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Book Author(s): GEORGE KUBLER

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Four. Some Kinds of Duration

The modern professional humanist is an academic person who pretends to despise measurement because of its “scientific” nature. He regards his mandate as the explanation of human expressions in the language of normal discourse. Yet to explain something and to measure it are similar operations. Both are translations. The item being explained is turned into words, and when it is measured it is turned into numbers. Unfortunately the tissues of history today have only one dimension that is readily measured: it is calendrical time, which permits us to arrange events one after another. But that is all. The domain of the historical sciences remains impervious to other numbers. We can nevertheless use the language of measurement without numbers, as in topology, where relationships rather than magnitudes are the subject of study. Calendrical time indicates nothing about the changing pace of events. The rate of change in history is not yet a matter for precise determinations: we will have advanced if only we arrive at a few ideas about the different kinds of duration.

The history of things is about material presences which are far more tangible than the ghostly evocations of civil history. The figures and shapes described by the history of things are moreover so distinctive that one asks whether artifacts do not possess a specific sort of duration, occupying time differently from the animal beings of biology and the natural materials of physics. Durations, like appearances, vary according to kind: they consist of characteristic spans and periods, which our generalizing habit of lan-

guage makes us overlook, since we can transform them so easily into the common currency of solar time.

FAST AND SLOW HAPPENING

Time has categorical varieties: each gravitational field in the cosmos has a different time varying according to mass. On earth at the same instant of celestial time, no two spots really have the same relation to the sun despite our useful convention of time-zones regulating the regional concordance of clocks. When we define duration by span, the lives of men and the lives of other creatures obey different durations, and the durations of artifacts differ from those of coral reefs or chalk cliffs, by occupying different systems of intervals and periods. The conventions of language nevertheless give us only the solar year and its multiples or divisions to describe all these kinds of duration.

St. Thomas Aquinas speculated in the thirteenth century upon the nature of the time of angels, and, following a neo-Platonic tradition,¹ he revived the old notion of the *aevum* as the duration of human souls and other divine beings. This duration was intermediate between time and eternity, having a beginning but no end. The conception is not inappropriate for the duration of many kinds of artifacts—so durable that they antedate every living creature on earth, so indestructible that their survival may, for all we know, ultimately approach infinity.

Confining our attention to the history more than the future of man-made things, what conditions must we take into account to explain the variable rate of change? The social scientists describe material culture as an epiphenomenon, that is, as the necessary result of the operation of forces which the social scientists have already formulated and charted. For instance, small societies dispose of less energy than large ones, and they are consequently less able to initiate costly enterprises. Such quantitative assessments of cultural effort permeate sociology, anthropology, and economics. One example is the economic explanation of the position of the artist and designer in twentieth-century industrial life. To the

economist artifacts change according to the market: a falling or rising demand for an article affects the volume of production; opportunities to change the product vary with production.

But our earlier distinction between prime objects and replica-masses suggests another line of argument. The existence of masses of copies testifies to a large public, which may desire or condemn change. When change is wanted, the public itself requires only improvements or extensions upon the actual product. Public demand recognizes only what exists, unlike the inventors and artists whose minds turn more upon future possibilities, whose speculations and combinations obey an altogether different rule of order, described here as a linked progression of experiments composing a formal sequence.

This separation between designer and consumer of course does not hold in many kinds of society, where most objects are made in the family circle. But the division by prime objects and replica-masses holds for peasant society as well as for the tribal compound and the courts of eighteenth-century Europe. There can be no replica without an original; and the family of originals takes us back directly to the genesis of human society. If we wish to explore the nature of change, we must examine the sequence of forms.

The replicas may directly reflect such magnitudes as wealth, population, and energy, but those magnitudes do not alone account for the incidence of the original or prime expressions from which the replicas derive. Prime expressions in turn occur in formal sequences. This conception supposes that inventions are not isolated events, but linked positions of which we can trace out the connections. The idea of seriation also presupposes a structural order in the sequence of inventions which exists independently of other conditions. The order of realization may be deformed, and the sequence may be stunted by outside conditions, but the order itself is not the consequence of such conditions. Under certain circumstances an inherent structural order in the sequence of new forms is easily apparent to many observers: we perceive it most clearly in the early stages of Greek figural sculpture, Gothic architecture, and Renaissance painting, where linked runs of re-

lated solutions follow one another in a recognizable order as if following out the conditions of a prior program common to these various evolutions.

Runs of this type are nevertheless far from common. Because of the completeness of the inventory of the European past they come into view more frequently there than on other continents. But their appearances are widely separated, as if events of this magnitude could not recur frequently. Perhaps they are like the *aurora borealis*, best noted at some latitudes rather than others, as field manifestations visible only under special conditions.

The Typology of Artists' Lives

More readily available for observation are the lives of famous artists. The pace and tone of an artist's life can tell us much about his historical situation, although most artists' lives are uninteresting. They fall usually into routine divisions: apprenticeship, early commissions, marriage, family, mature works, pupils, and followers. Sometimes the artist travels, and occasionally his path crosses those of more colorful persons. Cellini, who was not an interesting artist, led an exciting life, which kept him from the difficult business of art.

The individual in search of a personal expression, when confronted with the local stock of possibilities available to him upon his entrance, must select the components he will use. This gradual accommodation between temperament and formal opportunity defines the artistic biography. Our evidence is limited to careers that have withstood the assaults of time: we have only the "successful" outcomes to all these chancy adjustments between the individual and his moment, and from them all only a few types emerge, of which our knowledge is continued to Europe and the Far East. As a literary genre, artistic biography was not practiced elsewhere.

By definition a formal sequence exceeds the capacity of any individual to exhaust its possibilities in one lifetime. He can nevertheless imagine more than he can execute. What he executes obeys a rule of sequence in which the positions but not the intervals are determined. Both what he imagines and what he executes

depend upon his positions in the sequence, upon his entrance into the form-class (p. 30). An affinity exists between each of these opportunities and the corresponding human temperament.

There are slow-paced, patient painters, such as Claude Lorrain and Paul Cézanne, whose lives contain only one real problem. Both men were alike in their dedication to the portrayal of landscape and they were alike in finding outmoded teachers for their effects. By relying upon his Bolognese predecessors, Domenichino and the Carracci, Claude renovated the landscape of Romano-Campanian antiquity. Cézanne turned to Poussin, like so many French painters with an interest in tectonic order. The resemblances are not mere biographical coincidences nor are they temperamental affinities alone. The anonymous mural painters of Herculaneum and Boscoreale connect with those of the seventeenth century and with Cézanne as successive stages separated by irregular intervals in a millenary study of the luminous structure of landscape, which probably will continue for many generations more upon equally unpredictable rhythms. The type flourishes only in those urbane periods when the ascendancy of special vocations allows persons of a ruminative tendency the leisure to achieve their difficult varieties of excellence.

