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By John U. Nef

I.

All aspects of the life of an age are interrelated, even when the interrelations express themselves in cross purposes and intellectual dissolution. Whether or not they embody forms and ideas worthy to be dignified by the name of architecture, the buildings of any period are an expression of it. They reflect, in varying degrees, its economic and social development, the enactments of its legislative bodies, the acts of its administrative officials, the decisions of its law courts, the character and course of its wars. They also express, again in varying degrees, its methods of education, its religious life, its natural science, its thought and its art. They are, to some extent, the expression of past traditions and works of the mind which have retained a hold on the life of the period or have been revived by its thinkers and artists, as classical antiquity has been revived again and again in Western European history since the eleventh century.

At the same time, the buildings have important influences of their own upon the individuals who see them, live in them or pass through them. They have important influences upon the collective political, economic, intellectual and religious activities of the age in which they are built. So long as the buildings endure or leave their trace, such influences are prolonged into distant ages. The character and the extent of the impression the buildings make depends partly upon the condition of the minds and hearts of men and the nature of the society in which they live. Men's sensitiveness to the art of architecture fluctuates within wide limits. But as long as buildings stand and are used, the ways they are constructed and embellished, the ways they are related or unrelated to each other in neighborhoods and cities, will leave marks on the human side of our species, unless and until men and women have all humanity mechanized out of them.

These reflections are obvious. Is that a reason for failing to consider their significance for the United States, the most highly industrialized and mechanized of all countries since the late nineteenth century, and of all Western countries the one whose future is confided

to an admixture of all national and racial strains, including besides the Latin and the Nordic elements of Europe, Africans and Orientals? In so vastly complicated and bewildered a society as that of the United States, may it not be the historian's duty to emphasize the common sense observations, to illuminate with simple concrete illustrations what any sensible person vaguely knows (but has generally forgotten) rather than to devote himself to the obscure, the esoteric, the particular? During the last half century or so, scholars generally have acted on a different assumption. They have left the important matters for the charlatan to exploit or, as the condition of considering problems that are of universal recurring interest, have turned into charlatans themselves. Thus they have denied the important matters their importance. One may almost say of scholars what Paul Valéry has said of the bourgeoisie. They have invested their capital in phantoms, in the fabulous, in the objectivity of controlled experiments interpreted by a tiny number of specialists. By their natures, men and women are obliged in the fundamental questions of life and death, which cannot be settled finally in this world, to wager on something. They cannot escape this necessity simply by ceasing to wager on eternal truth. So they have put their stakes on the ruin of common sense, they have refused to give substantial weight to generally accepted propositions which once carried irresistible force into the speculative realm. [1]

Perhaps we may be allowed in this essay to revert to an earlier world more familiar to the modern Latin than to the modern Anglo-Saxon; perhaps we may be permitted in what is now unscholarly fashion to assume that there are obvious common-sense reflections upon which general agreement is possible; perhaps we may be permitted to employ such reflections as a kind of framework for this sketch of the relation of architecture to Western civilization. Then let us make two further assumptions, in addition to those we have made already concerning the bearing of architecture upon the history of an age. Let us assume that it matters what kind of influences upon man buildings have, both of themselves and through their relations to other buildings, to groups of buildings, as in a city and the surrounding suburbs. Let us assume, finally, that human beings have a measure of free choice in the construction, embellishment and position of buildings. If these assumptions are granted, at least for the sake of argument, then human beings evidently have responsibilities for the kind of influence, good or bad,

1 Cf. Paul Valéry, *Regards sur le monde actuel* (Paris 1931), 181-182; Pascal, *Pensées*, "Necessité de la recherche de la vérité, le pari."

that architecture imprints upon the citizens of our time and of the future. Those concerned in one way or another with building and city planning, from the highest to the humblest, have duties independent of the tasks of adding to comforts, promoting full employment in the building trades, increasing wages, salaries, fees and commissions. The responsibilities we refer to are responsibilities in the speculative realm. Architecture is one of the arts. So the responsibilities of society that call for emphasis are the responsibilities to art. It is our purpose to try, in the light of history, to define tentatively the nature of the artistic responsibilities in connection with architecture and city planning, as they confront the world today. From what we have said concerning the interrelations between building and general history, it should be apparent that these responsibilities cannot be divorced from further responsibilities—moral, intellectual and religious —of Western civilization in an age of world wars.

II.

In the history of building among the Western peoples, it is possible to distinguish three main periods. Each has a certain unity. Perhaps in connection with the third, we should say a certain lack of unity. There is, first, the age of Gothic architecture. It began with the marvelous Romanesque transition to Gothic early in the twelfth century. This was the time of the first two crusades. A strong sense of the solidarity of Christendom, in an era of increased travel, exchange of goods, of knowledge and ideas, helped to bind the peoples of Europe to each other. It was the time of Abélard, the Abbé Suger and Saint Bernard, all of whom were born between 1079 and 1091. Their creative lives expressed, each in a different way, the interdependence of faith, politics, learning, joy and art, an interdependence which strengthened the bonds of a common belief. Their creative lives expressed, each in a different way, as did also the lives of some thirteenth-century scholastics, masons and saints, an attempt to bring in words, stone or other materials all the essential aspects of an immensely complicated and rapidly changing civilization, whose inhabitants were multiplying, into an intelligible unified relation, which embodied a common purpose for man in eternal life. As a very great age of building, the Gothic lasted at least well into the last half of the thirteenth century. In the sense that no fundamentally different conception of building presented itself, the Gothic lasted longer. It lasted about four hundred years until the early fifteenth century.

At that time there appeared what may be called, following Geoffrey Scott, the architecture of humanism.[2] The development and elaboration of the new styles, like the development and elaboration of the Gothic styles, spread over many generations, in forms known familiarly as Renaissance, Baroque and Rococo. Just when the architecture of humanism began to deteriorate is a matter of much dispute, like the question of its aesthetic value. The classical conception of architecture may be even represented as prolonged in the Empire style. But by the juncture of the eighteenth and nineteenth centuries, the architecture of humanism was certainly losing its integrity, although the great classical musical forms, which had come down from Monteverdi through Rameau and Bach, were still enriched by the masterpieces of Haydn, Mozart, Beethoven and Schubert. With the death of the Empire style in the early nineteenth century, humanism as a coherent artistic conception for architecture was dead.

It is the death of a unified artistic tradition, rather than a new life, which has thus far characterized the third period in the history of Western architecture. No living conception has yet put its stamp upon the modern world as earlier conceptions put their stamps upon the mediaeval and the early modern world of Western civilization.

Could a new conception grow out of the United States and perhaps out of the Middle West, which have been spared the material destruction of the second world war? If such a conception were to grow, America might embody in a contribution to beauty the sense of gratitude it could feel for the sheltered position it has occupied thus far during the destructive twentieth century. That would be a contribution to a world culture upon the appearance of which the future of Western civilization in large measure depends. The Chicago school of architecture goes back to Sullivan and Wright. Into it has now been infused the blood of an important European school, which Mies van der Rohe represents in its most substantial and least pretentious form. The former president of the Chicago Chapter of the Institute of Architects, Alfred Shaw, is doing much to call attention to the opportunities that these great architects have given our country at a time when a large part of the most civilized cities and towns all over the world have been blown into rubble. He and Mies van der Rohe recently paid a compliment to the more youthful Chicago school of

2 *The Architecture of Humanism. A Study in the History of Taste*, 2nd ed. (New York, 1924); a work to which I am heavily indebted in connection with this essay.

learning brought into being by Robert Hutchins (which owes in its turn a profound debt to Jacques Maritain, who emerges from the war a great French citizen of the world). They invited us to offer a series of lectures upon the role of order and delight in architecture and city planning. We are in the fullest sense allies. Like ourselves, these architects seek in respect to different but related materials a conception of man as a whole in relation to a common purpose. That the work of the Chicago school of architects may help to create a unified conception in architecture and that this may lead towards a re-awakening in mankind of the sense of beauty and true delight, which has been generally lost, is our hope. But nothing would be gained by minimizing the formidable obstacles which have risen and which continue to rise in the way of its fulfilment.

