

can only be a concretion of brick-material more or less skilfully packed, and depending in a greater or less degree, according to the bed given to the bricks, or fragments of bricks, upon the consistence of the setting material. But setting material, by whatever name known, must be plastic to be worked, and the power of a concretion of bricks and mortar or cement to resist pressure can hardly be greater than that of the setting material, which being plastic, is in a yielding condition, although it may be capable of becoming indurated to a degree equal to that of the harder material which it is intended to combine.

Now, in the case in question, the basement-wall and the pedestals upon it are built of bricks set in mortar, and bonded in the usual manner, and the weight of the superstructure came upon the pedestals and upon the walls at right angles to the beds of the bricks in the work; that is to say, the work was in the strongest condition, and it received the pressure in the manner which exposed it in the least degree to derangement, so long as the pressure remained steady and direct. But the columns were round bodies, and the bricks used in building them were not laid flat on their broad beds, but on edge on their narrow sides, and they were cut and packed to produce the required form, involving the use of many shattered fragments in every course, to fill the body with solid matter. This process necessarily called into operation the adhesive properties of the setting material to combine the fragments, and the strength of the structure was, consequently, no greater than that which the cement, used as setting material, had attained by induration. But it is admitted on all hands, that cement, that is to say, cement of the kind used in the columns which fell, requires time to indurate fully, or to attain a degree of hardness in any degree approaching to that of good bricks, in which state alone it could hold together the bricks and fragments of bricks, which the absence of bond required it to hold together with any think like the effect of bonded brickwork.

There are, moreover, circumstances in the composition of the structure which make it necessary to inquire, whether the unequal pressure of the upper part of the entablature and of the attic wall over the columns, may not have induced compression of the setting material in the joints of the work in any part? The weight of the superstructure fell somewhat unduly upon the inner or southern row of the columns; and if the joints of the work in the columns had been compressible, the superstructure would have taken a leaning southward, which, if it had taken place, must have been observed, as the men were still at work upon it. Roman cement—i.e. cement in question—sets, however, in a very short time; and all the cement in the columns must have taken a set very long before the attic-wall was raised, and having once set, it is no longer plastic, and therefore not compressible but by crushing, which wholly destroys it; and if the cement be crushed, the work depending upon it necessarily fails. Nor can it be supposed that the mortar in the pedestals yielded unequally, if it yielded at all; for although the weight came upon it more by the southern than by the northern row of columns, the difference could not have been so great as to act unequally upon the mortar in the pedestals; if, indeed, the superstructure had been heavy at all in proportion to the power of supporting weight, which the pedestals possessed, seeing that they were built of brickwork in its strongest form,—that is to say, with the bricks on their beds, and truly bonded.

And it is also necessary to inquire whether, having regard to the weight of the superstructure, and to the assumed power of resisting pressure of the substructure, and particularly of the columns, the columns could have given way under the dead weight put upon them? This does not appear probable, having regard to the good quality of the materials used; and to the undoubted skill and tact of the workmen employed, and to the time that had elapsed from the completion of the columns to the fall of the structure, for although complete induration of the cement could not have taken place, the ordinary practice of building would have justified the proceeding with the work. It is, therefore, my confident

belief that if the cement had been fully indurated, the columns would have carried safely all the weight which they were required to carry, and, under all contingencies to which they could have been exposed; nor is it likely that the columns, as they were, would break up under a merely dead weight such as that of entablature and attic wall, but as they certainly did break, it seems very certain that the movement of the scaffold, induced by the exertions of the men, who were engaged in increasing the height of its already lofty poles, together with that derived from the men who were at work upon its stages, gave the impulse which induced the fall.

February 2, 1848.

#### THE PRACTICE OF ARTISTS OF THE MIDDLE AGES.

FOUNDED ON THEOPHILUS.\*

IN reconsidering the writings of the early fathers of the church, or of the more humble professors of the Christian religion, who, priests themselves, worked in silence and in prayer for the advancement of the true faith, which had not only survived the war with paganism, but had issued triumphantly from the conflict, one eminent fact is to be observed: the alliance of religion with science and the arts was confirmed, and these were fostered to an extent before unattainable; for the flood-gates which had hitherto confined knowledge within a mystic boundary had been opened, and while admiring the arts of antiquity in all their splendour, industrious civilization was enabled to profit by the lessons which an increased and increasing knowledge were enabling them to receive.

In order to appreciate the arts of antiquity in all their beauty or magnificence, therefore, objects which have been inspired by religious faith must be considered: the transformations of Brahmah the hero-worship of Egypt, or the metamorphoses of Jupiter and Polytheism, have certainly exerted an influence upon art, in proportion to the state of advancement of the nations among which these different faiths prevailed, and have favoured, rather than repressed, the search for the useful and the good. Among the Hebrews, who borrowed, from the Egyptians and Phœnicians, the practice of those arts which appeared the most useful to them, the refinement of Egyptian taste was introduced into the temple, and the ornaments of the high priest demanded the aid of the artificers of Tyre and Sidon. Although Moses is little communicative upon the arts of his period, he yet makes honourable mention of artists and artisans.—(Exod. xxi. and xxv.)