Under these conditions, and for as long as the old pictures or their derivatives survive, painters of a certain temperament will feel summoned to meet their challenge with a contemporary performance. Ingres continued upon the lines marked by Raphael; Manet accepted the challenge put before him by Velázquez. The modern work takes its measure from the old: if it succeeds, it adds previously unknown elements to the topography of the form-class, like a new map reporting unexpected features in a familiar but incompletely known terrain. Sometimes the map seems finished: nothing more can be added; the class of forms looks closed until another patient man takes a challenge from the seemingly complete situation, and succeeds once more in enlarging it.

Altogether different from these ruminative artists of a single problem are the versatile men. Their entrances may occur at either of two junctures, of social or technical renovation. The two kinds sometimes coincide, as in the Renaissance. Technical renovation

is like a spring thaw: everything changes at once. Such moments in the history of things occur when new techniques suddenly require all experience to assume their mold: directors of cinema, radio, and television have thus transformed our world in this century, and the Vasari who should find his entrance ready for him about a generation from now, will then record and magnify these legendary figures of sound and shadow whose myths already rejoin those of classical antiquity.

The other moment for the appearance of the versatile men occurs when a whole society has been resettled along new lines of force after great upheavals, when for a century or two the endlessly complicated consequences, implications, and derivations of novel existential assumptions must be set in order and exploited. The greatest concentration of these versatile artists appears in Renaissance Italy, where they flourished as a recognizable social type under the patronage of merchant princes and small nobility, of popes and *condottieri*. Alberti, Leonardo, and Michelangelo are its most celebrated Italian representatives; Jefferson was an even rarer type, the artist-statesman.

These epochs of social displacement when new masters take control are of course not always periods of artistic renewal. The revolutionary transformation of French national life at the close of the eighteenth century witnessed new and striking fashions, but there was no fundamental artistic renovation comparable to that of the fifteenth century in Italy. In general, this renewal has to occur in works of art and among groups of artists, and it cannot come from government decrees. There need be no renovation at times when ample future scope still appears in the current traditions. As the versatile man is called into being by the time of renovation, so the patient student of single problems flourishes in a time of settled futurities.

It would be unhistorical to suppose that any period of time ever has a uniformly patterned structure such as the foregoing remarks are in danger of suggesting. But it is also unhistorical to represent a given period in the history of architecture, like the Periclean age, as a time of unpatterned or unlimited possibilities. Certain aims had already been accomplished, and the outlines of new possibili-

ties were apparent. The men of the generation of Mnesicles had little choice but to move from the position just gained to the next position as it appeared to them from their vantage as professionals estimating the chances of success and failure among the public of the day.

A very few versatile men with favorable entrances also have in common the ability to assume in rapid succession a large number of the available positions and thus to anticipate their successors for several generations, even adumbrating another new series before the one in which they are engaged has been played out. Michelangelo is the most notable of these proleptic artists; Phidias may have been another. Such men prefigure in the work of a few years the series that several generations will slowly and laboriously evolve: they are able by an extraordinary feat of the imagination to anticipate a future class of forms in relatively complete projection. The feat is not easily visible to their contemporaries. It appears more clearly to historians with panoramic hindsight, long after the event. It induces the idea that change can be brusqued into premature readiness by the action of such exceptional individuals.

Certain other biographical patterns among artists can be identified. The number is small, perhaps only because so few biographies of the world's artists and artisans are preserved, but more likely because the variation of type is inherently small among the lives of inventive persons. Thus Hokusai resembles Uccello as an obsessive painter of a type to which Piero di Cosimo, Rembrandt, and Van Gogh also belong as lonely and withdrawn men to whom painting was a complete life. They are neither ruminative and patient, nor versatile and proleptic, but solitary men who totally occupy the positions given them upon their particular entrances. Even architects, whose work demands gregarious virtues, can be found among their number: the careers of Francesco Borromini and Guarino Guarini belong to this obsessive group by the strange, intense, and complete reality with which they clothed their lonely, imaginary worlds.

A contrasting type is the evangelist whose mission is to im-

prove the visible world by the imposition of his own sensibility. No major architect of the present century has been able to practice without assuming this evangelical garb. The missionary-artist is often a vigorous teacher and a prolific writer flourishing best when he is in command of academies of right practice. J.-A. Gabriel, the leader of French architectural taste, or Frank Lloyd Wright and Sir Joshua Reynolds are examples. Each of them exercised an autocratic taste, founded upon selected conventional traits, which the older men took from an aristocratic tradition, and which Wright took from H. H. Richardson and Louis Sullivan.

Two distinct kinds of innovators occur in the history of art. The rarest of them are the precursors, like Brunelleschi, Masaccio, or Donatello, whose powers of invention find a proper entrance no oftener than once every few centuries, when new domains of knowledge are opened through their efforts. The other kind is the rebel who secedes from his tradition the better to have his own way either by altering its tone like Caravaggio, or by challenging its entire validity, like Picasso. The precursor may also be a ruminative or an obsessed artist like Cézanne. Without being a rebel the precursor quietly lays new foundations within an old preserve. The precursor can have no imitators: he is always *sui generis*, while the rebel appears in crowds, because the way of the rebel is easily imitated. The precursor shapes a new civilization; the rebel defines the edges of a disintegrating one.

The genuine precursor usually appears upon the scene of a provincial civilization, where people have long been the recipients rather than the originators of new behavior. The rebel like Picasso finds his situation at the heart of an old metropolitan civilization. The necessary condition for a precursor is that his activity be new; for a rebel that his be old. Precursors have to mold their work in the shell of an older guild, like Ghiberti, who was apprenticed as a goldsmith, or find a place for it at the bottom of society like the creators of the early cinema. The rebels, on the other hand, who shape their lives on the fringes of a society they despise, have to form a new civil condition in the pursuit of some integrity of life and work. Gauguin's is the most celebrated example,

in the special form of the artist as a bourgeois refugee continuing the romantic convention of Parisian bohemianism among primitive villagers in Tahiti.

These six types of careers: precursors, *hommes à tout faire*, obsessives, evangelists, ruminatives, and rebels all exist at once in modern occidental society. Of course they cannot all occupy the same formal sequences. Each sequence affords the opportunities of its particular systematic age to only that group having the temperamental conditions for a good entrance. Thus television calls upon a special temperamental class for its directors today, but it will require another kind of temperament in a later decade, while the men then who might have been television directors today, may turn to another theatrical form which will be more prepared to give them their entrances.

