1859 - Art Journal

A Visit to the Manufactory

In 1859, 'The Art Journal' published a long article under the title of: '*The Terracotta Works of James Pulham, Broxbourne.'* This is how its starts:

'In the pretty and pleasant village of Broxbourne, reached by the Eastern Counties Railway, and distant nineteen miles from the Metropolis, there is a small, but very interesting, manufactory of works in terracotta, to which we desire to conduct our readers. It is situate on the Lea, where its current runs side by side with 'the New River.' The site is historic; it is close by the famous Rye House, and contains the quiet and unobtrusive hostelry – existing today as it did two centuries ago – where honest Isaac Walton met and chatted with his friends when they used to go 'a-fishing' on the banks of the fertile stream, when the wind was south, and the trees were putting on their robes of green. We note these facts as additional inducements to attract visitors to the Manufactory, located, as it is, in a neighbourhood full of interest and rich in the picturesque . . .'

It then goes on to explore the history of terracotta production, and the various chemical and physical characteristics of the many types of clay to be found in the United Kingdom, but, for the purpose of our present study, these are topics that will not suffer unduly from a small degree of distillation.

A Brief History of Terracotta Production

'Terra Cotta' is literally the Italian phrase for *'baked earth,'* or 'fired clay,' although, in general usage, it means an object – like a vessel, a figure, or a structural form – that has been modelled in clay; baked in a kiln, and then generally left unglazed. Its natural colour ranges from a dull ochre to red. It is a very cheap, flexible and durable material to use, and thus lends itself naturally to the production of items of a utilitarian nature, such as garden ornaments and building decorations etc.

It is not a new – or even recent – discovery, having been used throughout the ancient world for building bricks, roof tiles and sarcophagi. Small terracotta figures dating from as early as 3000 BC have been found in Greece, and Greek artists carried their craft to Etruria, from where both Etruscan and Greek sculptors moved on to work in Rome. Their statuary work was used to decorate temples, and very early examples of their smaller statuettes have been found in Cyprus and Crete.

Centres of statuette production extended to Asia Minor and then westward during the Hellenistic period, from the 4th century BC. Much Roman architecture up to the 5th century was decorated with relief themes from mythology, and examples of symbolic idols, and other works of art can also be found in the wrecks and debris of ancient cities and temples in the Arabian desert and Central America. Indeed, numerous examples of the extent to which the Romans worked in this material have been found in the fields of Essex and Yorkshire, and on the banks of the Thames and the Medway.

Fig 1 - Reproduced from the Art Journal 1859

The use of terracotta for all purposes then virtually died out between the end of the Roman Empire and the 14th century, but it appeared again in Italy and Germany during the 15th century. This work was either moulded or carved, and in its natural colour, as friezes, mouldings or inset medallions used to decorate buildings. The Della Robbia family of Florence then developed a new, highly glazed and coloured terracotta, capable of producing sculptures that added a new freshness of accent - especially to marble and stone. This style was imitated widely, and the use of terracotta once again spread throughout Europe – often being painted in natural colours, or to imitate marble or bronze.

The Chemical and Physical Attributes of Clay

The *'Art Journal'* article then turns to some of the chemical and physical characteristics of the clays of England, by Professor Hunt, FRS, '. . to whom we applied for aid in the department with which he is so familiar . . .'

It explains that clay is rarely found in its pure form in nature – it being normally combined with silica, iron, and, often, with other bodies. This may even be just as well, because pure clay – 'the alumina of chemists' – has certain distinctive qualities. It has the benefit of considerable plasticity, but is absolutely infusible, even in the greatest heat to which it can be subjected, and it shrinks, during the baking process, to about one half of its original bulk. It also possesses a remarkable power for retaining water with a very strong attractive force, which means that it must be heated very

cautiously. If this is not done, the sudden expansion of its water content into steam will cause it to fracture and disintegrate.

The addition of lime or silica to the pure clay after the heating process has begun will not make any difference – the mixture will not melt, even in the hottest furnace. If, however, alumina, lime and silica are mixed together before the heating process begins, the material will melt, and the readiness with which it does this will depend largely upon the proportions used. Modellers must therefore take great care to ensure that the constitution of the clay they use is suited to their purpose *before* they bake it.

Clay, as we find it in nature, may be regarded as a compound of alumina and silica, with lime, magnesium and iron – and also, not infrequently, with much organic matter. It therefore varies greatly in its composition and resulting qualities, depending upon the area from which it is extracted. Some clays will have a much greater degree of fusibility and tenacity than others – both in the wet and the dry state – and some will contract more than others when exposed to fire. Their colours will vary, and some also lack elasticity, or the facility of being moulded, so an intimate knowledge of all of these factors is of the utmost importance to the manufacturer, in order that he may be able to determine which clay – or blend of clays – should be used for each specific purpose.

