--
Photograph from House and Garden
- Figure 3. Flame-Proof Double Boiler--Joaquin Potteries, Stockton, California--
Photograph from House and Garden
- Figure 4. Five and Ten Cent Store Dinnerware--
Mount Clemens Pottery Company,
Mount Clemens, Michigan--Photograph
from Life
- Figure 5. Water Jars--Frankoma Potteries, Sapulpa,
Oklahoma
- Figure 6. Pitcher and Mug--Frankoma Potteries,
Sapulpa, Oklahoma

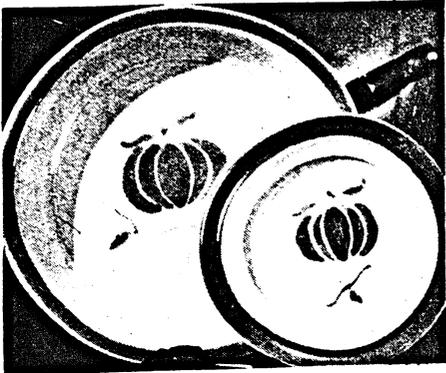


Figure 1

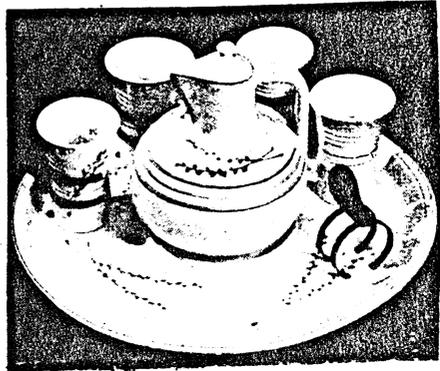


Figure 2



Figure 3

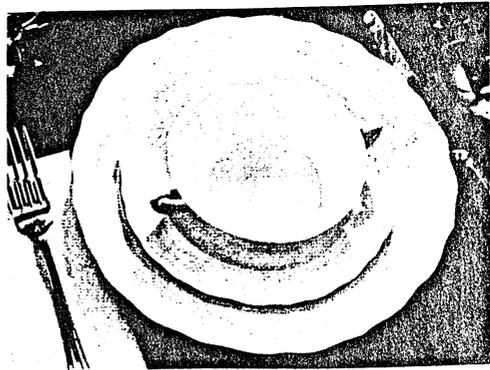


Figure 4

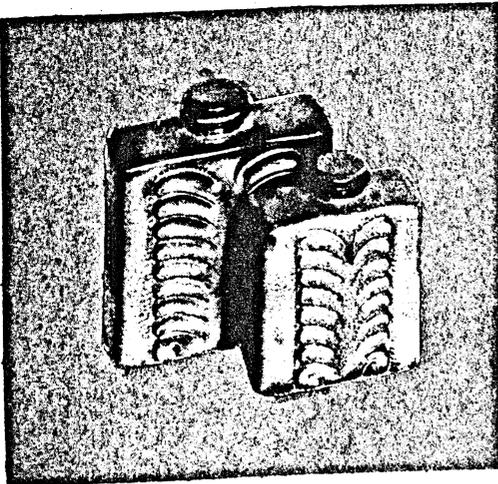


Figure 5



Figure 6

PLATE XII

STUDIO POTTERY

- Figure 1. Pottery--Rowantree Kilns, Blue Hill, Maine--Photograph from House and Garden
- Figure 2. Soup Tureen and Bowls--Southern Highlands, North Carolina--Photograph from House and Garden
- Figure 3. Pitchers--Shearwater Pottery, Ocean Springs, Mississippi
- Figure 4. Vases--Haeger Potteries, Incorporated, Dundee, Illinois



Figure 1



Figure 2



Figure 3

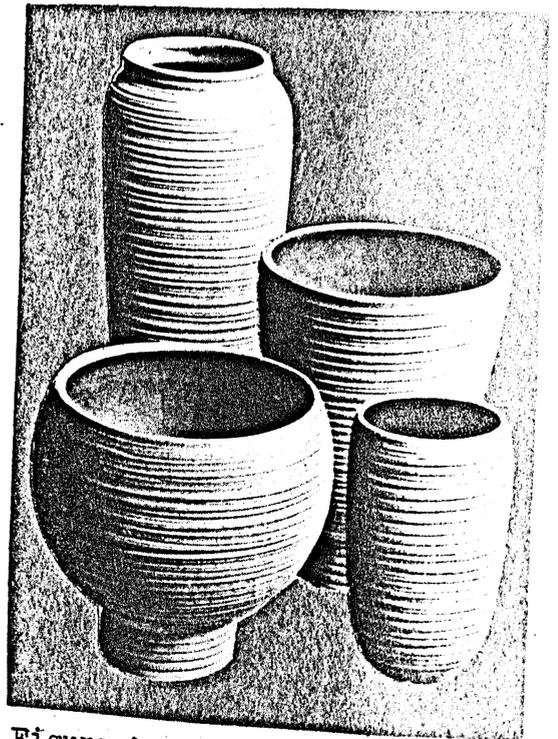


Figure 4

PLATE XIII

STUDIO POTTERY

- Figure 1. Pottery:
Plates--Cordelia Kuhlman, Texas
Mugs--Dorchester Pottery, Massachusetts
- Figure 2. Salt Glaze Stoneware--Jugtown Pottery,
Steeds, North Carolina
- Figure 3. Pottery in the Manner of the Pennsylvania
Dutch--Mrs. Naaman Keyser, Plymouth Meeting,
Pennsylvania
- Figure 4. Pottery--Pisgah Forest Pottery, Arden, North
Carolina