III.

The great majority of men and women who reflect at all upon the characteristics of our times, see them in statistical terms. In connection with building, their memories may go back as far as the fabulous nineteen-twenties, when bank presidents in all the large cities of a country of large cities considered tearing down their buildings mainly for the sake of putting up new ones to attract the attention of wealthy depositors, to whom in those days, as perhaps also in days to come, a hundred million dollars was little more than pocket change. Even persons whose memories are shorter are aware of the tremendous constructive efforts made during the past six years to produce the mammoth flow of tanks, airplanes, and warships from assembly lines, onto the earth, up in the air and into the water. Men and women not unnaturally see ours as an age of building which dwarfs all past ages.

There is a sense in which their view is perfectly correct. Never before have so many material conveniences and comforts for bathing, sanitation, heating, cooling, lighting, and entertaining been provided. Never before has anything remotely approaching the quantity of industrial materials now harnessed been driven into construction work. The output per capita of such materials is possibly a hundred-fold what it was in the middle ages, and the population of France alone is now perhaps almost as large as that of Europe west of the Oder when the greater part of Chartres Cathedral was built. But there is also a statistical sense in which this view is seriously warped. If we consider the *proportion* of the Western peoples who have earned their living directly

and indirectly from the building industries and the industries of decoration which embellish and furnish buildings, it is by no means certain that it is now larger even in the United States than it was in twelfth and thirteenth-century France. The proportion of the capital, the income and the time of the Western peoples devoted directly and indirectly to building was possibly even greater then than in the nineteenth and early twentieth centuries.

During six or seven generations of Gothic architecture, a large part of all the industrial workpeople of Europe participated in a fascinating variety of ways in building enterprises. Overwhelmingly the most important calls made upon them came in the construction, the embellishment, the decoration, the amplification, the remodeling and the restoration of cathedrals, smaller churches and monasteries. The mere magnitude of the efforts in relation to the size of the population, the economic resources and conditions of the Gothic age can be compared only to the efforts put forth by the chief nations of the earth in the world wars of the twentieth century. Indeed, in that sense, the Gothic builders certainly operated on a greater scale than the modern destroyers, because the intense effort went on from year to year with few interruptions at all comparable to those which modern mankind has been allowed hitherto in the intervals between wars. The purpose given to daily life by war, even during the past three decades of unprecedented military preparations and operations, has been fitful compared with the continuity of developing purpose embodied in two centuries of Gothic architecture.

It might be supposed that the magnitude of the efforts involved in Gothic building can be explained by the lack of machinery, particularly of any machinery driven by steam or hydroelectric power. It is true that the growing use of power and machinery in modern times has reduced overwhelmingly the manual labor required to transport, manufacture and place a given quantity of materials. The use of power and machinery has also reduced (though less extensively) the manual labor required to extract from the earth ores, minerals and other raw materials needed directly or indirectly in building. But there is another side to this balance sheet, which the modern statistical view of life, so inappropriate to the Gothic age, is forcing us to make. As we have just remarked, the *quantity* of materials per capita used in building was exceedingly small then compared with now. And it was usual to build mainly out of stone and earth found close at hand. So heavy materials

had to be moved in very much smaller doses and for very much shorter distances. It is by no means certain that the proportion of the time spent by building workers in the actual extraction, movement and placing of materials was larger during the Gothic Age than now.

The main differences between the labor of mediaeval and twentieth-century builders were not in the use of muscle, in the brute force expended. The main differences were in calls made upon the mind and spirit, in the opportunities afforded for constructive artistry, thought and contemplation. We have today architects, some decorators and a few engineers who devote themselves to problems of construction and embellishment with an intelligence (and more rarely with an imaginative insight) comparable to that of the greatest mediaeval architects and planners. But the participation of workmen generally in sustained efforts of the mind is slight compared with that of the hosts of craftsmen engaged in building and decoration during the twelfth and thirteenth centuries. The artistic decisions that workers have to make are negligible now in comparison with the Gothic Age.

That was an age when the arts and crafts were one. Artistic and technical problems had not begun to be divorced. It is true that specifications laid down by churchmen or by communal authorities for windows, statues and other objects of art, which formed an integral part of buildings, were exceedingly rigorous and minute. Men of great learning and of practical political experience sometimes composed what were virtually handbooks of instructions for the guidance of the artistic craftsmen who participated in the building of a monastery or a church.[3] Yet the people of Europe were united in the Christian faith and by a belief in an Eternity transcending time, space and matter, an Eternity which Christ had revealed as man's last end. The principal buildings and each small part of them were intended to express or to celebrate, in a great variety of ways, this common purpose of the human spirit into which men sought to distill the individual demands of each particular body of bones and flesh. As men and women generally shared the intention behind specifications for building, or at least the knowledge and beliefs on which they were based, the specifications seldom appeared to craftsmen as fetters. They provided the kind of framework that contributes to the genuine intellectual and spiritual freedom of the

3 Emile Mâle, *L'Art religieux du XIIIe siècle en France*, 4th ed., (Paris, 1919), pp. 458-59. He deals with the book left by the Abbé Suger, who built the abbey church at Saint-Denis. Suger is the subject of a forthcoming work by Professor Edwin Panofsky.

ordinary human being, likely to be bewildered and even overwhelmed when the choices confronting him are very numerous. There was room within the specifications for the development of artistic ideas. There was scope for human initiative that is denied when movements are dictated by machines and the workman takes no direct part in the manipulation of materials. Taste in workmanship was widely diffused; it had not become the specialty of the few.

Emile Mâle has said that the cathedral deserved to be called "The Bible of the Poor." [4] From it the citizens and the peasants who came into the towns got much of their knowledge, their moral and religious education, their sense of beauty. The lessons were written into stone and glass for all to see and to feel, not only those who participated in the actual labor, but the rest who came daily to the services and who saw the spires whenever they left their homes. The great buildings of the Gothic age gathered European life into their fold. They helped everyone from the most powerful to the humblest to an education, a sense of humanity, and a hope in eternal life. The time now given to flashes of motion pictures, to the din of the radio, to travel in street cars, subways, automobiles and express trains was all compressed into quiet rest, accompanied by the plain chant, the voices of the priests softened against deep stone walls, by prayers and the tolling of bells.