As we look at other societies and at earlier times, it becomes impossible to document the existence of any variety of careers. The bohemian cannot be identified before the seventeenth century in Europe or China. Indeed in older societies it is likely that the borderlines between careers were much less apparent than they are today, that ruminative and obsessed artists merged, like precursors and rebels, or versatile and evangelical men, without the clear separation noted today. In the Middle Ages the individual artist remains invisible behind the corporate façades of church and guild. Greco-Roman and Chinese histories alone report in any detail the conditions of individual artists' lives. A few names and lines of text are all we have about Egyptian dynastic artisans. The records of the other civilizations of antiquity in America, Africa, and India tell nothing of artists' lives. Yet the archaeological record repeatedly shows the presence of connected series of rapidly changing manufactures in the cities, and slower ones in the provinces and in the countryside, all manifesting the presence of persons whom we can call artists. They did not all flourish together at the same time as they do today in the great cities of the principal states, where more classes of forms coexist than there are talents to staff them. For instance, progressive painting today mainly attracts rebels, while the precursors and the ruminatives either paint as obscure men under a protective coloration

that shields them from success, or they belong to other guilds like stage design or advertising art, where their peculiar dispositions are more urgently needed than in painting for fashionable dealers. In older societies, fewer sequences were in active development at one time, and the opportunities for the whole spectrum of temperaments were correspondingly more modest.

Tribes, Courts, and Cities

A provisional explanation of the fast and slow changes in the history of things now emerges. The intervention of men to whom art is a career, of men who spend all their time in the production of useless things, occasions the shift from slow to fast happening. In tribal societies of a few hundred families, where everyone must raise food most of the time by endless toil in a harsh environment, there is never enough margin beyond subsistence to allow the formation of those specialized guilds of artisans who are exempted from growing food. In such societies the manufactures show change, it is true, but that change is the change of casual drift, of cumulative habit, of routine repetition with minor variations, which through the generations yield a characteristic pattern.

The pattern resembles that of the changes in the things made under more complicated social structures. It shows the expected progression from early to late systematic age within the different classes of pottery, housing, and ritual instruments. Distinct form-classes succeed one another. Within the scope of three or four generations a clear shape corresponding to the physical identity of the tribe can be detected by the attentive student. But the progression, the succession, and the shape all are more muted and less distinct than in larger societies, and the pace is slower. Less happens; fewer inventions occur; and there is little conscious self-definition of the tribe by its manufactures.

This contrast selects only extreme cases—the tiny tribe of a few scores of families struggling to survive, and the vast metropolis with its crannies and ledges sheltering the meditations of many inventive minds—to exemplify the most sluggish and the most vertiginous kinds of change. Between them are at least two inter-

mediate positions. It is too simple to suppose that the gradient is a continuously smooth one. Between London or Paris, and the forest tribes of Amazonia or New Guinea, the gradations of social organization are far from continuous; they are more like a mountainous escarpment with bold high tiers of cliffs separating several terraces.

Absolute demographic size is irrelevant. Small cities have generated the principal events of history more often than the megapolis. An urban setting is a necessary if inadequate condition for the occurrence of fast happening. The setting is urban when the privileged city dwellers are not a self-sufficient tribe but a group of rulers, artisans, merchants, and parasites dependent upon the labor of food-growing rural populations scattered throughout the countryside.

Urban life alone is not enough. The provinces all have cities, but the tedium of provincial city life is proverbial. It is tedious because the provincial city is like an organ that usually can only receive and relay messages from the higher nervous centers: it cannot issue many messages of its own, other than of pain or discomfort; and its active elements perennially emigrate to the true centers of happening, where the central decisions of the whole group are made, and where the concentration of power draws together a class of patrons for the inventions and designs of the artist. These are true metropolitan conditions. They are the only necessary and adequate conditions for the appearance of the rapid historical pace that has always marked life in the chief cities of man.

Thus we have four societal phases to consider in this discussion of the velocity of artistic events: (1) tribal life, face-to-face with nature and unable to afford artisans; (2) provincial towns and cities with their derivative arts, including those capital cities which specialize only in government; (3) tribal societies that include professional craftsmen with originating powers; (4) cities or courts which issue the invisible yet ultimate orders. The tabulation pertains to Greco-Roman civilization, to Chinese dynastic society, and to the modern world since 1800 with its political division by ruling states and colonial empires, and by capital cities

drawing to themselves the flower of provincial talent. It is valid also for the urban civilizations of ancient America. The ranking of provincial cities as less favorable environments than tribal societies which have their own craft traditions may seem arbitrary, but it is justified in regard to the conditions of original artistic activity: an Ashanti bronzeworker in mid-nineteenth-century Africa was perhaps more favorably situated as an artist than his contemporary colleagues in Chicago or Mosul, who were limited to the making of provincial replicas and useful stereotypes.

In medieval Europe before 1400 a different scheme is needed. The feudal courts, the abbeys, and the cathedrals were the generating centers for important commissions; the surrounding countryside was the receiving province, and the larger cities depended upon the intermittent presence of the royal court for their access to favor and power. Following the Renaissance, the capital cities rose to greater importance, but until 1800 the many small princely courts of Europe were true centers of artistic excellence, taking only rarely a provincial relationship to the great cities, which often were themselves more provincial in certain respects than, for instance, the duodecimo duchy of Weimar which supported Goethe. Today the leveling of the world by mass entertainment and industrial monotony is so complete that only the richest cities and a few university towns remain as citadels of learning and discrimination.

The different historical climates of patronage afforded different settings for the six kinds of career we discussed earlier. The precursor and the rebel could have no place either in a tribal society or in provincial life where non-conformity leads to grave punishments. Only the richest centers of power can support the *homme à tout faire* or his academic counterpart, the evangelical *chef d'école*. The obsessed men and the ruminatives can work anywhere, but their training and formation require that they spend some time at court or near the sources of patronage to become part of the stream of fast happening.

In other words, there are only two significant velocities in the history of things. One is the glacier-like pace of cumulative drift in small and isolated societies when little conscious intervention

occurs to alter the rate of change. The other, swift mode resembles a forest fire in its leaping action across great distances, when unconnected centers blaze into the same activity. The history of a recent invention has many instances of this apparent action at a distance, as when two or more professional men without knowledge of one another's work, come to the same solutions independently yet simultaneously, from common premises and similar method.

An important variant of fast happening can be described as the pace of intermittent duration: a problem receives early attention, like Heron's steam engine, or Greco-Roman still-life painting. In the absence of supporting conditions and reinforcing techniques, the invention then languishes in obscurity for many centuries until those conditions are produced that allow the form-class to reenter the inventive conscience of another civilization. This intermittent mode of happening has rapid instants, and it is confined to the principal centers of civilization, but it is irregular in pace, and its full consequences are extremely slow to be extracted.