Photographs from House and Garden



Figure 1



Figure 2

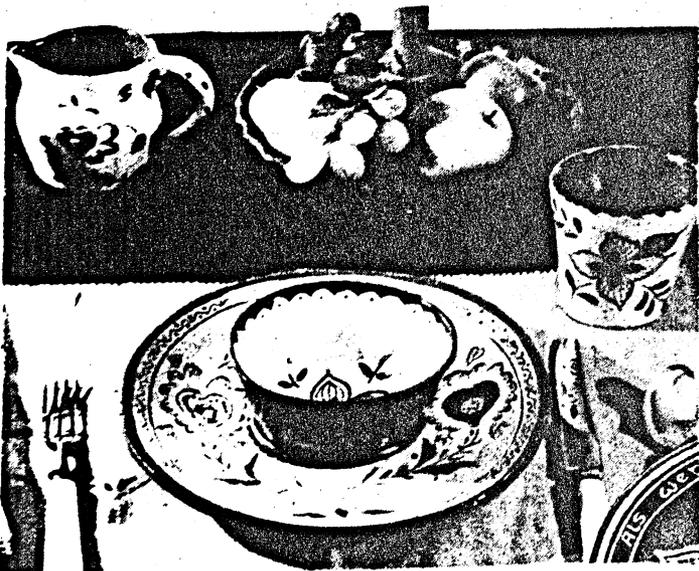


Figure 3



Figure 4

PLATE XIV

STUDIO POTTERY

- Figure 1. Pottery--Gertrud and Otto Natzler, Los Angeles
- Figure 2. Pottery--Mary and Edwin Scheirer, New Hampshire
- Figure 3. Pottery:
Bowl with Bark-Rough Glaze--Beatrice Wood, California
Whorled Platter--Laura Andreson, California
Jug--Jugtown Pottery, North Carolina
- Figure 4. Pottery:
Blistered Vases--Beatrice Wood
Bowl (rear)--Newcomb Pottery
Large Bowl--Mary and Edwin Scheirer

Photographs from House and Garden

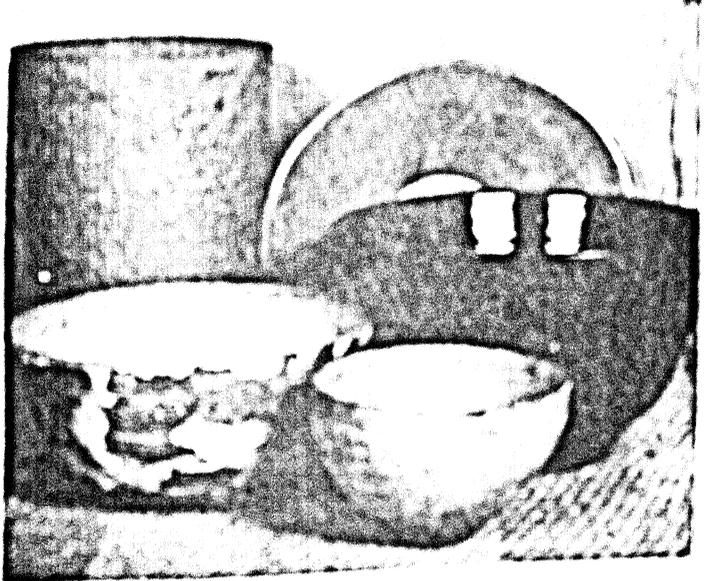
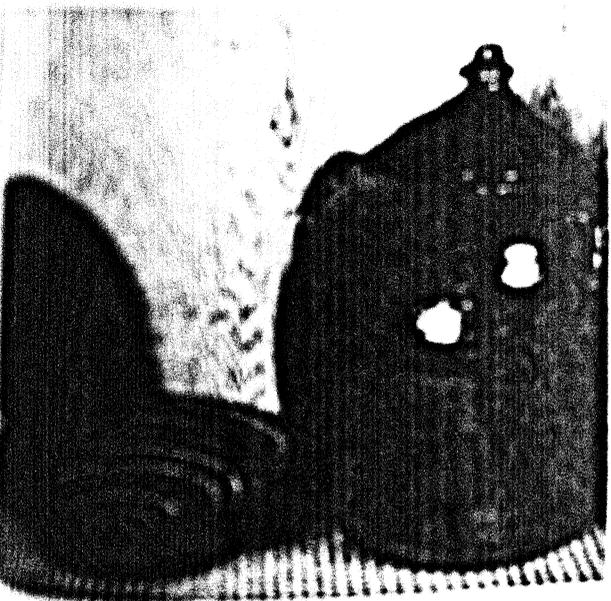
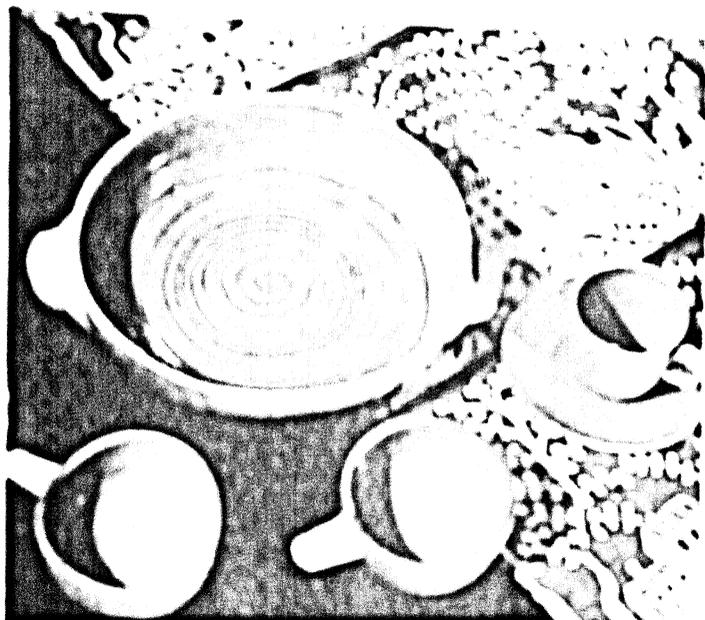