Fig 2 - Reproduced from the Art Journal 1859

Let us take a quick look at some of the choices available to him, or her, starting with *'common clay,'* or *'loam.'* This term covers every variety of clay, from a very tenacious, or firm, aluminous mass to the poorest brick-earth. The better varieties of this clay are soft to the touch, and form a stiff, but tolerably malleable, 'non-oily' paste when mixed with water. Since they nearly always contain fairly high proportions of lime and iron, they are also fusible at an ordinary furnace heat.

One of the most important clays for the terracotta manufacturer is called *'Potter's clay.'* It is 'compact' and oily to the touch; polishes readily under the pressure of the fingers, and forms a semi-transparent mass when mixed with water. It is extremely firm and pliable; will not melt in the porcelain kilns, and usually burns white – probably due to the fact that its geological position is generally to be found near chalk formations. According to the *'Art Journal,*' the general composition of this important clay is, silica 42.5, and alumina 33.2, with a very small quantity of lime and iron, and about 18 parts of water

Finally, we come to *'China clay'* and *'Pipe clay.'* These are clays of similar character and origin, since they are both derived from the decomposition of the feldspar – i.e., the crystalline material composed of aluminium silicate combined with sodium, potassium or calcium - of the granite rocks. The pipe clay has been washed down by nature, and deposited where we find it – i.e., in basins, usually along the sides of valleys - while the china clay is washed and prepared by the hands of man. These are the purest of the natural clays, and may be regarded as consisting of silica and alumina in nearly equal parts - the alumina being more frequently in excess. These clays consequently have the extremely infusible characteristic of 'pure' clay.

The Production Process

These, then, are the natural materials from which the manufacturer of terracotta has to choose, and the best results will only be achieved by the expert and judicious selection of the most suitable ingredients, blended together and processed in the most suitable way. But even that is by no means the end of the story, because he then has to contend with the way in which the clay contracts while drying, and the yet greater contraction that it undergoes during the process of baking.

The clays that are best suited to the modeller's craft are aluminous natural clays, since they possess the greatest plasticity. They are, however, liable to crack and to lose their shape during the drying and baking process. This is a very serious defect that can be largely rectified by the addition of a siliceous substance, such as sand – or, even better, hard-burnt stoneware ground to a powder - since this has less attraction for water, and will enable the mixture to dry more evenly through the openness of its grain.

It is quite possible that these inherent difficulties in manufacture in themselves account for the neglect of terracotta as a decorative material for so long before it was 'rediscovered' in the 15th century. The imperfect and unsatisfactory results that were often achieved, combined with a lack of sharpness and symmetry, undoubtedly led to a loss of faith and reputation in the production of terracotta items, and it was regarded as far too uncertain for general adoption. More recent improvements in scientific knowledge and production capabilities have, however, enabled these problems to be addressed, and largely overcome – as in the case of Mr Pulham's manufactory in Broxbourne. Let us now see what the *'Art Journal'* had to say about that.