The full range of artistic careers, from precursors to rebels, thus can unfold only under metropolitan conditions, when a wide selection of active sequences is available. Fast happening depends upon favorable conditions of patronage and career, while slow happening characterizes provincial or tribal settings where neither patronage nor possibilities of career exist to stimulate a more rapid exploration of the various classes of forms.

THE SHAPES OF TIME

The number of ways for things to occupy time is probably no more unlimited than the number of ways in which matter occupies space. The difficulty with delimiting the categories of time has always been to find a suitable description of duration, which would vary according to events while measuring them against a fixed scale. History has no periodic table of elements, and no classification of types or species; it has only solar time and a few old ways of grouping events,² but no theory of temporal structure.

If any principle of classing events be preferred to the impossi-

ble conception that every event is unique and unclassable, then it must follow that classed events will cluster during a given portion of time in an order varying between dense and sparse array. The classes we are considering contain events related as progressive solutions to problems of which the requirements are modified by each successive solution. A rapid succession of events is a dense array; a slow succession with many interruptions is sparse. In the history of art it occasionally happens that one generation, and even one individual achieves many new positions not only in one sequence but in a whole set of sequences. At the other extreme a given need will subsist for generations or even centuries without fresh solutions. We have already examined these occurrences under the heading of fast and slow happening. They have been explained as contingent upon position in the series and upon the varying pace of invention in different centers of population. Let us now look at further varieties in the array of serial positions.

Positional Values

An *Apostolado* by Zurbarán is a unified and coherent work of art.³ It consists of twelve or thirteen paintings that portray the apostles. Each picture can be seen alone, but the painter's intention and the patron's wish were to have the entire group seen together as a corporate work of art in a prescribed sequence and occupying a specified space. Many things have similar group properties which require them to be perceived in a predetermined order. Buildings in their settings are a sequence of spaces best seen in an order intended by the architect; the sculptured faces and separate parts of a public fountain or monument also should be approached as planned; and many paintings were originally meant each to have a fixed position in a sequence, from which a total narrative effect might arise.

In such corporate works of art, each separable part has a positional value in addition to its own value as an object. Usually our comprehension of a thing is incomplete until its positional value can be reconstructed or recovered. Hence the same thing can be quite differently valued as an object separated from context, and as a corporate work in its intended setting. Greco-Roman art de-

pendes greatly upon positional values: Philostratus' *Imagines* and the contrasting pedimental narratives at Aegina or on the Parthenon are examples. Often the positional value adds to the interpretation, as when Old and New Testament stories are paired by the parallels, antetypes, and prefigurations that have been parts of Christian teaching since before Prudentius' *Dittochaeum*.⁴

To these obvious values accruing from spatial position we can add another category accruing from temporal position. Because no work of art exists outside the linked sequences that connect every man-made object since the remotest antiquity, every thing has a unique position in that system. This position is marked by coordinates of place, age, and sequence. The age of an object has not only the customary absolute value in years elapsed since it was made: age also has a systematic value in terms of the position of a thing in the pertinent sequence.

Systematic age enlarges our conception of historical position. The idea requires that we relate each thing to the several changing systems of forms in which its occurrence belongs. Hence the usual names of things are inadequate because they are too general. It is too broadly inclusive to speak of the systematic age of an English country house like Sevenoaks, built during many centuries; we can consider only its parts and the ideas for their unification when we establish systematic ages. A great stair, for example, if built in 1560 would be a very new form in its class, for great stairs began to be built in Spain and later in Italy no earlier than the opening years of the sixteenth century.⁵ A remodeling in 1760 that imposed unsymmetrical, gothicizing variety upon an older house by John Webb (1611–74) was likewise very new in the form-class of picturesque architectural effects, while the Webb nucleus was late in its class of Italianate forms.

Periods and Their Lengths

Thus every thing is a complex having not only traits, each with a different systematic age, but having also clusters of traits, or aspects, each with its own age, like any other organization of matter, such as a mammal, of which the blood and the nerves are of dif-

ferent biological antiquity, and the eye and the skin are of different systematic ages.

Because duration can be measured by the two standards of absolute age and systematic age, historic time seems to be composed of many envelopes, in addition to being mere flow from future to past through the present. These envelopes, which all have different contours in the sense that they are durations defined by their contents, can be grouped easily by large and small families of shapes. We are not concerned now with the diminutive shapes of personal time, although each of us can observe in his own existence the presence of such patterns, composed of early and late versions of the same action. They extend through all individual experience, from the structure of a few seconds' duration, to the span of the entire life. Our main interest here is in the shapes and forms of those durations which either are longer than single human lives, or which require the time of more than one person as collective durations. The smallest family of such shapes is the annual crop of costume fashions carefully nurtured by the garment industries in modern commercial life, and by court protocol in pre-industrial regimes where fashion was the surest outward mark of high social class. The largest shapes, like metagalaxies, are very few: they dimly suggest their presence as the giant forms of human time: Western civilization; Asiatic culture; prehistoric, barbarian, and primitive society. In between are the conventional periods based upon the solar year and the decimal system. Perhaps the real advantage of the century is that it corresponds to no natural or determinable rhythm of happening whatsoever, unless it be the eschatological mood overtaking people at the approach of a millenary number,⁶ or the *fin de siècle* languors induced after 1890 by mere numerical parallelism with the 1790's of the French Terror.

There is certainly nothing in the history of art corresponding either to a century or to its tenth part. Yet when we consider the conventionally recognized span of Greco-Roman art, we are confronted with ten centuries—one millennium, from c. 600 B.C. to c. A.D. 400, as a possible duration. But no other millenary dura-

tions come to mind, and the Greco-Roman one depends upon arbitrary cuts at both beginning and end.

Rather than take space to review the cyclical conceptions of “necessary” historical durations which belong to another kind of speculation, we might consider more closely the periods that are said to correspond to known “working” durations and intervals in the history of things. A year is surely valid—it contains the round of the seasons. Many sorts of work fit into its span. The human frame ages perceptibly in a year, and forward plans in any detail are put forth year by year.

The Roman lustrum of five years has returned to favor in the planning of the socialist states. It is certainly more practicable a span for human affairs than the decade, which is too long for practical plans, and too short for many records. The decade is only a decimal position in the century. Both the decade and the century are arbitrary intervals rather than working durations. Other civilizations preferred a shorter duration, like the 52-year period of the Mexican peoples, composed of four indictions of 13 years each. It corresponds roughly to the length of an adult existence. This correspondence may have been coincidental, as the 52-year cycle was constructed for astrological use by an agricultural people, upon the combination of the solar year with a ritual farmer’s year 260 days long.