PLATE XV

STUDIO POTTERY

- Figure 1. Bowls--Glen Lukens, University of Southern California, Los Angeles--
Photograph from Keramic Kilns,
Denver Fire Clay Company
- Figure 2. Vases and Plate--Edgar Littlefield,
Ohio State University, Columbus,
Ohio--Photograph from Contemporary
American Ceramics, Syracuse Museum of
Fine Arts

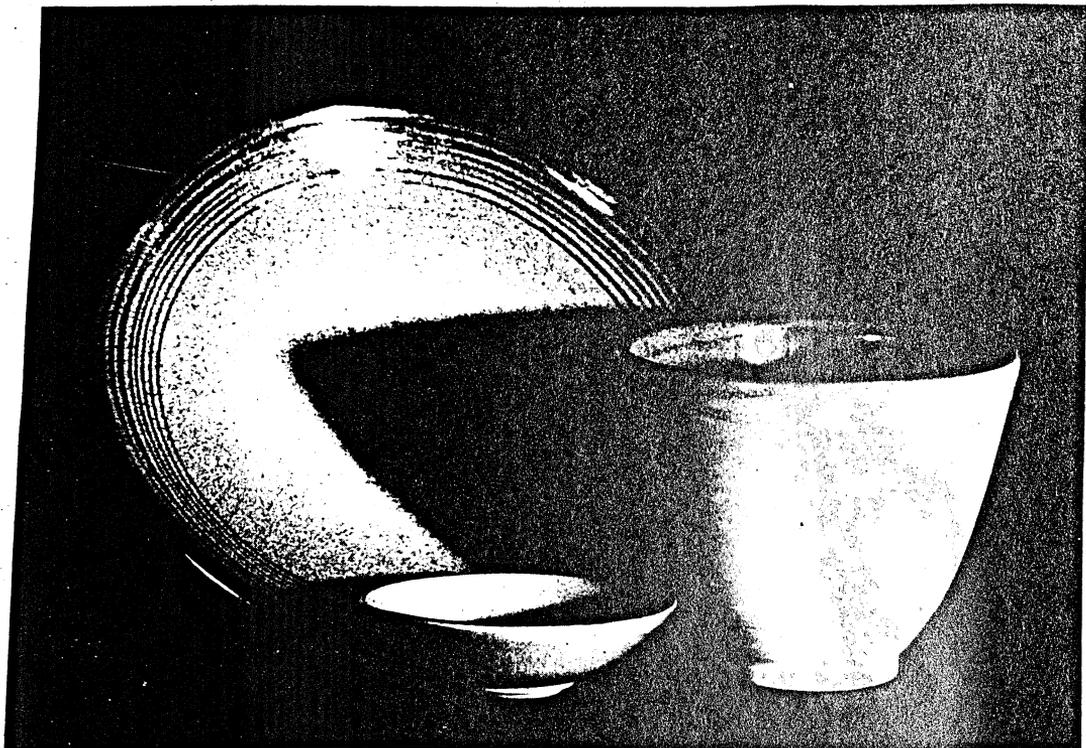


Figure 1



Figure 2

PLATE XVI

STUDIO POTTERY

- Figure 1. High Fired Ware--Charles Harder,
New York State College of Ceramics,
Alfred, New York--Photograph from
Contemporary American Ceramics,
Syracuse Museum of Fine Arts
- Figure 2. Bowls and Jars--Cranbrook Academy
of Art, Bloomfield Hills, Michigan