Cathedral, town walls and many-gabled houses—all were interrelated. All were parts of one, just as a statue on the central portal of the cathedral, a pillar inside, a window in colored glass, and a spire belonged together. The cluster of beauty formed by the whole town was the central jewel in a harmonious countryside closely set over by abbeys and villages, built firmly into the landscape through three centuries of expanding economic life and growing material prosperity.[5]

The rise of Gothic architecture reflected a growing sense of the solidarity and common purpose of the Western peoples that involved the whole of their lives and not merely the parts which we call religious. Relentless wars became less frequent. European men and women lost some of their appetite for settling scores by killing each other. With

4 The interpretation of the Gothic Age in this article is based largely on this work of Emile Mâle's, on Henry Adams' *Mont-Saint Michel and Chartres*, Lethaby's *Mediaeval Art*, Pirenne's *Medieval Cities, Economic and Social History of Medieval Europe*, books and articles by Gilson, Maritain and Kantorowicz, and researches of my own into the history of mediaeval mining and metallurgy undertaken for the forthcoming Volume ii of the *Cambridge Economic History of Europe*.

5 Cf. Lethaby, *op. cit.*, p. 144.

the erection of tremendously thick and ingeniously contrived fortresses, like the one at Carcassonne, the advantages in warfare tended to shift from the attackers to the defenders. [6]

Part of the tragedy and the hope of human nature, as borne by individuals, by social groups, or by nations, consists in its susceptibility to the most extravagant contradictions. Expressed in social and political life, these contradictions seem to have made it impossible for states or civilizations to pursue to a logical conclusion, any process of development, whether it is essentially good or essentially bad. Gothic society was groping toward a universal harmony. Yet, in spite of so much that favored success, it failed to achieve this harmony. The age of greatest Gothic architecture ended in dissension, bitterness and confusion of purpose. Reflections of the disillusionment appear all through the finest long poem in the Western languages, Dante's *Divine Comedy,* written at the beginning of the fourteenth century. The dissolution of harmony and common purpose can be observed by the historian in the claims and counter-claims of rival popes and the degradation of a part of the clergy. It can be observed by the statistically-minded economic historian in the slowing down or ending of industrial progress as measured by the volume of production, though it should not be assumed that the reduction in the rate of material progress was itself a disruptive force. The dissolution is reflected also in the deterioration during more than two centuries of Gothic architecture.

By the middle of the sixteenth century that style of building was dead, together with much of the craftsmanship that had been a part of it. The Western peoples had only to await the Gothic revival, late examples of which can be seen in American cities, sticking up out of a checkerboard of streets, in the midst of houses built in every style and mixture of styles known to the Western past and imported from foreign civilizations such as the Persian, the Indian, the Aztec, or the Chinese. Examples of the Gothic revival can be seen in the very area now appropriated by what is regarded vaguely, but hardly correctly, as the modern haunt of Thomas Aquinas—the University of Chicago. There is even a pale reflection at one street intersection of the marvelous twelfth-century spire of Chartres Cathedral.

That old spire at Chartres itself is still intact, rising out of the hill into which the town is built. It has caught the eyes of thirty genera-

6 Cf. Sidney Toy, *Castles: A Short History of Fortifications,* (London, 1939), esp. pp. 139-40 for Carcassonne.

tions of peasants, travelers and warriors for distances of some thirty miles in every direction, through the flat and treeless grain-land of Beauce. What does it matter to the present age that a modern replica of the most beautiful and most perfectly placed spire in the world can be seen mainly when one looks down from the higher buildings in the neighborhood—and then hardly as part of a church, still less of a neighborhood, not at all of a city? Orderliness and appropriate placing are now considered almost exclusively in relation to efficiency, to the saving of motions and computations; they are reserved for the somewhat inhuman filing cabinets of libraries, business offices and university departments, or for the scarcely more human distribution of objects in factories, warehouses, filling stations and stores.

Among the conditions essential to the creation of any great work of art is some promise of permanence. Unless men wish and are permitted to strive toward a result independent of their time and place, independent of particular material, social and political circumstances, ways of making money, ways of having fun, ways of getting around the world in a hurry, they cannot possess the seriousness of purpose without which anything worthy of the name of art is impossible. They cannot detach from the commonplace, particular every day occurrence, the unique abstract human meaning—the love, the suffering, the joy—which are forever fresh because they belong not to one race, one country, one group or one generation but to all. What Gothic architecture embodies is this faith in permanence. To an even greater degree than the Greeks who built the Parthenon, or the Romans who built at Orange the theater with its great wall which Louis XIV fifteen centuries afterwards called the finest in France, the builders of Gothic Europe aimed at Eternity.

IV.

In spite of the remarkable growth in the European population and the remarkable increase in material prosperity, the twelfth century and even the thirteenth preserved and cultivated the sense of human permanence, inherited in such different ways from Greek and Hebrew cultural origins. The humble and the powerful alike had faith that something human endured in the same form for all men always. As it is always difficult to maintain plausibly that anything material, anything that man can actually observe with his senses, will remain what it is, the faith focused upon the immortality of the mind and soul.

When the physical conditions of life change very rapidly among such extraordinarily active-minded peoples as the Western Europeans proved to be, the notion of permanence can only be maintained at all generally with the help of symbols which have a widely understood common meaning in liturgical habits, in customs and in laws. Whatever shakes these habits, customs and laws puts a heavy strain on faith. The conception of permanence itself is menaced. At the end of the middle ages this conception, which was the basis of such European unity as existed and of the hope in a more general human unity, was threatened from several directions. Gunpowder was a discovery of the late thirteenth century, at least in so far as Europe was concerned. Eventually it made possible terrific destruction, without much close fighting of the kind for which Western man felt a growing distaste. At the turn of the fifteenth and sixteenth centuries new weapons, based on gunpowder, transferred decisively but temporarily the advantages in warfare from the defenders to the attackers. Though on a much smaller scale, the change in the character of military operations was hardly less striking than that which has accompanied the shift in recent decades from trench to mechanized warfare. During the later middle ages and at the beginning of modern times, the Empire and the Papacy, the chief unifying institutions and symbols in Gothic Europe, lost much of their effective hold over the peoples of Western Christendom. Their stabilizing and harmonizing influences were undermined. The anchorage provided by a single Christian worship in a world of economic change was loosened by the Reformation. The notion of Eternity transcending matter, time and space, in which human beings participated by virtue of their mind and spirit, was gradually blotted from the human intellect as the physical universe took on new aspects and new subleties, as men saw new tangible treasure troves to penetrate, explore, contrast and explain.

In the beginning these manifestations of human curiosity begot a reaction hardly less damaging to Western unity than the new tendencies towards individualism themselves. In the heads of the later scholastics, the scholastic doctrines of learning hardened into an uncompromising dogmatism, fatal to art and thought as well as to the advances in natural science that a few men were beginning to make. This invited the modern attack on the whole scholastic system of knowledge, an attack which was eventually to deprive men largely of the speculative nourishment which the faith, thought and art of the twelfth and thirteenth centuries had helped to supply.

