CLOSELY following upon the art of tilling the soil, the arts of the spinner, the weaver and the potter arose for the convenience and the embellishment of human life. The last named function fell especially to the potter, by reason of the substances in which he wrought and the uses to which his finished creations were put. His products, at once satisfying primary needs and ministering to the aesthetic sense (which is developed early in the course of civilization), have continued to be essential and interesting to all races and all conditions of men. The art must necessarily advance with the life which it serves, and it is safe to predict that it will hereafter pass into phases of which, at present, we have no conception. Although the union of use and beauty in fictile objects attained, among the ancient Greeks, the greatest perfection that it has yet known, this union, dissolved for ages, seems now on the point of being renewed in a modern sense. In the simple life of the most symmetrically developed people known to history, vases served one of the most extensive material uses of daily life. Not only were they vessels for serving food and preserving foodstuffs, like their modern descendants, our own jars, pots and dishes: they were, beside, all that our tables, desks, chests of drawers, trunks, wardrobes and presses represent in our complex life. On occasion, indeed, they were large and substantial enough to house the homeless; as we know from the case of Diogenes, the Athenian, whose "tub" was a great earthen vessel, properly represented, no doubt, by the French painter-archeologist, Gérôme, when he pictured the visit of Alexander the Great to the philosopher. The size of the vessel there shown excites doubt in the mind of the spectator unacquainted with the history of ceramics. But one interested in this branch of the useful arts, proceeds to imagine the "tub" as having been a vessel designed for
some mercantile purpose; as having been stopped in its career of usefulness by breakage, as the great shard wanting in its side witnesses; and as carried outside the walls, in accordance with the strict Athenian laws that nothing should pollute or litter the city.

The lover of the potter’s art delights to be brought into contact with the remains of classic antiquity. He wishes earnestly that the great amphorae might again be brought into service, if for no other reason than to please the eye with their beautiful, graceful forms. But an aesthetic revolution, a destructive Reign of Terror, in all that concerns household and farm utensils, would be necessary to reinstate a rule of simplicity comparable to that which prevailed among the rich landed proprietors of Greece and Italy, when they preserved their corn, wine and oil in earthen jars; the vessels being perfectly adapted to their use and, at the same time, modeled upon the most graceful and subtile curves known to mathematics: the slender, pointed termination serving to bury the jar in the sand of the cellar, so that the foodstuff contained in the vessel might be kept pure, and the two handles from which these vessels derive their name (amphi, both, and pherein, to bear) filling the double office of use and beauty. Such specimens we have seen preserved from the excavations of the house of the Roman empress Livia, on the Palatine Hill, Rome, or in situ, in the so-called vine-vaults of Diomed, at Pompeii; we have them also no less perfectly preserved in the verses of Horace, and we can only wish that it were possible to find vessels as inexpensive, as adaptable, as beautiful as these, doing service, among our rural people. The conditions of climate which determine production, and our modern modes of life do not permit us to adopt the antique and exotic shapes, however exquisite they may be, but these “museum objects” can teach us the valuable principles so well understood by the Greeks and by the modern Japanese as well: that we should possess few objects intended for pure ornament, but that our things of daily use should be educative and artistic.

To accomplish by exertion that which has been effected without effort by natural endowment is difficult, if not impossible. But it would now seem that, in the decorative and the lesser arts, the Americans are advancing rapidly to join the beautiful with the
Potters and Their Products

useful. And in no division of the many-branched subject is the tendency so evident and so praiseworthy as in the art of the potter. The use in many instances of the material nearest at hand; the regard for intrinsic value pure and simple absorbed in the desire to create something of higher merit; the conversion of the ugly into the beautiful by the power of care and thought: all these elements of success have, in this art, as practised in our country, wrought their usual results: which have been as usual, slowly attained, but which are well worth all the anxiety, labor, resources and devotion they have cost.

Difficulties successfully surmounted are soon forgotten, yet for the encouragement of struggling craftsmen in other branches of experiment, it is not time wasted to indicate a few of the more serious obstacles which confronted the earlier American potters and delayed the development of their art until recent years. The first was a commercial obstacle. For, until 1861, the low import duty prevented the native potter from competing with the foreign producer, even in simple, domestic wares. But once the incentive given by a protective tariff of forty per cent., the development of the industry proceeded with wonderful rapidity, as we may find by reviewing the gratifying results of the last four decades.