Figure 1



Figure 2

PLATE XVII

STUDIO POTTERY

Figure 1. Cups with Easy-Grip Handles--
Texas State College for Women,
Denton, Texas

Figure 2. Pottery--Texas State College for
Women, Denton, Texas

Photographs

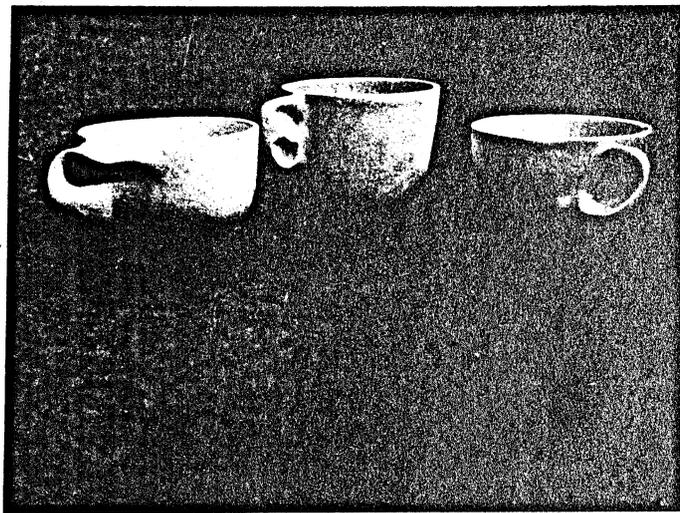


Figure 1

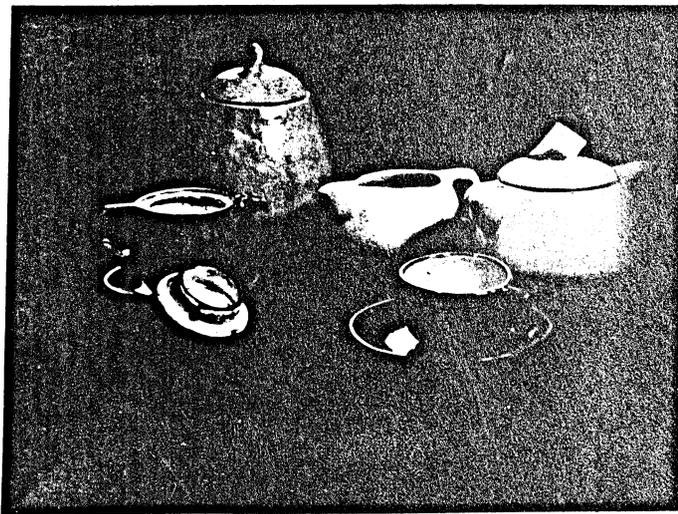


Figure 2

PLATE XVIII

STUDIO POTTERY

Figures 1. and 2. Food Warmers--Food in the smaller dish is kept warm by hot water, which can be poured into the larger dish through an opening in the cover--
Texas State College for Women, Denton, Texas