For a time the disintegrating forces in Gothic society and culture were not abetted by any great economic development in the direction of the kinds of mechanized and standardized labor which tend to dull the intellect and the imagination of participant and spectator alike. During the fourteenth and early fifteenth centuries, industrial and commercial progress was far less conspicuous than during the twelfth and thirteenth. The population stopped increasing; the volume of output ceased to grow. But latent forces of economic expansion and economic individualism came into their own for a short period soon after the birth of Leonardo Da Vinci, in 1452, and the end of the Hundred Years' War in 1453. First in Italy, then in central Europe, southern Spain and France, then in the Spanish Netherlands, and finally during the late sixteenth and early seventeenth centuries in England, Holland, Scotland and Sweden industrial progress and the growth of trade again became striking. Industry spilled over the boundaries of Gothic towns, whose ancient limits were marked by old twelfth or thirteenth-century walls. New industrial agglomerations also grew on a center provided by some old village, hitherto the preserve of farmers. Along irregular trails and cowpaths, workmen's cottages and warehouses were built, along rivers and streams fulling, tanning and paper mills appeared, until the irregular lines of fresh industrial activity seemed to be shooting out in all directions from the middle of the village "like the rays from a great star." [7] The framework of cities and towns, derived from the Gothic period, had no validity for the new economic world. The new warehouses, bridges and water-driven wheels, the merchants' palaces, even the town halls and the halls of justice, were irrelevant to the design which had guided the Gothic builders.

It was in Great Britain during the long reigns of Elizabeth and James I, which stretched from 1558 to 1625, and again during the decade, 1630-39, preceding the civil war, that the new European movement of economic expansion was carried farthest. Between 1540 and 1640 the population of London grew about sixfold from 60,000 or so to more than 300,000. Londoners who sauntered out for an afternoon stroll in the days of Shakespeare and during Milton's early life were accustomed to the continual noise of saws and hammers, to the sight of scores of new dwellings, of large workshops and warehouses, in various stages of construction, with carpenters, masons, plasterers

7 H. Pirenne, *Histoire de Belgique*, 3rd ed., (Brussels, 1923), vol. iii, p. 236.

and bricklayers busy at their trades. As in the growing American cities of the late nineteenth and early twentieth centuries, houses were put up helter-skelter, often with a complete disregard of the building rules promulgated by the English Crown for the capital city.[8] Early in 1637, no less than two hundred new buildings, erected during the previous summer in what was then the suburb of Wapping, were ordered torn down because they failed to conform to regulations concerning height and position.[9] London expanded in every direction, into areas once meadow and woodland. It absorbed many old villages. Brick-makers were accused of spoiling the neighboring fields in their search for earth.[10]

The economic expansion which accompanied the change from the mediaeval to the modern world carried Europeans all over the globe. They settled in North and South America to form the nuclei of vast and populous nations. Until the nineteenth century the fronts presented by the settlements of the Western peoples were still thinly held. But the clearings and cultivated fields about the multiplying villages and the slowly growing towns were portents of the modern industrialized world with its enormous congested cities and suburbs.

It seems a far cry from the harmony and repose of the Gothic cathedral even to the London of the early Stuarts, where one prominent Scottish courtier, the Earl of Carlisle, consumed in little more then twenty years a fortune equivalent in modern money to over ten million dollars.[11] Why was it that the great expansion of early modern times brought no such confusion in building styles, no such fundamental disagreement concerning the principles of architecture, as has accompanied the industrial revolution of the nineteenth and early twentieth centuries? In the teeth of disruptive forces like the Discoveries, the Reformation, the Thirty Years' War, and the rise of the pushing, profit-seeking mercantile elements in society at the expense of the ancient nobility, how was it possible for Europe to create and accept the architecture of humanism, and to make it the basis for building not only in old towns but in the rising industrial villages? Renaissance and even baroque are, above all, styles of moderation and suitable proportions,

8 W. Cunningham, *The Growth of English Industry and Commerce: Modern Times*, 6th ed. (Cambridge, 1919), pp. 315-17.

9 *Calendar of State Papers Domestic*, 1636-37, p. 542.

10 *Ibid.*, 1637-38, p. 107.

11 Earl of Clarendon, *The History of the Rebellion and Civil Wars in England* (Oxford, 1843), p. 25.

styles with the most delicate taste, styles in their spirit antithetical to expansion, haste and material success for its own sake. The disposition, common in Victorian times, to dismiss baroque and even renaissance styles as decadent, has been shown to rest on a series of fallacies concerning the nature of the art of architecture. While these styles can be represented properly as less religious than the Gothic, they made equal, if not stronger, calls on the artistic intelligence, on taste and at least through most of the sixteenth century on aesthetic imagination. In their development, the mind was making good its claims to an independence of circumstances—physical, economic, social and political.

If we are to understand the power of the humanistic styles in architecture in an age when the European nations were staking out claims to the whole habitable earth, we must take account of at least two important conditions which were part and parcel of every aspect of European civilization in early modern times. One was material scarcity. The other was cultivated taste.

After the Reformation a rapid growth in the population of Europe, a rapid increase in the volume of commodities produced for comfort, and equally a multiplication in destructive weapons based on gunpowder and other explosives, depended on new economic developments. They depended upon the discovery and extensive exploitation of new seams of ore and other earthly substances, upon new technical inventions capable of reducing greatly the costs of production and transportation and of increasing greatly the power behind machinery. The element needed above all to light the fires of industrial progress and military destruction was cheap fuel.

But during early modern times the fuel upon which Western civilization had chiefly depended became more and more expensive. Beginning in Great Britain in Elizabeth's reign, inroads made upon the forests for lumber, firewood and charcoal produced a timber crisis in one European country after another.[12] The scarcity of wood placed limits upon the production of all kinds of construction materials, especially in the north of Europe, where the manufacture of such commodities as bricks in the heat of the sun was impracticable. Nothing was accomplished to relieve the shortage by substituting stone, brick, metal or glass for wood as structural materials unless coal replaced charcoal

12 Cf. J. U. Nef, *The Rise of the British Coal Industry* (London, 1932), vol. i, pp. 156-164; "Wars and the Rise of Industrial Civilization, 1640-1740," *Canadian Journal of Economics and Political Science*, February, 1944, pp. 68-69.

and firewood in their manufacture. At the beginning of the eighteenth century, Great Britain was the only country in Europe where any extensive use was made of coal in manufacturing. Even there iron, the metal most spendthrift of fuel, was still generally extracted from its ore in a charcoal fire. As long as the European peoples remained dependent upon forests for fuel, iron, steel and glass construction lay beyond the range of architectural possibilities.

Shortages of fuel and other substances limited the quantities of materials which the builders in early modern times could draw upon. Supplies were insufficient for a general and sustained expansion of building, such as modern builders have indulged in to meet and also to create economic demands. If carefully husbanded and selected, the supplies were adequate to the restricted needs of peoples whose ancestors, except for a few rich and privileged, had known no way of earning a livelihood except by heavy toil and sweat. It should be recognized that the European peoples of early modern times, like their Gothic ancestors, could command by their technical skill and labor much more than enough material goods to satisfy the basic needs of societies with high death rates and not yet trained to waste. If labor had been employed in Europe on the same principles as in *Utopia,* Thomas More's six-hour day might have proved enough to provide a rude abundance almost everywhere. Though modern prosperity was lacking, the Europeans had time on their hands beyond that required to meet the material standards of living which then prevailed.

In *The Republic,* Socrates explains to Adeimantus the two causes for a deterioration in the arts. They are, he says, "wealth and poverty." [13] Like the Greeks in the fifth century, B.C., the Europeans in early modern times, when not engaged in wars to the death, had commodity without profusion. "In der Beschrânkung zeigt sich der Meister," Goethe once remarked. Circumstances were favorable in early modern times to the rigid selection of the artistically valuable, to the use by the artist of those limited means without which, paradoxically, the human mind cannot achieve in art anything approaching the unlimited artistic objectives which it seeks. The hasty and reckless expansion of building that went on for a time in London and some other places could not be repeated everywhere.