Goldsmiths, sculptors, smiths, all artisans in general, were free-men, as among the Egyptians, not slaves, as among the Romans. Christianity, which has for its foundation the love and welfare of the human race, had no sooner become secure, than its efforts were directed to the teaching of the great mass of mankind; and from the third century, the light of universal toleration arose, which dispersed the clouds in the systems of Pythagoras and Aristotle. Jamblicus and Proclus, with Porphyry, initiated into the mysteries of the Neo-Platonic school, and opposed to the dogmatic spirit of the first theologians of the church, plunged into the mysteries of Egypt for weapons of attack, and it is certain that at an early period of the Christian era, we find the traces of an apparently new science, calculated materially to influence the future history of the arts and sciences, viz.—the "sacred science" (*ἱερατικὴ ἐπιστήμη*) of the Neo-Platonians.

The book from which this sacred art was taught was called "Chema" (*χῆμα*)—from this the word "Chemia," in the fourth or fifth century arose, and Julius Firmicus, in the fifth century, uses the phrase "*scientia alchemica*," in a work "On the Influence of

the Stars upon the Fate of Man." From this period the study of chemistry was openly followed.

The Christian theologians of this early period, who were seeking the means of confuting their antagonists at all points, drew largely even from the writings of the Greek philosophers; profane history was laid under contribution, and the great characters of the old pagan philosophy were summoned to aid in the overthrow of the opponents of Christianity. These philosophers of Greece became celebrated in the early iconography of the church, as those "*who had spoken of the incarnation of our Lord*."

Apollonius was represented as an old man, bearded, reciting the following words:—"I announce, in a trinity, one God reigning over all things. His incorruptible word shall be conceived in the bosom of a young virgin. Like unto a bow, which darts forth fire, it shall rapidly traverse space; it shall seize the entire living universe, and shall offer it as a present to its father."

Solon, the Athenian, an old man, is made to say:—"When he shall overturn this changeable earth, he shall set up his throne without fail. The ceaseless aim of Divinity is to destroy incurable passions. He shall be an object of hatred to an incredulous people. He shall be suspended upon a mountain, and shall suffer all these things voluntarily and with sweetness."

Thucydides, as an old man:—"God is an evident light, glory to him; from his intelligence all things proceed, and reform themselves into a single unity. There is no other God, nor angel, nor mind, nor wisdom, nor substance; but he is the only God, the creator of all existing things; the true Word, fecundity itself, which, descending upon a fertile nature, has produced water from chaos."

Plutarch, as a bearded sage, recites:—"Nothing can be imagined beyond him who surpasses all things: it is from him and none other that the Word proceeds."

Plato, represented as an imposing old man, says:—"The old is new and the new old. The Father is in the Son and the Son in the Father; the unity is divided into three, and the trinity is reunited in unity."

Aristotle proclaims:—"The generation of God is unwearied by its nature, for the word itself receives its essence from him."

Philo-Philologus says:—"Behold him who has walked over the immensity of the heavens, which surpasses infinite flame and imperishable fire. All tremble in his presence; the heavens, the earth, the sea, the abyss, hell and its demons. Without father himself, he is his own father."

Sophocles, as a bald-headed old man, recites:—"There exists an eternal God, simple in his nature, who has created the heavens and the earth."

Thouhis, king of Egypt:—"The Father is the Son, the Son is Father, incarnate, an all-powerful God."

The holy Balaam, as an old man veiled, says:—"A star of Jacob shall arise; a man of Israel shall arise, who shall crush the chiefs of Moab."

The wise sibyl:—"An eternal God shall come from heaven, who shall judge all flesh and all the universe. Of a virgin, spouse without stain, shall come the only Son of God." (*Ἐκπύρνια τῆς ζωοποιότητος*).—Greek M.S. from Mount Athos.

These sages (writes M. Didron), Plato, Solon, and the rest, gave nearly these responses which the Guide for Painters (the M.S. from Mount Athos, of the twelfth century) has here prescribed. The Greeks were gratified by representing their great men thus rendering homage and witness to Christianity. One of the most remarkable examples of this class of proofs is painted in the monastery of Iviron, at Mount Athos. The exterior porch of the small church of the Virgin *Παναγία Ηλεκταρίσσα*—hearing-virgin—is covered with great figures, representing Plutarch, Thucydides, Sophocles, Plato, Aristotle, Chilo, and Solon, each carrying a banderole, in which the Christian belief is inscribed. Thucydides bears the title of "the Philosopher" (*ὁ φιλόσοφος*); Sophocles, of "Sage" (*ὁ σοφός*); Solon, of "Athenian" (*ὁ Ἀθηναῖος*); Chilo, of "Learned" (*ὁ φιλόλογος*); the rest have not epithets attached. The inscriptions borne by these

\* Read at a meeting of the Freemasons of the Church, by Mr. H. Headrie, Jun.

† Some authors have supposed from "Cham," who gave his name to ancient Egypt.