The second obstacle lying in the path of the earlier American potter and one not yet wholly removed, was the disregard of the public for native work: a prejudice so deep and extended as to cause the most sincere American producers to disguise their wares under foreign names and marks. But this precaution is a necessity of the past; the excellence of American work is recognized, perhaps, even envied abroad, and the visitor to the choicest, most exclusive shops of London and Paris observes with pleasure that the chief ceramic productions of the United States are shown side by side with the old and world-famous wares of England and the continent. And not only should this result be pleasing to every patriotic American; for the means which led to the result, are equally to the credit of those who employed them. Our native pioneer potters had neither royal protection nor wealthy and noble patrons to foster their talents and work. The Government under which they labored lent them no material or artistic support. Thus,
Potters and Their Products

forced to take themselves the initiative, having formed a national association in 1875, they proceeded to found schools at various points of the country (Philadelphia; Trenton, New Jersey; and Cincinnati, Ohio) for the instruction of those workers in potteries who might display talents for modeling or for decorating.

In the case of the measure just described, history never fails to repeat itself. School studios, since the times of the masters of the Middle Ages and the Renascence, have been the most powerful factor in developing art, and to cite an instance no more remote than that of England in the nineteenth century, it was technical schools that caused, within a single decade, the rise of British ceramics to a point sufficiently high to warrant the sending of a commission from France charged with investigating the causes of such rapid development. The establishment of similar studio-schools at Limoges, France, fifty years since, laid the foundation of the Haviland fortune, and, better still, wrought much for the advancement of the potter's art. The association and collaboration of American potters supplied the place of government support, and, to-day, the future promises as great rewards of success and reputation to them as to the great private enterprises of England, or to the potteries controlled by the most powerful governments of the Continent.

Beside, to further the progress of the ceramic art among us, we have all natural aids and resources. We possess not only our recently developed skill and our growing artistic sense. We have also a great variety of clays, an abundance of fuel, together with cheap and rapid means of transportation. In considering our mineral riches which are adapted to ceramic uses, a recent investigator has made the following interesting statements: "In nearly every section of the United States, materials are now known to exist in great quantities, only awaiting development and improvement. Fine deposits of kaolin are found in Delaware, South Carolina, Pennsylvania, Missouri, Illinois, Indiana, Connecticut and New York. New Jersey is rich in ball and fine clays. Feldspar and quartz, or silica, abound. Our mines and deposits are simply inexhaustible, surpassing any found in Europe, and, in a few years, with better facilities for preparing the materials, the cost of the
Group of Vases in Chelsea (Mass.) Faience
"Air" and "Water" Panels shown at Columbian Exhibition
by the Low Tile Company, Chelsea, Mass.
Potters and Their Products

same will be greatly reduced. For these discoveries of valuable deposits we are indebted to the state geologists who, within a comparatively short period, have brought to light these facts concerning potters’ clays."

Owing to this acknowledgment of the resources at their command, our native potters are rapidly extending the uses of their productions; to the end that their art may utilize and be found equal to the means so generously provided by Nature. They are also skilfully adapting this wealth of material to the production of all varieties and distinctions of ceramics known to the craftsmen of the Old World.

Such varieties and distinctions are found stated with more or less precision in every manual relating to the fictile art. But yet, as the greater number of individuals are “eye-minded,” and as fine points of difference are liable to escape all save the experienced, a few words regarding the principal classes of ceramics will not be here amiss. These classes, strictly limited, and represented by the specimens most generally produced and seen in America, may be defined under the heads: Stoneware; Terra Cotta; Faïence; Porcelain.

The first-named composition, Stoneware, is formed from clay and sand, and glazed, not by dipping or painting, but simply by throwing salt into the kiln when the ware is nearly fired: a simple process which perfectly vitrifies the surface. The ware is strong, impervious to the action of acids, and therefore peculiarly adapted to use in household utensils, chemical and sanitary apparatus. Its possibilities of beauty, too, are large: these arising from the colors of the clay employed, which are a rich Rembrandt brown, cream-white and gray approaching a slate tone. In the European model we find the grès de Flandres: that is, the gray variety, fashioned into the favorite “Graybeard,” or “Bellarmine” “steins” or tankards, decorated with sculpturesque and detailed designs. On the contrary, in the most artistic specimens of the same ware made in America—barring those which are purely imitative of the German or Flemish originals—the historical decoration is abandoned in favor of floral patterns applied in cobalt blue; as is instanced in the admirable “Frackelton blue and gray,” which can not be too highly
Potters and Their Products

praised as a use of the simplest materials and processes to the attain-
ment of a most artistic result.