Let us not suggest that economic conditions were doing for the artist what the artist can do only for himself. Material scarcity of

13 *The Republic,* IV, 421.

the kind which prevailed during the age of humanistic architecture, may be represented as having helped to provide the kind of soil in which, if history is a guide, the arts can flourish. But neither by what they give nor by what they deny do economic conditions of themselves generate works of beauty. In relation to the environment out of which it is thrust, a masterpiece of building cannot be compared to a flower or even to a mountain. A work of art is always a creation of the specifically human powers. It rests its claim to exist and endure largely upon the delight which it infuses into the human mind and spirit. Delight is to a considerable extent dependent upon the release from physical sense and material concern given man in the reflective contemplation which is even more essential to the success of the creator than to the enjoyment of the participating spectator. What Geoffrey Scott has written about the relations between architecture and mechanical science, is equally true of the relations between architecture and all economic conditions. "The art of architecture," Scott says, "studies not structure in itself, but the effect of structure on the human spirit. . . . It creates, by degrees, a humanized dynamics. For that task, constructive science is a useful slave, and perhaps a natural ally, but certainly a blind master." [14] Of all architectural styles in the Classical and the Christian traditions, renaissance and baroque are those which take the greatest liberties with constructive science. Judged by twentieth-century American standards of material convenience, which were largely alien to the seventeenth century, they take equally great liberties with utility. Of all architectural styles, renaissance and baroque are those which proceed most freely in accordance with the claims of intelligent taste, with which seventeenth-century standards of material comfort, especially in France, were more in harmony than twentieth-century standards.

The architecture of humanism was in part the expression of a new kind of European unity. It was less religious and more intellectual than mediaeval unity. It was therefore less universal because it made demands upon the minds of men far more exacting than the faith which had helped Europe unite in the eleventh, twelfth and thirteenth centuries. With the distribution of human endowments that have prevailed even in the most intelligent ages, the new demands were such as only the few could supply. Subjects, for example, became increasingly erudite. Jupiter, Hercules, Mars and other pagan gods, Alexander, Caesar, Nero and other pagan emperors were figures much less warm

14 Scott, *op. cit.*, p. 120.

and meaningful to the unlettered than subjects from Scripture had been in an age of a single universal faith.[15]

The decorative arts and crafts, which employed considerable numbers of workpeople, retained much importance in the world of renaissance and baroque architecture. In France and most continental states seventeenth-century princes gave the crafts a new lease on life, both by maintaining and extending old gild forms under the tutelage of the Crown, and by helping financially in the establishment of artistic workshops, operated or supervised by royal officials. But there was an increasing standardization of the materials supplied. Building tended to become more stereotyped and routine. Considerably more machinery was used in extracting, preparing and placing materials than in the thirteenth century. As art grew more self-conscious, as the artist came to be distinguished more and more sharply from the craftsman, the quest for beauty tended to become more specialized than it had been in the Gothic age.

The price of the loss of religious meaning in architecture and of the divorce between such arts as painting or sculpture and manual work, was a reduction in the spiritual and intellectual participation of the common man in building.[16] This was parcel of a general reduction in the share of the humble in the life of the mind and in history. Not only were the great majority of the population more excluded from artistic appreciation and delight by the changes in the subjects of architecture and other arts and in the nature of workmanship, the proportion capable through education and experience of appreciating learned allusions, wit, and the charm of color and constructive form seems to have diminished. With the weakening of belief in the value of the sacraments and church services, and, during the late seventeenth and eighteenth centuries, in the truth of Christianity itself, the proportion capable of being deeply moved by religious art diminished. At that time, after religious, civil and national strife had torn Europe apart in early modern times, a renewed horizontal unification of European society was taking place among the rising political, economic and cultural élite. Among them interest and participation in architecture and art and enthusiasm for both were hardly less intense, however different they may have been in character,

15 Mâle, *op. cit.*, p. 464.

16 For his share in the artistic life of the Italian communes on the eve of the Renaissance, cf. Helene Wieruszowski, "Art and the Commune in the Time of Dante," *Speculum*, January, 1944, pp. 31-32 and *passim*.

than among sensitive and religious mediaeval people. But the new unification was accompanied by a vertical split. In certain occupations, especially heavy industries like mining and metallurgy, and in the growing standing armies, a sort of social scum was thrown up, and out. These pariahs, the new wage slaves and conscripts, were excluded from the European community to a greater extent than in the thirteenth century any groups had been, even the serfs, who, at that time, were in process of being emancipated.[17]

At the beginning of the eighteenth century the new outcasts still formed only a minority among the wage-earning population in most European countries. But the appearance of this minority was portentous for the future of the intelligence and for the future of taste. It was portentous for the future of architecture.

V.

During the era of the French Revolution, the elements of expansion, active in European civilization at least as early as the eleventh century, began to get out of control of the intelligent taste which had established the claims of art in early modern times. After the seventeen-thirties and forties the rate of increase in the population of Western Europe became more striking than at any period since the time of Dante (1265-1321). At the turn of the eighteenth and nineteenth centuries the rate of increase shot up still further, first in Great Britain and then on the Continent. During the nineteenth century the European inhabitants multiplied as never before in civilized history. They swarmed all over the globe in the wake of the explorers and early colonizers. In two hundred years the world population has doubled, the people of European extraction have become more than five times as numerous as they were in 1740, when Frederick the Great began the fierce campaigns of Prussia against the neighboring states of central Europe. Hundreds of cities have grown in area and population much faster than London grew during the reigns of Elizabeth and James I. The volume of industrial output per capita has increased at a more rapid rate than the population. For the first time in history a considerable proportion of the human race—particularly the Anglo-Saxon part of it and above all the people of the United States—have been ushered from an economy of scarcity into one of abundance.

17 Cf. Nef, "La vie de l'esprit et la grande paix, 1815-1914," *La République Française*, vol. i, nos. 11-12 (December, 1944), pp. 11-12.

For city planning, architecture and the building trades the revolution in economic conditions produced by the triumph of industrialism has had momentous consequences. Industrialism has obviously complicated enormously the problem of creating a beautiful and enduring civilization and an architecture such as might express it.

The nature of art cannot be adequately understood in terms of rigid rules or formulae, any more than it can be adequately explained in terms of its environment. Yet a few broad principles concerning the problems of the builder seem to have a validity independent of time. A repetition of these principles, repeatedly set forth by the greatest students of architecture, will help in showing why industrialism has increased the difficulty of achieving an art of architecture.

The builder needs to serve three distinct objectives. One is firm structure; his building cannot disregard the requirements of structural science, if for no other reason because it will fall apart if it does. Another is utility; the building has to serve the economic or social or political or religious purposes for which it is built. If it is a dwelling or an apartment house full of dwellings, it has to meet the requirements of comfort which prevail among the people who are expected to inhabit it. The third objective may be called "delight," following Sir Henry Wotton, who in turn followed Vitruvius.[18] This means that the building, both within and without and also in its position with respect to other buildings and to the city as a whole, should satisfy the requirements of beauty. It is these last requirements that are least recognized today and about which the public generally, and scholars as well, are most confused.

Building can hardly be satisfactory unless it reconciles these three objectives. If we are to have an *art* of architecture there would seem to be only one valid general principle concerning this reconciliation. It should be based on the requirements of beauty. Structure and utility, as Geoffrey Scott suggests, have their place as servants of delight; it is to be hoped that they may have their place as allies.