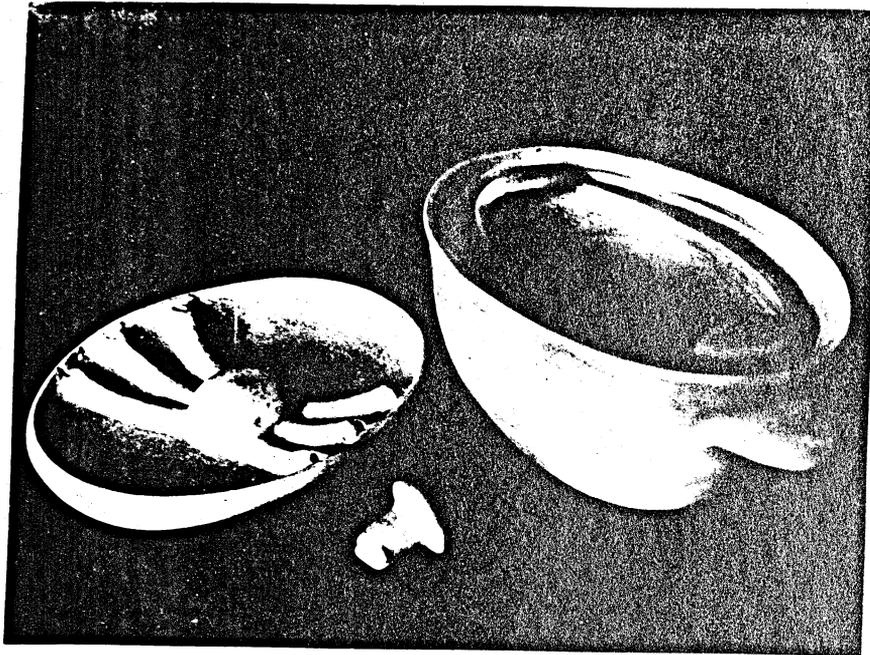


Figure 1

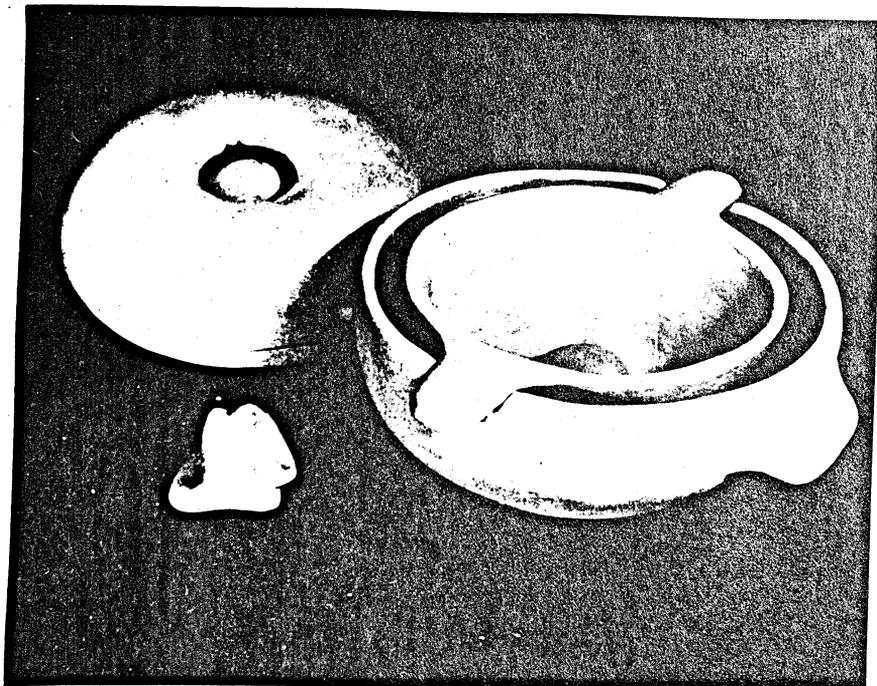


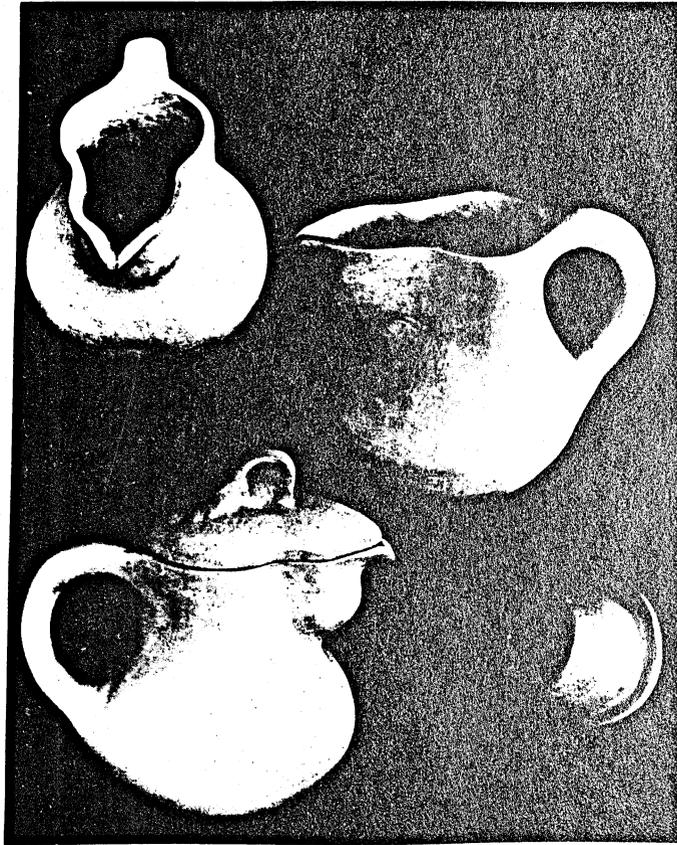
Figure 2

PLATE XIX

STUDIO POTTERY

Pitcher--The bulge serves to
control the flow of liquid as
it is being poured from the
pitcher--Texas State College for Women,
Denton, Texas

Photographs



THE CERAMIC INDUSTRY IN TEXAS AND POSSIBILITIES
FOR ITS FUTURE DEVELOPMENT

The first attempt to give the public any information concerning clay deposits in Texas was in 1903. At that time Dr. Heinrich Ries of Cornell University was employed by the University of Texas Mineral Survey to make an investigation of clay deposits in Texas. Since time and available funds did not permit an investigation of any new deposits, Dr. Ries' efforts were confined to known deposits, which were for the most part in the eastern section of the state. The results of this investigation were published in bulletin form in 1909.¹

No further study of clay deposits was made until 1919, when the State Bureau of Industrial Chemistry, under the direction of Dr. E.P. Schoch, installed a small kiln and other necessary equipment for testing clays sent in by interested persons in various sections of the state. So far, no appropriations had been made for a systematic search for clays of an economic value.²

In 1926 there was a felt need for an up-to-date bulletin. Accordingly, data taken from Dr. Ries' study and investigations

¹ A.D. Potter and David McKnight, University of Texas Bulletin, The Clays and Ceramic Industries of Texas (Austin, Texas: University Press, 1931), p. 5.