The ceramic products included in the second division, Terra Cotta, are, for the most part, in America, devoted to architectural
purposes. Such specimens are made largely from vitreous clays,
and appear in red, cream and pure white,—in the latter the least
often; as, in this case, the requisite degree of hardness is attained
with difficulty. The qualities possessed by this variety of Terra-
Cotta are such as fit it for exposure. It is non-absorbent. It re-
sists fire and corrosion to a great degree, and for the architect it is a
medium easily treated, in either mass or detail.

The first Terra-Cotta Works in this country were, presum-
ably, those established by Abraham Hews, at Weston, Mass., pre-
viously to 1765, and which, a century later, were removed to North
Cambridge, in the same State, where they are still conducted by a
direct descendant of the founder. This pottery made itself famous
for its reproductions of antique vases and its fine models of foun-
tains and other garden ornaments; while more recently established
works, at other Eastern points, in the Middle States, the West, and
even the South, devote themselves to the production of subjects in
relief, designed for either exterior or interior decoration. Terra-
Cotta, the most durable of all building materials, has been struct-
urally used since remote times in continental Europe. It was thus
treated with special success in Italy, during the Renascence, and it
was introduced thence into England, as early as the fifteenth cen-
tury; there attaining a peculiarly attractive and distinctive style.
Upon the occasion of its first use in America, at the middle of the
nineteenth century, it was ill-received by architects as a body; but
it has advanced in public favor, until it is now seen in pediments
and panels, friezes and figures, playing a role at once structural
and decorative, and it is recognized as an important, rich, and
pliable medium of artistic expression. Assuredly in this branch,
as in several other classes of ceramics, we have just cause for pride
in our native potters, who have adapted old ideas to new conditions
with a brilliancy all their own.

We have now reached the third of the four classes of ceramics
to be defined, and the one which includes the greatest number of
Potters and Their Products

American wares. This class is known under the generic name of faïence, a term somewhat loosely and inaccurately applied. When we hear it, we recall the old Italian town, Faenza, whose potters were renowned toward the end of the fifteenth century: they producing a ware coated with a stanniferous (tin) glaze, and which was copied extensively, in all that relates to material and process, by the Frenchmen who produced the Rouen ware so eagerly sought by collectors, and the Henri Deux Faïence, whose rarity and beauty are too costly to be found outside of national museums. But as the word faïence is now used, it is, like charity, a cloak for a multitude of sins, and under its name are perpetrated many crimes in ceramics. It is discussed by Webster, with that lack of scholarship so often characteristic of his definitions, as: "a collective name for all the various kinds of glazed earthenware and porcelain." To modify this statement, it must be remembered that faïence is pottery, and not porcelain: the distinction between the two divisions being that the former is opaque, and the latter translucent. Further, the term, as accepted in America, receives sufficient explanation in the book upon "Pottery and Porcelain of the United States," by Dr. Edwin Atlee Baker, who defines it as the name applied to our native products of underglaze pottery, notably the Rookwood and the Chelsea (Massachusetts) wares.

Our fourth division of ceramics is less difficult to establish than the preceding one, and yet, it contains its own contradictions. The three essential qualities of Porcelain are hardness, whiteness and translucency: hardness being understood in the potter's sense: that is, a strong power of resistance to fire; whiteness and translucency being accepted in relative degree, as, in some examples, the translucency is very slight, while in the same or other cases, the paste may approach a creamy tint. A more subtle difficulty of classification occurs in the sub-division of porcelain into two varieties, according to certain qualities of substance. Regarding this distinction, M. Louis Solon, once of the Sévres, and afterward of the Minton, England, Works, has thus authoritatively expressed himself:

"Porcelain is the generic term employed to designate all kinds of pottery to which an incipient vitrification has been imparted by
Potters and Their Products

firing. This translucent pottery may be broadly divided into two classes: 1. Hard Paste, containing only natural elements in the composition of the body and the glaze. This is the hard porcelain of China and Japan, and that of Europe made upon the same principles. 2. Soft Paste, where the body is an artificial combination of various materials, agglomerated by the action of fire, in which the compound called a *frit* (sand and alkali) has been used as a substitute for natural rock. The glaze with which this is covered is a glassy mixture. To this class belong the early Italian and French porcelains (Sèvres before the middle of the eighteenth century), and the larger part of English china.” Extending this definition, Professor Charles F. Binns, in his “Story of the Potter,” thus comments: “The constituents of hard porcelain are china-stone and china-clay; the former being a soft granite known to mineralogists as pegmatite. The glaze consists largely of pegmatite mixed with a small quantity of alkali, usually obtained from the ashes of some plant. Soft porcelain is altogether different. In this, the *frit* (which has been subjected to heat sufficient to cause its two elements to unite) is crushed and mingled with certain other substances, including a little clay to give some slight plasticity, and when the required articles are made, they are subjected to a degree of heat that causes a certain amount of fusion. In this case, the glaze is, for the most part, composed of red lead, sand and clay. It will thus be seen that the Soft Paste is only a clever substitute, or makeshift. But in the absence of the true constituents the potters made the best of a bad situation, and so well did they succeed that the soft porcelain exceeds the hard in beauty.”

With the above-quoted comments the description of the wares most commonly made and seen in the United States may end, and we may now advance to the consideration of certain specific products which, after a short experimental period, have made a number of our ceramists prominent among the workers of the world, and, which, in a few instances, now claim the first place among the modern articles of their kind.

A typical example of these points occurs in the case of the Low Tiles, produced by the noted pottery, at Chelsea, Massachusetts, of which the history is interesting and significant from several points
Potters and Their Products

of view. It is the story of a brilliant success based upon the severe struggle of one man against the wealth, experience and solid reputation of many powerful opponents.

The enterprise dates from less than a quarter of a century, and began in 1879, when Mr. John G. Low turned his attention to experimental pottery, after having studied in Paris as a painter under both Couture and Troyon. Thus to the art-craft in which he was destined to attain such happy results, he brought a technical knowledge of drawing, modeling and, above all, of color: the basis of his success, as we may now see by reference to the characteristics of his beautiful products. At the outset, he lacked the practical use of his medium, and this he was forced to acquire slowly, painfully, and with great pecuniary loss. The problem which he set himself was how to produce in America, at a moderate cost, tiles similar to those of English make, which were the result of tedious and expensive processes, but which yet controlled the markets of the world. He first applied himself to methods of bas-relief decoration, in which lay the greatest difficulty of the entire scheme. He was confident that if he could master this first process, success lay before him in large measure. At his press, therefore, he worked early and late, for a period of nearly two years, repeating the experiences of the potter Palissy in all save the bitter poverty of the staunch Huguenot. Mr. Low's struggle was indeed that of "the survival of the fittest," and to it he sacrificed all the modern resources of his craft. His continued experiments with clays, glazes, fires, fuels and kilns seemed a study in the mathematical laws of permutations and combinations, with the desired result dependent upon an infinitesimal quantity. The story of the struggle—especially of that part which relates to the press—was dramatically told by the artist, Mr. F. D. Millet, in the Century Magazine for 1882, when the events were yet fresh and the triumph was new.

The relief tile as definitively produced at the Low Pottery and, indeed, as it is made at all other tile works in America, follows a method for making buttons which was patented in England some sixty years since. This, known as the "dust" process, consists in slightly moistening the dry, powdered clay and subjecting it to great pressure in dies containing the designs to be impressed upon
the tiles, which are afterward glazed or enameled. These relief tiles, when perfected, became the best-known product of the Pottery, but the experiments incident to them caused the invention by Mr. Low of a process which he styled “the natural.” It suddenly occurred to him—as he relates through his sympathetic biographer, Mr. Millet, that it might be possible to stamp any form whatever upon the face of a tile, just as the name of the maker is stamped upon the back. Acting upon this thought, he seized a mullein leaf near at hand, and, after pressing it into a newly made tile, removed it to form a matrix. This concave mould he lined with tissue paper, over which he piled a mass of prepared clay or “dust,” and having exerted a strong pressure upon the whole, he formed thus a double tile, which, upon the removal of the thin paper, separated into two parts: the one bearing the impression of the leaf in rilievo, the other in intaglio.