By virtue of the fresh problems of engineering which have emerged in our age of steel, concrete and glass construction, structure has assumed a greater importance than in early modern times, and the problems with which the architect has to deal have been changed accordingly, just as the problems of the wood carver differ from those

18 Scott, *op. cit.*, pp. 1 sqq.

of the painter in oils commissioned to decorate the ceilings and walls of a large church. By virtue of the remarkable developments in plumbing, heating, ventilating, cooling, lighting, and communication, by virtue of the changes in the methods and the scale of manufacturing, storing, financing, selling and transporting every sort of commodity, utility has to take account of new conditions which have altered enormously the purposes for which buildings are used. It remains true nevertheless that if either structure or utility master delight, we cannot have art. We cannot hope for enduring architecture.

The need for art in architecture and city planning has become more not less compelling with the triumph of modern industrial civilization, because the problems of the architect who seeks an artistic total solution are much more complicated and because he meets with much more opposition and much less understanding among his associates, his clients and his workmen than his precessors in the era of Gothic or of humanistic building. During the very age when there has been a great diminution in the opportunities for the artistic craftsmanship and the contemplation needed to arouse the creative thought and imagination inherent in the human race, these qualities (adjusted to different materials, greater dimensions and to new kinds of domestic, social and political relations) have become more necessary than ever to the future of Western civilization.

Industrialism has brought with it an unprecedented insistence upon the claims of structural science and comfort. This has made it increasingly difficult in architecture to subordinate science and comfort to delight. This insistence, together with the further difficulties put by industrialism in the way of cultivating art, actually threaten to extinguish altogether the claims of beauty. The increasing importance of the technological achievements which have their origins in the discoveries of the natural sciences have naturally focused the attention of engineers and architects upon the new kinds of materials now available for building and upon the structural problems which emerge from their use on a tremendous scale.

Let us not permit ourselves to be misunderstood. There is nothing wrong in itself with an interest in concrete, iron and steel and glass, or with the erection of skyscrapers, warehouses and airplane terminals. We are not suggesting that salvation for the art of architecture lies in a return to classical architecture, mediaeval architecture or the architecture of humanism. We are simply suggesting that in so far

as architects become primarily engineers they cease to be architects. The pressure of modern engineering and modern technology is in the direction of a preoccupation of builders generally (whatever a few individuals are doing to withstand the pressure) with problems of engineering to the exclusion of problems of art. Modern technology and mechanization have thrown a further and more serious obstacle in the way of the art of architecture. They have reduced to exceedingly small numbers the workers engaged directly and indirectly in building whose labor calls for artistic decisions. Therefore the modern architect has not the opportunity offered to the Gothic builder, and even to the architect in the period of renaissance, baroque and empire architecture, to call on craftsmen whose training and experience have made them sensitive to the claims of delight, in and of itself, and have made them capable of carrying through an artistic intention in the spirit in which it was conceived. Such a premium has been put on doing work in a hurry that the modern architect cannot even find workmen capable of carrying out adequately his intentions to provide the firm structure which is indispensable, especially with modern materials, to give his work artistic body.

Industrialism has operated with even greater insistence to swell to disproportionate size the claims of utility or comfort in connection with architecture and city planning. At the same time the nature of these claims has become increasingly capricious and changing. It is now becoming indispensable to add air-conditioning to central heating; oil burning supersede coal burning furnaces. The installation of power-driven machinery, of barracklike space for storing tremendous quantities of materials and commodities *en route* to the consumers, or for accommodating small armies of clerks, salesmen and saleswomen, has conditioned the builders of large structures to meet the demands of an economic world whose all-consuming interest is the sale at a profit of goods in larger and larger quantities. The installation of elevators, of plumbing, of bathing quarters, of refrigeration, of radio-receiving sets has led increasingly to the building of homes and apartments suited or supposed to be suited to the desires of modern householders. These persons and still more the middleman, whose main job has become that of deciding what the consumers can be induced to want, have tended more and more to confuse cleanliness with charm and convenience with taste.

Let us again take care not to be misunderstood. Cleanliness can contribute to charm and convenience to taste. But the relation of each

side of these pairs to the other resembles the relation of structure to delight and of utility to beauty. Charm and taste are enhanced by cleanliness and convenience only when the more subtle and lasting qualities are put first, only when cleanliness, such as continuous washing and dusting alone can maintain, and convenience, the notions of which are continually undergoing rapid changes, are made to serve beauty rather than to obscure its true meaning.

Experience in the highly industrialized countries, and particularly in the United States, suggests that in matters of taste the population is at least as corruptible as it is instructible. Corruption has been made easy by abundance, by lessons provided in methods of salesmanship, and by the advertising, installment selling and other kinds of pressure resulting from a notion (which has been abhorrent to many serious economic thinkers) that the only test of value is the capacity of a product or a service to command in the open market a higher price than it costs. More and more during the past seventy-five years or so the object of all business, including the real estate, the furniture and the building supply businesses, has been to sell in vast quantities and in a hurry. Salesmen have been schooled to aim at a lower and lower common denominator, if not of superficial utility, certainly of taste. One effect has been to reduce the public taste below its natural level. Since buildings, like other commodities, have been subjected to what came to be regarded as a natural law of saleability, the efforts of the few architects and city planners, with a sense of beauty, who try to keep even a modest place for delight in the appearances of the modern city and countryside are defeated. The frustrations of the true architect arising, not as our modern psycho-analysts lead some to suppose from his family troubles, his love life or his digestion, but from his profession, incline him towards bitterness or compromise. Both prevent him from making the full gift to mankind of which he is capable.

The difficulties do not end with the disproportionate emphasis accorded to structural science and utility. The claims of art have been directly undermined also in their own citadel, in the fortress of delight itself. Success in erecting a building, like success in any other considerable enterprise, depends upon the organization of all the work connected with it. During the middle ages and even in early modern times organization in building was generally inefficient where speed, quantity and sanitation were concerned. But organization in build-

ing (or to some extent what would now be called lack of organization) was then at the service of artistic excellence, which consists in giving all the parts body, charm and perfection in relation to a unified whole. In so far as architects and designers had a notion of beauty and a knowledge of the procedure necessary to realize it, conditions did not interfere with the formulation of an artistic purpose. Such a purpose, even when conceived in many different minds, was bound to have common characteristics when there was a single main tradition in art such as existed in the Gothic age and in a different form in the seventeenth and eighteenth centuries.

Modern business administration has helped make it possible to carry out effectively operations in the construction industries directed towards speed, quantity and sanitation. But the very success achieved in these respects has made it increasingly difficult for architects and designers to formulate an artistic purpose. That requires time for reflection and for new beginnings. It involves waste on a small scale. And while waste on the grand collective scale is applauded in modern American society because of the orders that it brings to business, the waste on a small individual scale indispensable for the achievement of artistic ends is confused with idleness. It is generally condemned. Rich Americans put millions into business or into endowment funds for colleges without hesitation, although they refuse to spend a few extra thousand dollars to permit a son who wants to be a poet or a painter to devote himself to such work after he has completed his education or even to allow him to drop his education for such dilettante and unremunerative pursuits. Efficiency is now confused with excellence, when the two are distinct, and when disproportionate importance can be given to the one only at the expense of the other. As A. C. Bossom, a British town planning expert is reported to have explained during the war, it is efficient to design new buildings "to last no longer than twenty-five or fifty years." They should then be scrapped to make room for others provided with the new conveniences devised in the interval. Is such an efficient purpose likely to contribute to their excellence?