² Ibid.

made by Mr. A.D. Potter of the State Bureau of Industrial Chemistry were to be compiled and published in bulletin form. Much of this data was lost when a fire destroyed the chemistry building of the University. Many of the charred records were reconstructed, however, new tests were made, and the bulletin was finally published in 1931. It was published with the intention of

acquainting the public with the fact that the State Bureau of Industrial Chemistry is interested in the clay resources, and other such related fields as concrete, lime, and plaster, and is prepared to cooperate with parties who are interested in developing these resources.¹

At the present time, the Bureau of Industrial Chemistry is preparing a bulletin pertaining to the ceramic development in the state. This bulletin will be ready for publication late in the year 1944.²

Texas is still largely an agricultural state, although, within recent years, it has shown considerable industrial development. This development has brought with it a demand for various structural products, especially those of a more permanent nature, such as brick, tile, terra cotta, cement, glass, and many others.³ All of these could be manufactured in Texas, since, according to investigations made over a period

¹Ibid., pp. 6-7.

²Letter from Dr. Forest K. Pence, Bureau of Industrial Chemistry, April 25, 1944 (Austin, Texas).

³Potter and McKnight, op. cit., p. 10.

of years, the clay resources of Texas are quite extensive, and range in quality from common brick clay to kaolin of the highest purity.¹ Materials for the production of glass products and concrete are also available.²

The manufacture of ceramic products is one of the state's leading industries. The cement industry ranks first; and the clay products industry, second. At the present time, however, the clay products industry is confined largely to the manufacture of heavy products, such as brick, hollow tile, and sewer pipe. In the last few years there has been an increase in the number of firms manufacturing decorative ware.³ Other products, such as semi-vitreous and porcelain tableware, sanitary ware, roofing tile, and terra cotta for ornamental structural use are bought in markets outside the state.⁴

Dr. Forest K. Pence of the ceramic division, Bureau of Industrial Chemistry, has studied the possibilities of ceramics in Texas for a number of years.⁵ Besides materials for the production of heavier products, investigation in the field of materials required for the manufacture of tableware and glassware has revealed that all were available within the state.⁶

¹Ibid., p. 14.

²Forest K. Pence, "Report on Ceramics," A Resume of Work Being Done by the Ceramic Department, Bureau of Industrial Chemistry, University of Texas, 1944, p. 1.

³Potter and McKnight, op. cit., pp. 10-12.

⁴Ibid., p. 16.

⁵The San Antonio Light, April 3, 1944.

⁶Pence, "Report on Ceramics," p. 1.

At a gathering of the Texas Industrial and Commercial Council held in Austin, Texas, in the spring of 1944, excellent examples of chinaware made from Texas materials were exhibited. Standard porcelain mixtures were sent to eastern factories where the ware was made, tested, and pronounced satisfactory.¹

The Bureau of Industrial Chemistry is seeking to stimulate the development of Texas' resources into sound small industries that will profit communities of the state and afford post-war employment.² At the present time, some small studio potteries in Texas are selling their output in New York, Chicago, or Los Angeles. In the ceramic field, there is great opportunity for the development of small industries in many communities throughout the state.³

In the outlined plan for development of the ceramic industry in the state of Texas, Dr. Pence states that the industry is based on four corner stones: fuel, labor, raw materials, and market.⁴

Natural gas, which is the ideal fuel for ceramic manufacture, is available in the state to a degree perhaps not equaled in any other section of the country.⁵

¹Ibid.

²San Antonio Light.

³Pence, "Report on Ceramics," p. 2.

⁴Ibid., p. 1.

⁵Ibid.

The type of labor generally available would be principally Latin-American, and especially adapted to clay manufacture operations.¹ In the past, Texas has lacked technical training and appreciation of industrial opportunities. All that, however, is beginning to give way before a wider interest in the logical development of our resources, and the use of scientific and practical knowledge available at our universities and colleges. The staffs of these institutions, states Dr. Pence, "are willing to place their accumulated information at the disposal of large or small manufacturers."²

Raw materials Texas has in abundance. Common brick clays are found in most of the counties of the state. Clays used by studio potters are found in various sections of the state, the largest deposits being in the east central and north central areas.³ The principal locations of the minerals necessary to the production of tablewares are: kaolin in West Texas near Marfa, ball clays in East Texas near Henderson, feldspar and silica in the Llano area.⁴ There has also been found a deposit of white-firing montmorillonite, a mineral used in the production of porcelain.⁵

Besides materials necessary to the production of

¹Ibid.

²The Dallas Morning News, March 9, 1944.

³San Antonio Light.

⁴Pence, "Report on Ceramics," p. 1.

⁵Potter and McKnight, op. cit., p. 140.

tableware, materials basic to other industries were studied, particularly those relating to glass, structural clay products, refractories, and cement. In the last three years, various industries of this type have been established--two glass plants, two refractory developments, and the manufacture of white Portland cement.¹ Another material, vermiculite, when combined with clay, will produce a structural unit possessing a combination of high insulating value and great load-bearing strength. Such a unit can be decorated and glazed to give an impervious surface. However, pilot plant operations are needed to make this product available. Such material would be excellent for structural use, particularly in Texas climate.²

Dr. Pence believes that the establishment of a pilot plant in Texas will give invaluable service to all ceramic producers. Such a plant, similar to the one being planned at Ohio State University, would embody the features of a ceramic experiment laboratory and pilot plant, where various types of wares could be produced and subjected to thorough tests, including their reception on the part of the public. Such a plant would also have to do with the matter of design, a vital factor in the economic success of any product.³

The fourth corner stone, market, has been studied extensively. Special emphasis has been placed on certain types

¹Ibid., p. 2.