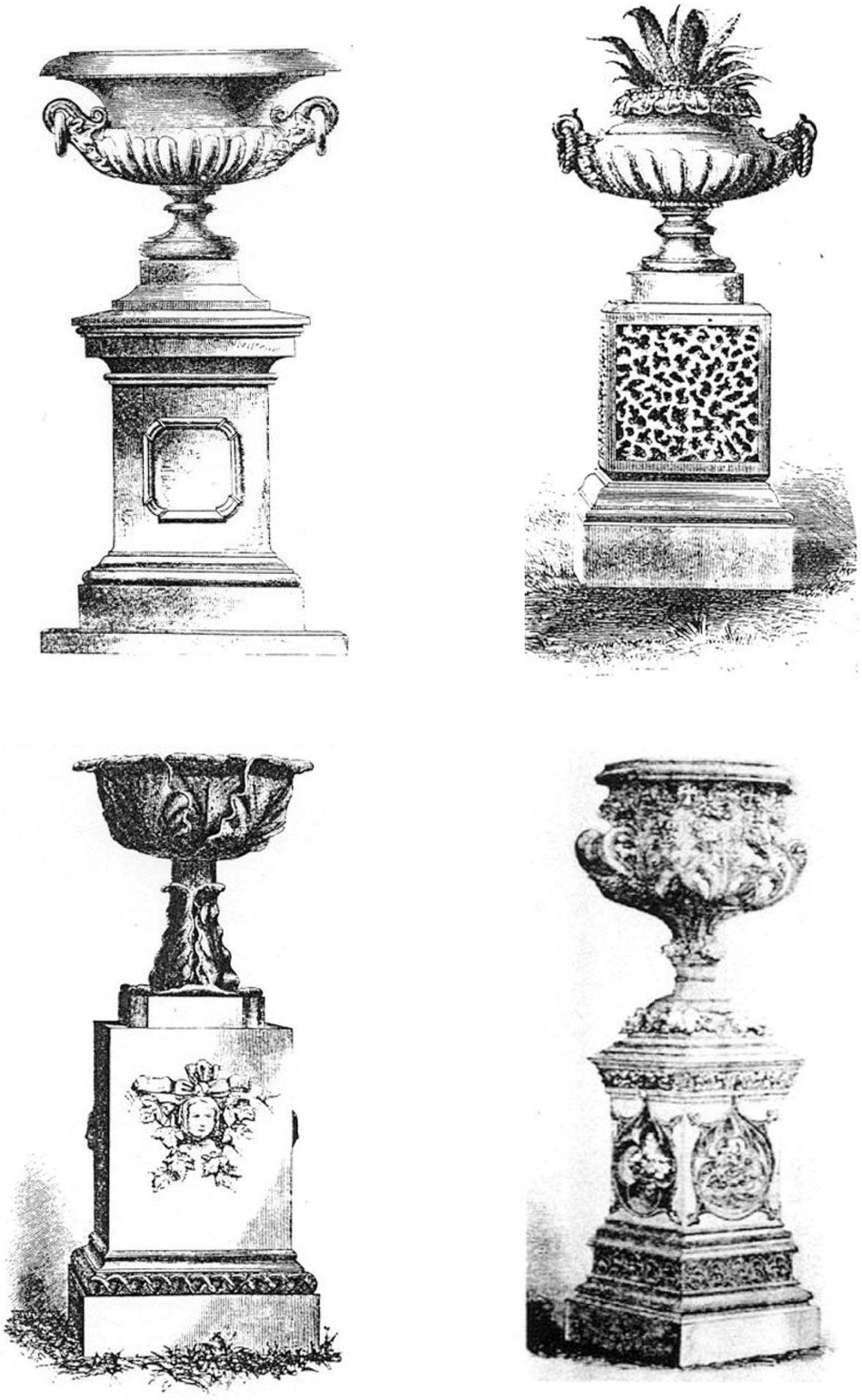

Fig 3 - Reproduced from the Art Journal 1859

Mr Pulham's Manufactory

'In the matter of the applicability of terracotta to various purposes, which shall all of them be consistent with the qualities of that material, Mr Pulham finds before him a wide field, and one that has been but little explored. We were glad to observe that here, as in the case of his scientific enquiries, My Pulham is acting upon sound principles. His kilns are employed for the production both of the commoner classes of articles for builders, and of those that may claim a more intimate association with Art. Thus it is, probably, that he obtains such employment, and realizes those profits which enable him to issue from his establishment productions that, in a commercial sense, cannot 'pay,' although it is through the instrumentality of these 'better things' that a reputation is often made, and an encouragement is given by which perseverance is ultimately rewarded.

'In both classes of objects, Mr Pulham may widely extend the range of his operations with the utmost advantage; and, more particularly, he may anticipate the most gratifying results from the production of a class of works in which the distinctive qualities of both classes may be combined. What we so much want is '*artistic common things,'* and *'useful artistic things.'* We want to have Art stamping its genuine impress upon all those minor accessories of buildings which can be so happily executed in terracotta; and, on the other hand, we have no special sympathy with mere vases, for which we have to seek something that may represent a use.

'And so, also, with many other objects. The application of terracotta to strictly architectural purposes affords a wide range for the genius of the Art-manufacturer. The inlaid and glazed tiles that Minton brought to such perfection were primarily designed for pavements, but have been found to be occasionally applicable for purposes of surface decoration on walls. They make good and effective 'strings,' or bands which separate stories and compartments of buildings, but, for all such purposes, the flat tile cannot compare with the terracotta wrought in relief – assuming, that is, that the terracotta be equal in intrinsic excellence with the tile.

'Cornices, ornamental accessories for doors and windows, with others that might form the angles of buildings, or mark the limits of the several houses in a continuous group – all these, with many other architectural works, may be so well executed in terracotta that they will command the attention of our architects. Thus, we may hope to see genuine brickwork in more general use, in combination with architectural terracotta of real excellence.