The sense of delight has been eclipsed by the worship of material utility and activity. The difficulties the individual artist has to face are multiplied in the case of the architect, for to serve delight in architecture requires more human cooperation and collective planning than the service of delight in other arts. Planning has meaning for

modern Americans almost exclusively as an economic or political device. Business and political planning have certainly a great importance for economic and political ends. For artistic ends, as such, they have none. An editorial writer of the *New York Times* recently explained that, with technology "standardizing the world, ... it is harder than ever to be different." Art depends upon the cultivation and the use of creative differences; to be successful, economic and political planning, as they are practiced in our time, level human differences after the manner of a steamroller preparing a newly laid roadbed for heavy traffic. So planning is now less an ally than an enemy of architectural delight.

It is necessary for a great age of architecture that the claims of structure, utility and delight should be reconciled. That reconciliation is not only impeded by the disposition to exaggerate the value of utility and even structure. It is impeded even more by the multiplication of obstacles that block a clear view of the nature in art of body, charm and perfection, when such a view is the only possible starting point for a satisfactory reconciliation in artistic terms.

VI.

Conditions in the higher learning are partly responsible for the growth of such obstacles. The tendency has been for the natural sciences to become more and more practical in their objectives. This has found a reflection in the kind of instruction in science given in the colleges and high schools, and has helped to confuse the public about the nature of science and technology, and the reciprocal relations between them which make for human happiness. At the same time, the prestige attached to the natural sciences has led the methods of observation and of the collection of data to assume in the humanities and social sciences a disproportionate place, sometimes to the exclusion of other rational processes necessary in the creation of art. Theology and even speculative philosophy have lost their positions as integral and guiding elements in humanistic and social studies.

The artist can and often should make use of scientific knowledge and scientific methods. Here again science is an excellent slave, a useful ally, but not a good master. A subtle and decisive use of the imaginative qualities of the intellect is essential to great art. It is necessary to deal with material in human terms by analogy and metaphor rather than by methods derived from chemical analysis or the

study of logic. The artist sees the world not as it is but as humanity at its best would like to have it. His art is closely akin also to the experiences inherent in the profound religious faith of the saint. So it has followed that the tendency in recent times in learning and education to reduce to small dimensions the place of humanity and faith, and of the imagination necessary to both, the tendency to deny any rational validity to results which are not susceptible to positive material proof, have increased the difficulties in the way of architectural art. This tendency has not made impossible the emergence of occasional artists in architecture. But it has left them with little influence upon manufacturers, bankers, householders, real estate agents, building contractors, political authorities concerned with housing and even upon interior decorators and fellow architects. The result is that the good work of the few is drowned in the mediocrity and want of artistic craftsmanship of the many.

Among the conditions essential to the creation of beauty is the power of selection, of simplification. *Choice* is of the essence of art. It involves of course continual uncompromising rejections, completely irrelevant to a political and economic world of compromisers and chiselers and also irrelevant to the rational and meritorious business principle of operating at a profit. Compromise is inevitable and even desirable in practical life; in the speculative realm it can produce only disaster. If we may paraphrase some words attributed to Paul Valéry, one of the most important ways in which the artist reveals himself is by the character of his refusals. It is unnecessary to labor the point that the overwhelming increase in the quantity of almost all materials and commodities during the past two hundred, and especially the past hundred years, has made it indispensable for the artist to reject far more ruthlessly than in the past, has added enormously to the problems of choice and simplification.

It is not only that quantity has increased overwhelmingly. In many lines there has been a tendency for quality to deteriorate. One of the obstacles in early modern times to the use of coal as fuel, in place of charcoal and wood, was the aesthetic damage done by the new fires to products such as glass and iron. The aesthetic difficulties created by the scarcity of timber, which forced manufacturers to abandon eventually the use of firewood and charcoal, have not yet been solved. Nor have the aesthetic difficulties created by the introduction and spread of methods of manufacturing cheap paper. Both are symptoms of a

growing pressure in the direction of shoddy workmanship, fatal to the sense of permanence which is an essential ingredient in the work of an artist. When one looks at certain modern groups of buildings, for example in the region of Hollywood and Los Angeles, one has sometimes a not altogether deceptive impression that they resemble *papier-maché*. Indeed one sometimes wonders whether the whole modern machine-made world may not crumble away. A piece of a modern building, unlike a piece of a renaissance building, has no longer the substance necessary to keep it intact if the building tumbles down. When the parts are rotten what can be expected of the whole? The factories thrown up at the turn of the eighteenth and nineteenth centuries in north Wales, where industrial civilization has already petered out, have disappeared without trace, leaving mediaeval churches and monasteries in command of the scene. Can we be sure that the same process will not be repeated in country after country? And what then of countries which have no mediaeval churches and monasteries, which have not even renaissance town halls and law courts?

It should be obvious even in the United States to anyone who reads the newspapers that modern warfare also constitutes a terrible menace to the hope of relative permanence—a prospect which encourages the artist to husband and practice his aesthetic talents to the full. One result of the increasing abundance of materials and of the decline in the sense of humanity and taste, which bound the Western peoples together after the religious wars of early modern times, has been the advent of total war.[19] Indiscriminate shelling and bombing from flocks of heavy airships and the ruthless use of atomic bombs threaten to wipe out the last vestiges of Western architecture, which has been a part of the tradition of thirty generations of Europeans—Latins and Nordics alike.

We cling to these old buildings as records of the past, partly alas because the modern trade of scholarship, which occupies many hands, is threatened with unemployment when they disappear. The work of the modern artist has not even this limited protection. Is it likely that the air forces of the future will spare the masterpieces of Sullivan or Wright, Mies van der Rohe or Le Corbusier, or their most illustrious contemporaries and followers? Their buildings have never achieved anything like the general recognition accorded Notre-Dame de Chart-

19 Nef, "La vie de l'esprit et la grande paix," *La République Française*, December, 1944, pp. 15-16, January, 1945, pp. 14-16.

res, Saint Peter's or even the churches of Wren, most of which have already gone. It did not require bombing planes to get rid of Wright's Midway Gardens, which could once be seen from the rooms in the University where "the Chicago school" does its teaching. After hardly a decade of life for that striking building, it was torn down to make room for a modern garage. Anyone who visits Chicago can have his car washed there, but the mechanic who serves him will never have heard of the Midway Gardens or of Wright.

What war means and is likely to mean to the future of architecture can be gleaned from the following Associated Press despatch of August 16, 1944, from Domfront in Normandy, described by the newspaper correspondent as "a turreted mediaeval place." "There is heavy damage in the middle of the town," we read. "About mid-day a single blast broke the stillness. It was a platoon of United States army engineers destroying the town's old Louis XIV arched bridge, deemed unsafe for military travel. . . . The officer in charge said it would take two hours to put another bridge in its place, 'after we get this stuff out'."

VII.