²Ibid., p. 4.

³Ibid., p. 3.

of wares, such as table glassware, semi-vitreous and porcelain tableware, hotel china, kitchenware, crockery, and decorative ware. This group represents great potentiality for the creation of new ceramic industries in the state. These would come under the heading of small industries, which are now receiving so much emphasis.¹ The location of factories near fuel and supplies and near transportation centers is of vital importance.²

Texas is acknowledged to have the greatest opportunity for ceramic industry of any state, and could logically support a program exceeding that of Ohio, where the industry is in advanced stages of development.³ Interest in such a program is being felt in increasing measure, as numerous requests have come into the Bureau from communities that are looking forward to peace-time employment problems.⁴

What has been said of Texas clay might apply to Texas' salt, sulphur, limestone, granite, serpentine, graphite, gypsum, and other minerals, the processing of which could be expanded into new fields of chemical and technical importance. Texas has its own sources of iron and magnesium, and industries based upon these metals will find logical expression.

¹Ibid., p. 2.

²San Antonio Light.

³Pence, "Report on Ceramics," p. 3.

⁴Ibid., pp. 3-4.

There is adequate Texas capital to finance industrial expansion. That capital should join with science and research to lay the foundations of a better balanced Texas and southwestern economy.¹

¹The Dallas Morning News.

CHAPTER VI

CONCLUSION

A scientific industry as ancient as man is coming into its own. This is the ceramic industry, which began as an industrial art, rather than a science, when primitive man made crude vessels from the clay found near his home.¹ Through the centuries, ceramics has grown into an ever-increasing, ever-developing system of industries.

Even before the present war, ceramic raw materials were involved in industrial chemical operations. They were basic in the processing of many metals, and were an integral part of such sciences as radio and electrical engineering. Today Ceramics have become more important than ever.² The demands of war have resulted in the finding of many new uses for ceramic products as substitutes for strategic raw materials.³

A few of the many new ceramic products, some of which are already on the market, include: various types of cooking ware, drip coffee pots, refractory fireplace grates, space heaters, costume jewelry, buttons, and picture frames.⁴ (See

¹H.G. Fisk, "Ceramics Today," Design, April, 1944, p. 21.

²Ibid.

³Anonymous, "Wartime Position of Pottery Outlined; Substitutes for Strategic War Materials," Crockery and Glass Journal, September, 1943, p. 38.

⁴Ibid.

Plate XX).

Other ceramic materials have been used in the production of essential products to take the place of metal. Silicate products, principally glass, are the basis for a large portion of articles, such as precision mirrors and lenses, tableware, food and fuel containers, and "glass wool," a glass insulating material.¹

Another important ceramic material is enamel. It is being used extensively to replace aluminum. It is also being used as linings for water and steam pipes and hot water heaters. When used as a surface covering for brick and other construction materials, it is not only decorative, but serves as a protective finish.²

Great strides have been made and new trends have been set by American designers and manufacturers. During post-war years, Americans will again have to meet the problem of competition. However, Viktor Schreckengost, ceramic artist, believes that the development of new and better products will continue after the war, because the chance for designers comes not so much in a flush market, but rather in the years when competition is keen. He points to the fact that the years between 1930 and 1940 was a period of great development, particularly in the ceramic industry. These years marked, too, the beginning

¹Fisk, op. cit., p. 21.

²Ibid.

of the design-conscious age in all fields. With competition problems to face again, there will be, as in the past, a striving on the part of the manufacturer to improve his products. The worker will help to produce better merchandise. The buyer will be eager to try new ideas. The customer will be more careful and selective.¹

As in other industries, so it is in the tableware industry. Now, we have a market practically to ourselves. As soon as the war is over, however, we shall again have to meet the problems of competition in manufacturing and design.

In manufacturing, there will be competition in production. More than ever before, Americans must think in terms of machine manufacture. Simplified production will be the keynote. The best must be made, and it must be made economically.

In design there will be similar problems to solve. The designer will have to adjust himself to what the machine can do, if he is to keep abreast of the times. He must make his designs work in harmony with this type of production.