'It is also most important that Mr Pulham should introduce into his establishment new principles of design. Without taking his stand with the exclusive advocates of either of the rival schools of Art, Mr Pulham may seek from natural forms and combinations such designs as will infuse into his works a vitality and a freshness not otherwise to be obtained. It is all very well to reproduce a fine work of some early artist, but it is much better, having imbibed that old artist's spirit, to design a fresh work for ourselves.

'The pages we have devoted to this subject contain engravings of a number of Mr Pulham's productions; and we have selected those examples which, for the most part, more particularly illustrate the terracottas of the highest order as *works of Art*. The selection was made from a very large number of works of all classes and orders – some original and others copies – with but few (perhaps none) that can be considered

objectionable to the instructed eye and the artistic mind. Amongst the vases, there are two or three that will at once be recognised as having been familiar favourites for centuries; while others - which will be no less readily distinguished - have been designed expressly for the manufacturer.

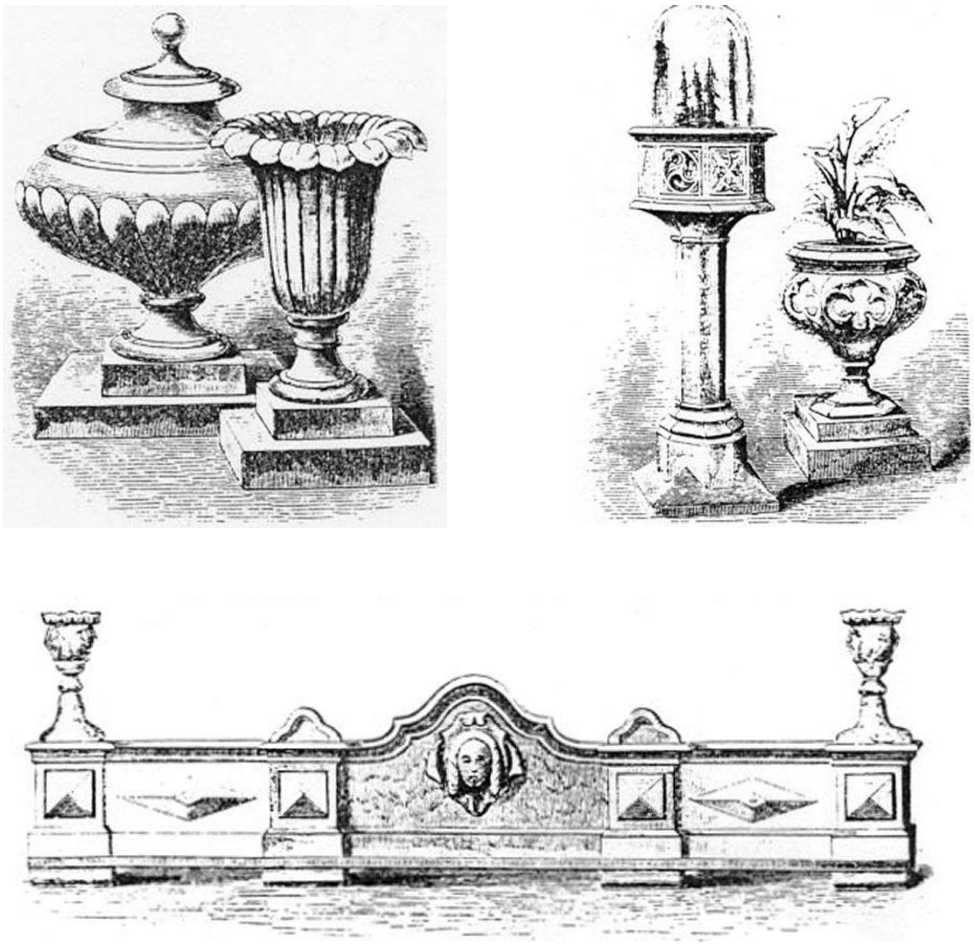

Fig 4 - Reproduced from the Art Journal 1859

'These vases have been exclusively made, we believe, as decorations of gardens and conservatories, for which office they are eminently qualified, from the good tome of their colour and the sharpness of their manipulation. It would indeed have been a fortunate circumstance had a large number of these vases in terracotta occupied the places now filled in the gardens of the Crystal Palace with cold duplicates of some of the coldest and feeblest productions ever manufactured from marble.

'There are no doubt very many persons who desire information as to the source from which they can obtain articles of this character. We are therefore assisting them in their search, while we may enjoy the satisfaction of aiding to reward a very meritorious manufacturer whose productions especially require that publicity, which is very difficult to acquire, and is, in this - more than in most cases - an imperative necessity for the achievement of success.'