In the shadow of the most comprehensive and materially destructive war in history, which appears as a continuation of an earlier long world war no less deadly, in the face of historical evidence that wars are inclined to beget wars, it would be somewhat over-optimistic to suggest that architects can now build confidently in the hope that their work will endure, will leave its trace long after they are dead. With conditions what they are, with the general loss of faith in the value of the independent and imaginative mind, dedicated to truth and to beauty in and of themselves, the chances are slight for the few who have genius, force and integrity to influence a world disposed to settle all questions on the basis of profits made, votes recorded or dicta issued by some political leader. But it would be inhuman to abandon all hope for art. As we remarked at the beginning of this essay, the human species is full of strange contradictions. Among these is its incapacity to carry any movement, even a destructive one, to its logical conclusion. As we consider the Western peoples today, we are bound to ask what are the elements of hope? On what does their cultivation depend?

It is more than a decade since Valéry, with his genius for rolling the essential into a phrase, remarked in 1931, "le temps du monde fini commence." More than a decade before that, in 1919, he had

written a sentence which is much more famous, "Nous autres, civilizations, nous savons maintenant que nous sommes mortels."[20] Let us consider the significance of the two statements, and particularly of the one made later in time, for the problem we have set ourselves in this essay. In six words Valéry says what the lamented Wendell Wilkie was destined twelve years later to try, less successfully, to put in a substantial pamphlet that sold by the hundred thousand in the United States. What did Valéry mean? Among many important things, he meant that the possibilities for territorial expansion, characteristic of Western civilization since its beginnings in the eleventh century, were at an end. The human race has no longer any place to go, unless it be to the north or south pole or to the moon. Everywhere on this globe—in trains, in offices, in elevators, on sidewalks, in subways, in battle, in the rubble of what were once towns and industrial suburbs, in the remnants of concentration camps and cantonments—man stands face to face with his brother. It is open to him to kill his brother. The events of the past thirty years would make it somewhat overoptimistic to exclude the general collapse of civilization as a possibility. Are we Westerners any less mortal in 1945 and 1946 than we appeared in 1918 and 1919? Have we really understood the lessons of the uneasy peace that intervened between two world wars?

Man has the alternative of learning to live with these brothers, whatever be their color, their class, their race or their nationality. The alternative to pushing out, as our ancestors have done, at the expense of others is for each of us to settle down where he is. Now that there is little open territory left on the globe to colonize, now that the phenomenal growth in population shows signs of ending, the conditions may possibly again be at hand where it will be feasible to assert the claims of the permanent in human nature. But this will only be possible if nations and groups learn to live together.

Man cannot live with his brother unless he recognizes their common human nature, which is partly an imaginative and spiritual nature, with rational burdens, hopes, joys and tragedies. Machinery and rapid communications have made it more difficult in many ways for men to recognize their brothers. In many ways they have made it more difficult to meet the overwhelming problem which has always beset mankind of living at peace. But by bringing all men everywhere face

20 *Regards sur le monde actuel* (Paris, 1931), p. 35; "La Crise de l'esprit," in *Variété* (Paris, 1924), p. 11.

to face, they have helped to clarify what the technical revolution of recent times has made it impossible to escape.

In spite of the popular inanities of education and the pedantry of most of what passes for scholarship, learning in its higher reaches has done much during the past fifty years to reveal the nature of the fundamental issues which confront modern man and consequently the modern architect and city planner. As an outsider and historian, I write with diffidence concerning recent basic discoveries in the natural sciences. But do not the results obtained in astronomy suggest that the physical universe itself, like the terrestrial globe, is finite, and not infinite? Does not Professor Whittaker's article on "Newton, Einstein, Aristotle," published on this side of the water in *Science* in September, 1943, suggest that the new physics, which has emerged from the quantum theory and the theory of relativity is less in accord with the modern philosophical systems that have been based on Newton's view of the physical universe, than it is with the Aristotelian metaphysics which preceded them? Does not Professor Sherrington's *Man On His Nature* suggest that the great scientific advances of our time in physiology, and in a knowledge of the structure of the brain, have left men no better off, when it comes to understanding the actual workings of the mind and the imagination, so essential to art, than was Aristotle?

The Aristotelian metaphysics and the Aristotelian ethics and politics, are among the conceptions which laid the foundations for the humanist view of the world. These were later made part of the Christian view of the world. If conclusions such as those of the great modern scientists indicate the new directions in which speculative scientific thought is moving, science may be clearing the way, by defining its own limitations, for an artistic view of man and the world and even for an art of architecture. The sphere of natural science, like the material world and the physical universe accessible to man, is finite not infinite. The artist, like the saint, has access to deeper and more universal sources. He has therefore the opportunity and the duty to lead.

To clarify problems is not to solve them, especially when the clarifying voices are drowned in a sea of noise and headlines or blurred beyond recognition in the process of transmission. The scientific clarification, together with the study of history, ought to help nevertheless to make plain the nature of the responsibilities of architects, city planners,

scholars, writers and teachers. If their object were a future art of architecture, they should throw all the free choice they possess in the direction of re-establishing man's claim to be a rational creature, with an imagination and a soul as well as a body. They should work to restore art to its rightful place as the directing principle in architecture and city planning. This can be done only by subordinating the values in sales promotion, advertising and publicity, as well as the values (if any exist) in totalitarian leadership, to other more human and less transient values, that we have now largely lost sight of.

If they feel called, a few historians can help the architect by ceasing to be mere specialists, by selecting their materials in the light of philsophical and artistic objectives. A historian of that kind would recognize his responsibilities as a judge, with recurring human values as his measure. He would recognize his responsibilities as an artist to breathe the spirit of art into the composition that embodies the materials which he selects. In spite of the great differences between the particular problems of the various arts, the serious and successful cultivation of one is of benefit to the others. Works of art are not competing products. There will never be enough of them to produce an economy of abundance. The danger is that they will be lost altogether in the craze for pseudo-artistic products which multitudes can be seduced or forced to accept.

If he feels called, the teacher in colleges, high schools and elementary schools has a duty to concentrate in his teaching upon the same human values that should guide a few historians. Another kind of teacher concerned with the making of material things, if he feels called, can emphasize the possibilities for artistic craftsmanship. He can help to train labor capable of executing effectively and in the spirit of delight the artistic conceptions of responsible architects.

Such new directions for manual labor will involve great new expenses. But technological advances have provided us with opportunities for leisure, without endangering the abundance which industrialism has provided. The people of the United States, on a continent spared the destruction which has shattered Europe, have managed to live an existence which our ancestors would have regarded as highly comfortable, while much more than half our productive efforts have been directed to waging war. There has been no rise in the death rate among the non-combatant population such as would suggest that the

restricted supplies constitute a danger to physical well-being. But war only complicates the problem which leisure now presents. A sense of common purpose in constructive building offers one way of approaching its solution. We have the means to create an art of architecture; what we lack is the imagination and the will. What the public and its leaders lack is the desire and the courage to make the right refusals.

Neither faith nor art is of any "use" in the ordinary sense of utility, as the word appears on the lips of the technician, the business man, the wage earner, the social welfare worker, the military general or the ordinary pacifist. Yet it is through faith and art that mankind might move toward salvation. Without a redemption Western civilization may disappear leaving less trace than earlier great civilizations—the Greek, the Hebrew, the Roman. The contributions of these civilizations to the last millennium of European life are evident not only in every work of Western genius, but in the customs and traditions of over thirty generations of men and women, unlettered as well as lettered, poor as well as rich, humble as well as proud. Are the contributions of that millennium to be lost or preserved? As architecture is both a reflection of civilization and an influence upon it, the answer to this question will appear in the future of architecture.