More to the point than our century is the length of a human generation. It is differently calculated according to different purposes and in different periods: in demographic studies it is estimated as 25 years, but in general history it runs to 32–33 years. The longer duration probably corresponds better to the happening of general events, while the lesser figure matches the simple happening of biological replacement. Three generations approach our century, and it might be thought that such a cycle would be useful in our studies, corresponding to the revolutions of fashion, whereby the taste of the grandparents in clothes and furniture, after having been rejected by the children, returns to favor in the generation of the grandchildren. In practice, however, these cyclical returns of fashion require less than half a century, and they are subject to deforming interferences from other sectors of happen-

ing, as Kroeber and Richardson showed in their remarkable study based on ladies' fashions since about 1650.⁷

The Indiction as Module

We have no customary calendrical duration corresponding either to single life expectancies (the Biblical "threescore and ten" is the exception) or to the statistical estimate of the length of a generation (25–33 years). Both of course have rapidly changed in the past century. Before 1800 life expectancy differed little from the expectancies recently estimated for paleolithic man, who at birth like Romans and *ancien régime* Frenchmen, would be expected by a modern actuary to enjoy less than 25 years. In their own time, of course, these persons were afflicted by no such idea: some people lived to be old, and others died young, but no one kept very close records. The working divisions of a human life were therefore much the same as they are today. Infants, children, and adolescents; young, mature, and old adults were the six usual age classes. Of these only the last four concern us, embracing the productive life-span of artists and craftsmen, from about twelve or fifteen years of age upwards. Hence the working lifetime of the man of art may be put at about 60 years, of which probably only 50 are spent at full power. We may take 50–60 years as the usual duration of an artist's life, rather than any figure over 60. Its four periods—preparation, followed by early, middle, and late maturity—each lasting about 15 years, resemble the indictions of the Roman calendar as well as the climacteric periods of developmental psychology. In any case, the term "indiction" is better than the "decade" of conventional usage. The decade is so short that it often fails to match the significant shifts in an artist's life-work. Periods longer than the indiction miss them again: something more than ten and less than twenty years best corresponds both to the vital periods of biography as well as to the critical stages in the history of forms.

Let us turn from artistic biography to the duration of the linked series of events which principally engage us. Certain classes of technical developments in the history of art require about 60 years for their formulation and 60 years for the first systematic

applications. The early history of large-scale rib-vaulted construction in Gothic architecture began in the Ile de France about A.D. 1140, and all the components of the Gothic spatial assembly were in existence by 1200. Some students of the question see the first formulation in Anglo-Norman territory, and its critical initial period as enduring from 1080 to 1140. Two distinct stages of inventive elaboration are present; the point here is that each lasts about 60 years. A similar phenomenon is the appearance of Greek vase painting in two stages of about 60 years each, hinged c. 510 B.C. Other examples are the development of the pictorial system of the Renaissance in central Italy during about sixty years in the fifteenth century, or the appearance of tall steel-frame architecture after 1850 in the United States and Europe. Each of these series had its prodrome of scattered experiments preceding the main campaign.

This suggestion of doubled 60-year durations for certain important sequences in the history of art is an empirical one. No prior idea of "necessary" evolution has governed the observation of length. Small differences of opinion might arise about beginning and ending dates, but no one would contradict the magnitude itself in any one of these instances, especially when it is clear that we are not talking about "styles of art," but only about the history of special forms among related examples occurring in limited regions.

The duration embraces only the generations of the invention and *mise au point*, until the time when the system attained general currency in a much larger region, as a completed entity suitable for indefinite repetition. This time corresponds to what has often been called the "classic" stage: the age of Phidias, the great cathedrals c. 1200 in northern France, or the High Renaissance c. 1500 in Italy.

Non-European examples with similar double-stage durations of 60 years each are known, such as Maya sculpture in the fourth and fifth centuries A.D., or Japanese wood-block prints after 1650. The examples all seem commensurate, involving novel technical, thematic, and expressive resources and providing fresh means of achieving a wide range of structural or descriptive aims. The gen-

eral validity of the doubled 60-year duration of about 120 years, in two stages of tentative formulation and rapid exploration requires much more verification and many more examples before we can know whether or not it depends upon a specific kind of cultural organization. The pre-Columbian American evidence already strongly suggests such a minimal duration for urban civilization.

A possible test case is offered by paleolithic painting, with two main regional variants in the Dordogne and the Cantabrian caves which vary in types and expression about as much as French and Spanish painting in the seventeenth century. Our question concerns duration. Although some scholars ascribe thirty or forty centuries of ice-age time to the artistic tradition of these paintings, it is on small evidence, and the possibility still exists that each group of paintings, exemplified at Lascaux and Altamira, was produced by a few generations of painters reprieved from the routine of nomadic existence for a few centuries by some favoring accident of time and place.⁸ If that were the case, then our typical minimal duration for the ages of invention might be shown to occur as a temporal category in human effort, independently of cultural mode.

The separation into paired 60-year periods—formulation followed by systematic extension—is drawn mainly from the historical accumulations themselves. A common span connecting history and biography is suggested by the 60-year period, which of course is only an approximation for convenient reference. Sixty years is also the length of the single complete productive life. Very few if any artists, however, remain upon the crest of the wave for so long. Staying power probably depends on “entrance.” Otherwise, the individual’s powers of invention usually are limited to youthful years. If later in life he achieves new forms, they are likely to be mature realizations of early intimations. The significant phasing of most lives is by portions like the indiction of fifteen years. The full, active life-span embraces about four such indications. As we study the pulses of those linked series of events—Anglo-French Gothic architecture, Greek pre-classic sculpture, or Central Italian painting—all are similar or linked series of related solutions spreading over about 120 years in two stages of 60 years,

each divided by artistic generations or indictions of 15 years.⁹ The indiction measures many distances in historical duration. It is a measure drawn from experience, like paces, feet, and ells, providing us at least provisionally with a module to connect things with individual lives and the generations of man.

Even longer durations are now the next units upon which to base observations of shape. One likely span is near three centuries, and it is the approximate duration of each principal stage of several civilizations whose durable manufactures have been recovered in some detail.¹⁰ An example is the length of the major divisions of the pre-Columbian American civilizations for some two thousand years prior to the Spanish Conquest. This figure was at first—early in this century—only a guess based upon several converging lines of evidence, but it recently has been confirmed by radiocarbon measurements showing the intervals between the crises in the archaeological record to be of this order of magnitude. It measures the duration of artifact stages, such as the early, middle, and late pottery crafts of the villages of Mexico or the central Andes under the rule of theocratic states during the millennium before A.D. 1000.

