

## BLACKFRIARS

### CONCRETE

IT is not without significance that in these days we no longer speak of the craft of building but rather of the "building trade." As in most of the occupations of the working man there has been a revolution, so in building great changes have been made. It seems likely that the revolution in all branches of industry is ultimately traceable to a few common factors.

In this paper I do not wish to examine the morals of the industrial change as a whole, but rather to consider one small and apparently unimportant matter—what the use of concrete has meant to the human side of building. But, in passing, it is worthy of note that practically all these changes have one common result—they all deprive the workman of the exercise of his function as an artist. When something vital in the make up of man is treated as though it did not exist, the sociological consequences are nothing less than tragic. Unemployment over long periods results in something more than the lowering of material standards of living.

In the earliest architecture of which we know enough to consider it as a particular type—that of Egypt—is symbolised the social nature of the age which gave it birth. Most of the important factors in ancient Egyptian social life are reflected in the architectural remains from that time. Examination of a temple, for example, reveals an extraordinary area of construction, and this massivity of plan is repeated in elevation and perspective. Absence of light and restricted planning were accepted as necessities and they were suited to the dark and mysterious characteristics of Egyptian religion. There is an almost superhuman quality about Egyptian building, and the colossal expenditure both in labour and material would alone have caused a revolution in method under other social conditions than those of the servile state. It was only under a system of slavery that these ideas of immense scale planning and massivity of construction were practical.

In Greek architecture there was a serious attempt at more

logical construction; the plan was influenced more by functional requirements and the constructional possibilities of the materials used rather than by mere availability of labour and materials. Refinement of proportion, which has never been excelled outside Classical architecture, was but an indirect result of using materials scientifically and with economy. It is agreed now that there was no seeking of style but that true style was the outcome of a more accurate knowledge of the properties of materials used. The stone or marble employed in the building conditioned and limited the elevational treatment as a whole and incidentally made for that delightful unity of composition entirely absent from modern architecture where concrete and steel, materials of almost unlimited constructional possibilities, are brought into use.

The architecture of Rome which followed that of Greece is apparently in the same Classical tradition, but obviously without the same grace of form and composition. It becomes interesting in view of this loss to examine the constructional methods to which the Roman builders resorted—methods which were largely responsible for this loss of grace and dignity. Concrete was the basic material in Roman construction from the first century and the system employed in the use of this material is not unlike the systems of building to-day. Sociologically, it permitted a small number of highly skilled craftsmen to set out the building and to construct the basis of the structure while slaves and labourers, untrained and often unintelligent, filled in the mass concrete to form a substantial whole. The architect seems to have developed his system of building in such a way that by the use of walls and domes of great thickness he was independent of the bad mixing of the concrete, inefficient supervision, ignorance and often malice of the slaves. Thus, occasional bad workmanship entailed no serious damage to the structure and possibly it was for this reason alone that piers were of such vast area, domes of such massive construction with their haunches loaded far beyond requirements and thrusts absorbed by sheer weight and thickness of wall rather than by counter-thrust in accordance with the scientific principles

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of this construction. The Pantheon with its great concrete dome is, in a sense, a "constructional lie," for the dome shape which in stone is employed to transmit thrust by means of the walls to the foundations, is, when built in concrete, wholly devoid of thrust as soon as setting is completed. The Pantheon, despite its undoubted merits in other directions, is the first *sham building*.

In some ways the social system which made concrete construction so suitable to the declining years of the Roman Empire finds a parallel in the industrial age of to-day. The conditions of work in the next generation may approximate even more closely to Roman slave labour since the tendencies of all industries, and not least that of the building industry, appears to be in the direction of the employment of a comparatively small number of highly-skilled specialists and a large number of unskilled labourers performing a few mechanical acts in accordance with simple rules. Thus, intelligent application of principles and exercise of craftsmanship are to be denied to the greater proportion of builders in this concrete age, and the natural function of every workman as "a special kind of artist" is to be entirely suppressed in favour of this dehumanised system of building. No longer will the mason be required to exercise his ingenuity in the place of his stone, the careful balancing of cornice, and the accurate setting of joints, for steel and concrete will become the strength of the structure, and natural stone, if it is used at all, will be but as a cloak for their ugliness. No longer will the carpenter express himself in wrought and carved timbers of beams and roof trusses, for all construction will be hidden and "stuck-on" decoration of machine-made monotonous ornament will be used as a mask. Spontaneous craftsmanship will be subordinated to the carrying out to the smallest detail of a carefully premeditated design. The builder will have no place in the building except as a servant to the idea of an outside source.

As with machinery generally in industry, the use of concrete and steel in building cannot be put down as necessarily evil. Undoubtedly their use has simplified and made safe modern construction; but just when their use is allowed to

efface something infinitely more valuable a danger appears—the danger which is contained in the elimination of all natural joy and pride of creative craftsmanship from daily work. It is highly probable that the present craze for spare-time “arts” and “crafts” is traceable to this denial of natural right in ordinary every-day work—the right of expression in the right place.

Further, it would seem that there is no escape from these conditions within present economic practicability. Intensive specialisation makes for the centralisation of industry. Ground in cities becomes extremely valuable, and the necessity of putting floor upon floor gives us the huge concrete and steel factory. Concrete appears to be an essential factor in all modern industrial buildings and its rejection, *unless we reject the system which has produced it*, would be foolish and wasteful. It remains to be seen whether the inventive faculty will evolve a mechanical process for the handling and placing of this material with the care and accuracy of the individual workman. Even were this accomplished the solution would be but an expedient or compromise rather than a cure.

The tendency is towards a reduction of working hours and the complete mechanisation of what has become little more than drudgery. Individual craftsmanship will be directed into the channels of recreative occupation and art for the working man will become “the skilful making of useless things.”

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