Thus occupied with processes which, suggested by some rapid thought, were perfected by infinite care and pains, Mr. Low was surprised in the midst of his labors by the prize which he won over twelve strong competitors at an exhibition held at Crewe, the center of the tile-producing region of England. This event, it is said, has never been equaled in the history of ceramics, for it gave immediate reputation as a potter to one who, three years previously, had known nothing of the art-craft in which he had so rapidly risen to distinction, at the expense of the most experienced, laborious and intelligent toilers in clay. Upon this subject our consul at Liverpool addressed to the Government at Washington a note in which he declared that “Mr. Low, an absolutely unknown American, had bearded the British Lion in his den and carried away his laurels.”

Closely following upon this reward came extensive home patronage, and the Low tiles came to be accepted by the public as worthy substitutes for those of the Minton and other famous English works. At the end of three years, the struggle which we have outlined was finished, a reputation was made for an experimentalist at once patient and bold, a new American industry had been developed, which was to offer an incentive and example, and thus effectively to aid the economic interests of our country.
Potters and Their Products

Acting with true New England foresight and prudence, Mr. Low did not pursue his artistic schemes to the detriment of his business interests. Together with exquisite, sculpturesque tiles destined for purely decorative purposes, his pottery undertook the construction of soda-fountains, the decoration of cast-iron stoves, with panels and tiling, the wainscoting of bath-room walls, and other similar commissions. By this means fortune was made to follow reputation, and the artistic phase of the enterprise was assured development and permanence.

Among the early successes of the Low Tile Company was a panel or large tile, in low relief decoration, outlined with the profile of an old, bearded man, drawn in flowing lines. The surface of the pottery was undulating, and the picture appeared to float upon it, like a shadow upon a wave. The color too was significant: the vitreous glaze being of greenish hue, like water struck by a strong ray of sunlight. The whole: outline, color and surface, had a tremulous character perfectly in keeping with the subject, and the title-legend, "When Age Steals On," faintly stamped in relief beneath the head, seemed about to disappear, so that the eye sought it again and again to make sure of its presence. This subject was long a favorite with the fickle public, and it passed into many museums as a fine, unusual specimen of American ceramic art.

A decade later were produced the three panels shown in our illustrations, and which were exhibited at the Columbian Fair. They are named "Air," "Water" and "Thirst," and are remarkable for their beauty of treatment: being reminiscent of the best art of the Renascence, and yet sufficiently modern to be without affectation. Each of the three subjects has its individual charm. In the "Air" panel, the wind-cherubs suggest a wide range of old masters, with, perhaps, Rubens predominant. They recall, too, the pictorial compasses seen in the pavements of Italian churches, like the one in the Piazza of St. Peter's at Rome, where chubby genii are pictured, blowing upon conches to various subdivisions of the four quarters of the heavens.

More pleasing still is the "Water" Panel, with its group of children and dolphins: the waves serving as a transparent drapery to one of the babies, and the fish gathered into a school, such as we
may have seen playing about our steamer during our last Atlantic voyage.

The "Thirst" Panel abandons the light, graceful treatment of the two preceding subjects, which have something of the old Greek delicacy, to assume the dignity of the best Italian art. The architectural effect, the great concourse of people, the figure-drawing, the old men's faces are Venetian, the story is told with Giottesque facility, detail and variety, and, better than all, there is an earnest, strenuous quality which is the sign manual of the highest American art.

It must be with a feeling of pride and joy that we study productions such as these, which have behind them a story of severe struggle and endeavor—like that of the plant-germ which, preserved through the unpropitious season, feels the first impulse of spring, and rests no more until it has reached its full development.

Education in Clay

CHARLES F. BINNS

UNTIL a very few years ago two doors and two only were open to the aspiring clay-worker. He must either enter a factory and take his place at the work-bench, or he must plunge into an individual enterprise and grope his way to knowledge. The former course usually resulted in a degree of mechanical skill, limited to one style of production and backed by no theoretical knowledge; the latter involved long and tedious experimentation and almost certain discouragement. At the present moment another course is possible. There are schools of clay-working open, and within their walls both the narrow specialism and the uncertain groping may be avoided.

The movement in education was for centuries confined to the humanities. Schools and colleges existed only for the study of literature, mathematics and pure science, while schools of art were concerned with painting and sculpture. Handicraft and design were divorced, technical instruction was unknown.

From this unsatisfactory state of things the world has been gradually awakening. One apostle after another has preached