Closed series were mentioned earlier (p. 31) as an illusory and artificial conception, since no class ever finally closes, being always subject to renewed activity when novel conditions require it. We nevertheless might distinguish now between continuous and intermittent classes. Continuous classes concern only the largest groups of things, such as the whole history of art, or the most common classes, such as household pottery, of which the manufacture never ceases.

Intermittent Classes

Two kinds of intermittent classes immediately appear: those which lapse inside the same cultural grouping, and those which span different cultures. Intermittent inside the same culture are such arts as enameled jewelry, which lapsed after the Renaissance, excepting for infrequent resumptions such as the jewelry of the Fabergé family in nineteenth-century Russia, or the work of John Paul Miller in Cleveland, who has resumed the gold gran-

ulation technique commonly used by Etruscan goldsmiths. Tempera painting was long disused because of the ascendancy of oil painting in the fifteenth century, until a variety of nineteenth- and twentieth-century conditions led to its revival, as in the academy of tempera painting that flourished at Yale until 1947, based upon the fourteenth-century text by Cennino Cennini as edited by D. V. Thompson, and taught by Lewis York, in order to prepare students for the mural-painting commissions that the public works program of the 1930's had made possible. True rib-vaulted construction had an astonishing revival in this century after long disuse, first with Gaudi and in later ferro-concrete studies of ribbed structure.

Such intermittent classes are easily recognized as being composed of impulses so separate that distinct groups of inventions are really present. Yet the new group would be impossible without the tradition and the accomplishments of the earlier group buried deep in its past. The old class conditions its new continuation more pervasively than the living generation usually cares to remember.

The history of transcultural diffusion in turn contains several kinds of motion. Under pre-industrial conditions of travel, great distances as between Imperial Rome and Han-dynasty China were traversed at first only by the most useful inventions. Systematic missionary efforts to transform the entire symbolic structure of Chinese civilization, by Buddhists from India after the sixth century, and by Christians in the sixteenth and seventeenth centuries were temporarily successful, but they could never have been begun without the ample prior tradition of useful learning carried to China by commerce. Occasionally, as in the sixteenth-century Spanish conquest of Mexico and Peru, abrupt military action replaced these motions of commercial and missionary penetration. Conquest was followed at once by massive European substitutions of useful and symbolic behavior for native traditions. Only the useful items new and necessary to Europeans survived the wholesale destruction of the native American civilizations (potatoes, tomatoes, chocolate, etc.).

Very few native art forms have so far survived this wreck.¹¹ The

village art of Mexico has a few muted or commercial recalls of Indian antiquity. The principal figures of twentieth-century Mexican painting, Orozco, Rivera, and Siqueiros, all amplified the Indian past, and certain foreigners enlarged many native themes in their own terms. Frank Lloyd Wright renewed an experimentation with Maya corbel-vaulted compositions that had lapsed since the fifteenth century in Yucatan, and he resumed it with the technical resources of his time at the point where the Toltec-Maya builders of Chichen Itza desisted (Barnsdall House, Los Angeles, 1920). Henry Moore, the modern British sculptor, likewise returned to variations upon the theme of angular recumbent figures, based upon a Toltec-Maya tradition of about the twelfth century. John Flanagan, the American, produced compact animal studies in an idiom with fifteenth-century Aztec antecedents. These twentieth-century continuations of the unfinished classes of fifteenth-century American Indian art can be interpreted as an inverted colonial action by stone-age people upon modern industrial nations at a great chronological distance. Through its formal vocabulary alone, the sensibility of an extinct civilization survives in works of art to shape the work of living artists in a totally unrelated civilization half a millennium later.

The phenomenon is of course possible at every level of historical relationship. It transformed Western civilization most profoundly in the Renaissance, when the unfinished work of Greco-Roman antiquity took possession of the entire collective mind of Europe to dominate it until deep into the twentieth century, even as late as Picasso's illustrations of Ovid's *Metamorphoses*. To-day classical antiquity has been displaced by even more remote models, from the prehistoric and primitive art of all parts of the world, in a similar mortmain action as if to round out the principal contours of long-unrealized possibilities. In other words, when people create new forms, they commit posterity at some remote interval to continue in the track by an involuntary act of command, mediated by works of art and only by them.

Here is without doubt one of the most significant of all the mechanisms of cultural continuity, when the visible work of an extinct generation still can issue such powerful stimuli. Whether

the ancient messages thus continue indefinitely to echo down the corridors of time is unclear when the record still is so short. There nevertheless has been only one brief moment when a people have consciously sought total independence from past formulas of expression. This moment lasted for a generation after 1920 in Europe with the label of functionalism. Historical parallels are perhaps to be sought in various iconoclastic movements of religious reform, as in Constantinople, in fifteenth-century Florence, in Islam, in Jewry, and in Puritan Protestantism. Under the functional program all possible products were designed anew in search of forms corresponding solely to uses, under the doctrinal belief that the necessary alone is beautiful.

Arrested Classes

As we approach incomplete classes, we should briefly explore the related theme of the abandoned, arrested, or “starved” classes, which have been left unexploited. Examples are fairly common in the lives of unrecognized inventors whose discoveries remained obscure for many years until a lucky chance brought their work to the notice of persons competent to continue it. Notorious examples occur in the history of science: the fundamental genetic studies of Gregor Mendel, which went unattended for nearly forty years, are a celebrated instance. The history of art has many parallels, such as Claude Ledoux, whose neo-classic use of the forms of pure geometry under Napoleon prefigured the hard abstractions of the “International Style” in the twentieth century; or Sir Joseph Paxton, whose prefabrication of metal parts allowed him to design the prophetic spaces of glass and steel in the Crystal Palace of London in 1850–51. Precursors like these have the power to produce the solutions to a general need long before the majority experiences the need itself. Indeed, the way in which the need is framed often owes its final form to these premature talents.

After neglect, conquest is the other great occasion for incomplete classes, when the victor overthrows native institutions and replaces them with extensions of his own. If the victor has alluring benefits to offer, like Alexander or Cortés, he makes the continuation of many traditions both unnecessary and impossi-

ble. The *locus classicus* for incompleteness is the case of sixteenth-century America, when native initiative quickly ceased under the blows of the Conquest and the attraction of superior European knowledge.

At the same time the creation of a colonial Spanish civilization in America can be taken as the classic case of extended classes. These occur when inventions and discoveries made in the parent society are passed on to the colony together with the persons—mechanics and artisans—needed to get up the corresponding crafts. Latin America before 1800 is an impressive example of Hispanic extension, although innumerable other cases of smaller territorial and demographic size illustrate the point quite as well, like the imposition of Islam upon Christian Visigothic Spain, or the Hellenization of India by Alexander's armies.