The vast portion of the public has been supplied and will continue to be supplied by mass-production, which, of course, means mass-production methods. As we have seen, the trend in mass-production is more and more toward the production of better bodies and sound shapes and decorations that can be

¹Viktor Schreckengost, "Will American Buyers Play Ball with Manufacturers?" Ceramic Industry, December, 1940, p. 36.

manufactured with the utmost economy, and marketed at a moderate price. In the manufacture of tableware, the number of items has been eliminated. Many pieces have been designed to do double duty.¹

Designers must keep in mind the after-war market, and plan to produce that which will help keep American products foremost, both in design and quality.² The modern plant of today will be outmoded by the post-war plant. American engineers are learning that many engineering feats can be done which were thought impossible a few years ago.³ Tomorrow's problem, when the peace is won, will be the utilization of the resources now being developed. American industry must plan ahead, so that it will be prepared for the problems of sudden peace. Intelligent and farsighted design-planning offers a solution to this question.⁴

¹Vincent J. Broomhall, "Art and Design," Ceramic Age, January, 1943, p. 9.

²Ibid.

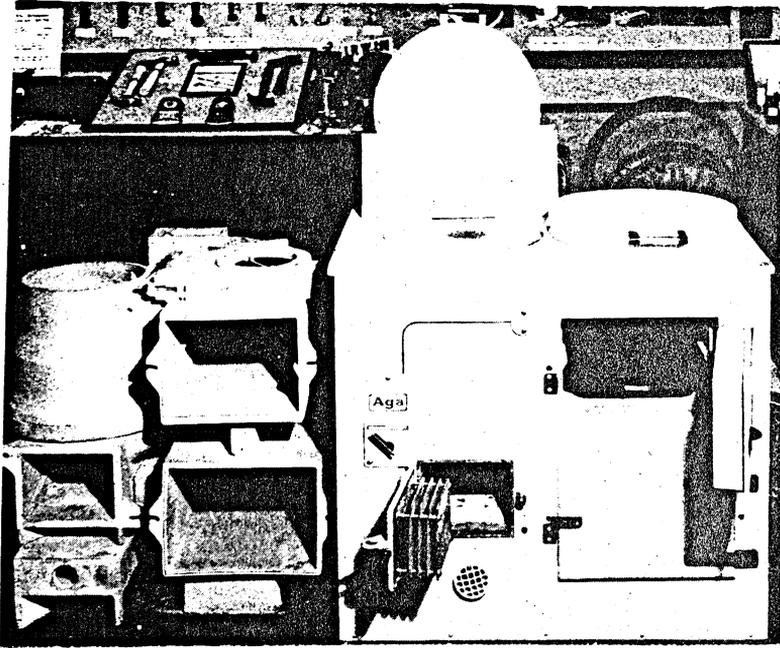
³W.H. Hebenstreit, "Address Made at Annual Convention of United States Potters Association, appearing in article, "High Activity Prevails at Potters' Convention," Ceramic Age, January, 1943, p. 8.

⁴Peter Miller-Munk, "Designing for Tomorrow," Ceramic Age, April, 1943, p. 116.

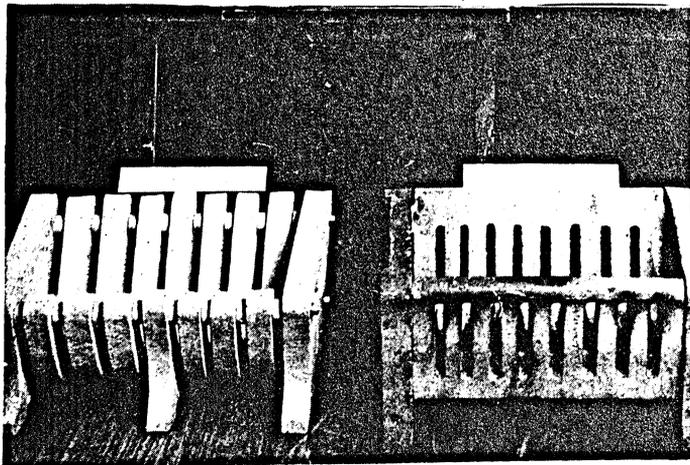
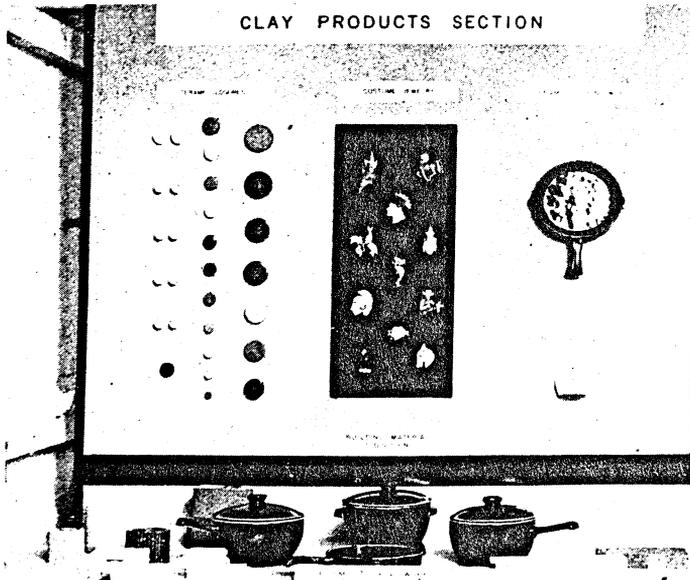
PLATE XX

NEW CERAMIC PRODUCTS

Photographs from Ceramic Industry



CLAY PRODUCTS SECTION



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