It is in the nature of events that incomplete classes are likely to be less well documented than extended classes: conquerors and colonial agents usually keep poor records of the ways of the people whose traditions they seek to extinguish. Christian ethical behavior in the Spanish colonization of America nevertheless produced encyclopedists of native culture like Bishop Diego de Landa for Yucatan, Friar Bernardino de Sahagún for Mexico, and Father Bernabé Cobo for the Central Andes, to whom we owe unusually full records of native behavior prior to the sixteenth century. Above all in the things made by Mexican Indian craftsmen, the abrupt replacement of one visual language by another is clearly apparent within the span of a single generation pivoting upon the mid-sixteenth century.

In highland Mexico the peninsular Plateresque art of 1525–50 displaced Aztec art. The systematic ages of these two visual languages particularly interest us here. Spanish Plateresque forms at that time were in the later half of their history. The early expressive character of abrupt, uncontrolled dissonant energy that marks early Plateresque work had yielded in Spain by 1540 to the later more modulated manner of proportioned harmonies learned from the Italian theorists of the preceding century. What came to Mexico was therefore systematically old, whether it was

a retarded late medieval ornament, an out-of-date Italian idiom, or an up-to-date Plateresque decoration.

On the Indian side, Aztec sculpture displays an exceptional command of symbolic indications of death and vitality, but it was a new art, formed from the resources of many subject peoples, perhaps utilizing a tribal tradition of vigorous expressiveness, and probably not antedating the reign of Ahuizotl late in the fifteenth century, less than a generation before the arrival of the Spaniards. The identity of these gifted sculptors will never be known. Yet we can be certain that it was a systematically new art which yielded to an older art brought from Spain. The difference of systematic age was not great, but the differences of technical equipment and antecedent tradition were enormous.

The value of the situation to us is that we know beyond doubt of the incompleteness of the native series: it was cut off before its time. It never had any later occasion to find its natural conclusion. It gives us the clinical example of the incomplete cultural series cut off by an extended one.

The displacement of new classes by older ones shows the discontinuity, as when native laborers had to regress in European terms, in order to master the new techniques. Thus they learned vaulted construction by building the simpler types like early twelfth-century vaults in Anglo-Norman territory, or they carved simple chip-cut ornament with steel instead of stone tools, before trying more intricate modeling. The process is one of recapitulation. New participants review the whole class in a contracted form in order to learn the present position. It recurs in every school and academy, when the previous habits of the pupil are displaced by new routine, taught in sequence from fundamental motions to final operations. Every moment of routine learning contains this discontinuity between the two types of past knowledge, that of the learner who does it the first time and that of the teacher, who does it for the n th time.

In this sense of routine learning, all pre-professional education and all colonial situations belong to the replica-mass (p. 35) rather than to the form-class where innovations are discovered

and explored. Hence colonial societies more often than not resemble learners with inadequate prior training to whom the new experiences are insurmountably difficult, and who fall back upon a convenient minimum of working knowledge. In this way a characteristic arrested development of active form-classes may occur in provincial and rustic environments. Rustic arts are the principal elements of colonial artistic life. Usually one stage of development is separated from a metropolitan series in a remote and isolated setting, where the original impulse is repeated again and again with diminished content but enriched accessories. Examples are the peasant costumes of nineteenth-century Europe, where arrested moments of *ancien régime* court fashions, some of them several hundred years old, flourished by repetition in the rural countryside.

It is not easy to define a colonial society to everyone's satisfaction. In this context, however, it can be regarded as a society in which no major discoveries or inventions occur, where the principal initiative comes from outside rather than from within the society, until it either secedes from the parent-state or revolts. Many politically independent self-governing societies nevertheless remain colonial in our sense for long periods after independence because of continuing economic limitations that restrict inventive freedom. Thus colonial states created by conquest all display incomplete series in differing grades of dilapidation.

Extended Series

Colonial states also display many kinds of extended series which manifest the dependence of the colony upon the mother state. These extensions are staffed by persons schooled in the parent country: the classic example as usual is colonial Latin America, where the higher officials of the regional governments all were of Peninsular origin, with native-born officials (Creoles) admitted only to the lower ranks. Peninsular architects, sculptors, and painters very early implanted among native craftsmen those European traditions of design and representation from which the colonies never lapsed even when revolting from Spanish political rule.

The consequences of the colonial extensions from the mother country are easily charted in Latin America. Equipping a continent with cities, churches, houses, furnishings, and tools required a gigantic outlay of energy at minimum standards of performance. The native labor learned a behavior at the outset which has been perpetuated ever since by small human numbers, by the unfavorable dispersal of habitable zones, by the immense distances between towns, and by the imperfect communications among colonies as well as between the colonies and the Peninsula.

The sluggish and careless pace of colonial events was overcome only thrice in three centuries, and only in architecture: the buildings of Cuzco and Lima from 1650 to 1710; Mexican vice-regal architecture from 1730 to 1790; and the Brazilian Third Order chapels of Minas Gerais from 1760 to 1820. Of course Latin America has towns and villages of extraordinary beauty, like Antigua in Guatemala, Taxco in Mexico, and Arequipa in Peru, but their charm, favored by climate and setting, rests upon the relaxation of more rigorous standards of invention rather than upon the eager quest for excellent newness that made Florence or Paris for so long the centers of many epochal changes in the history of things. In Antigua or Arequipa or Ouro Preto, as at picturesque towns in every province of Europe, beauty was attained by concord in simple old themes, much reduced from the difficult *pièces de maîtrise* we see in great cities and at court. It is the beauty of oft-repeated traditional forms favored by nature, rather than the beauty of things separated from the immediate past in their makers' intense quest for new forms.

The effects of such provincial extensions upon the arts of the mother country are on the whole beneficial. The opportunities available to builders, painters, and sculptors in the Spanish colonies swelled their numbers at home. Thus Seville, the chief port for transatlantic shipping, was the focus of the golden age of Spanish painting in the seventeenth century rather than the new court at Madrid, which often drew its great talents from the Sevillian school. The florescence of Greek architecture in the fifth century likewise depended in part upon favoring conditions in the prior expansion of the Greek cities to colonies in the western

Mediterranean. Roman imperial architecture benefited from colonial extensions in much the same way, with a gigantic increase in the overall building requirements of the state, which stimulated a swift increase both in numbers and in professional quality among homeland architectural designers. These correlations cannot possibly be proven directly, and they are suggested only by parallels with more recent situations. If tenable, they belong among the few occasions when the economic situation and the artistic activities of a people appear to interlock closely.

Economic historians have discussed the idea that artistic florescence and economic disorders are correlated.¹² Certainly the Spanish example of a relationship between artistic excellence and the abundance of artistic opportunities also fits such a correlation between artistic excellence and material crisis, for the seventeenth century in Spain was an epoch of staggering economic difficulties above which painting, poetry, and the theater flowered imperishably. But to keep aesthetic events together in the same perspective, let us say that colonial or provincial stagnation is the reciprocal of metropolitan vivacity, that one is secured at the cost of the other in the same regional entity. Then every focus or center of invention requires a broad provincial base both to support and to consume the productions of the center. Hence for every extended class, like thirteenth-century Gothic art in the Mediterranean basin, we find a world of replicas in Naples or on Cyprus, differing mainly in regional accent, but all pointing to a common center of origin as copies of inventions made among the new cities of northwestern Europe, in southern England, or northern France less than a century earlier.

Wandering Series

Not to be confused with such replicating extensions to province and colony are certain classes whose continued development appears to require periodic changes of setting. The examples of this phenomenon of wandering series are best taken among extremely large classes, such as Romanesque-Gothic-late medieval architecture, or Renaissance-Mannerist-Baroque painting in Europe, where remarkably uniform displacements of the focus of

invention may be noted. They occur at intervals of about ninety years when the entire geographical grouping of the centers of innovation shifts to different bases.

Symptomatic of the principal changes are the well-known displacements from abbey to cathedral to city in medieval architecture. Another is the migration of the centers for important painters from the little Central Italian city-states to the sixteenth-century courts and the prosperous seventeenth-century commercial centers.

One explanation, which reduces art to a phase of economic history, is that artists follow the true centers of power and wealth. It is an incomplete explanation, for there are many centers of wealth and power, but there are few centers of major artistic innovation. Artists often gravitate to the lesser centers of wealth and power, like Toledo, Bologna, and Nürnberg.

Despite the inventor's solitary appearance he needs company; he requires the stimulus of other minds engaged upon the same questions. Certain cities early accepted the presence of artists' guilds, thereby establishing precedent and ambience for their continuing presence. In other cities a puritanical or iconoclastic tradition long proscribed the arts of the age as useless or frivolous. Certain cities show the touch of important artists at every turn: Toledo and Amsterdam still bear signs of the presence of their great seventeenth-century painters; Bruges molded and was molded by many generations of painters; and the greatest architects have shaped the urban presence of Florence and Rome. The artist requires more than patronage; he also needs association with the work of others both dead and alive engaged on the same problems. Guilds, *côteries*, *botteghe*, and *ateliers* are an essential social dimension of the endless phenomenon of artistic renewal, and they cluster by preference in permissive environments having both craft traditions and proximity to power or wealth. Hence the slow movement of the centers of innovation from one region to another cannot adequately be explained by economic attraction alone, and it is justified to search for other motives.

Possibly more important than wealth in accounting for wandering series is the question of saturation. An old solution often

satisfies its need better than a more recent one. As noted earlier, each class of forms both shapes and satisfies a need which continues throughout several stages of change in the forms. The need changes less than the different solutions devised for it. The history of furniture has many examples of this relationship between fixed need and varying solution. Today many furniture forms of eighteenth- and nineteenth-century date still fulfill perfectly the need for which they were designed, and often far better than the machine-made chairs and tables of modern design. When the industrial designer discovers a new shape to satisfy an old need, his difficulty is to find enough buyers for the new shape among people who already own satisfactory old forms. Thus every successful manufacture tends to saturate the region in which it is made, by using all the occasions that might require the thing.

To take another example: after 1140 for about a century the use of columnar statues of Biblical figures in the embrasures flanking church doorways became common, as the royal portal formula which eventually radiated from the Ile de France around Paris throughout Europe. In France north of the Loire, the principal stages of its elaboration can still be retraced in the great cathedral doorways. In that region, however, the success of the royal portal formula prevented the successful emergence of any other solution. Instead, the theme of grouped statues in the embrasures became more and more stereotyped with the spread of French Gothic art. In other words, every durable and successful form saturates the region of its origin, making it impossible for newer linked forms to occupy the same positions. Around every successful form, furthermore, there arises a protective system of sorts for its maintenance and perpetuation, so that the opportunities for replacement by new design are further reduced in places where older things fill the same need. A living artist often may encounter harder competition from the work of artists dead for fifty years than from his own contemporaries.

A region with many unfulfilled needs, having the wealth to satisfy them, will under certain conditions attract innovations. Chicago after 1876 was doubly attractive to architects, both as the established metropolitan center of a new economic region, and as

a city which the great fire had left in ashes. The florescence of the "Chicago School," with men like Burnham, Sullivan, and Wright later on, was the consequence. But the rebuilding of Chicago after 1876 would have been a provincial extension rather than an epochal renewal of American architecture, without a favorable juncture in the history of forms. Such a favorable juncture consists in general of unused technical and expressive opportunities allowing the institution of new form-classes across a broad band of needs. With the ageing of the entire spectrum of form-classes, as in the later centuries of each great epoch of civilization, most urban environments have been saturated many times over by the work of earlier stages. Thus one dominant characteristic of such late periods near the end of each major division of history, like the eighteenth century in western Europe, is the ascendancy of fashionable manners of decoration such as Rococo, which are adapted to the superficial cosmetic remodeling of still serviceable older structures inside and out.

Simultaneous Series

The wide range of systematic ages among different classes at the same moment always makes our own present seem like a complicated and confusing mosaic, which resolves into clear, simple shapes only long after it has receded into the historical past. Our ideas about Middle Minoan time are clearer than our ideas about Europe between the World Wars, partly because less is known, partly because the ancient world was less complex, and partly because old history comes into long perspective more easily than the close view of recent happening.

The older the events are, the more are we likely to disregard differences of systematic age. The Parthenon is a retarded example of the peripteral temple. This class was already very old when Ictinos was born. The fact of systematic age, however, is rarely if ever mentioned in classical studies. Classical scholars have to rely upon approximate dates for large groups of things, and within series of things they rarely can fix dates exact to the year. The idea is more developed in studies of Gothic medieval sculpture, as when E. Panofsky sought to distinguish the hands of old

and young masters at Reims Cathedral in the same decade of the thirteenth century. In the connoisseurship of Renaissance painting, apparent inconsistencies of dating and authorship have often been resolved with an implicit invocation of systematic age, by saying that the master persisted in the use of an old-fashioned idiom long after his contemporaries had abandoned it. In studies of contemporary art, finally, there are no problems of dating, but the need to sort the schools, traditions, and innovations implies the idea of systematic age.

Different configurations vary this fundamental structure of the present without ever obscuring it completely. One of the uses of history is that the past contains much clearer lessons than the present. Often the present situation is merely a complicated instance of conditions for which an ideally clear example can be found in the remote past.

Athenian vase painting in the closing decades of the sixth century B.C. offers a lucid instance of simultaneous form-classes at a small scale and under completely intelligible conditions. The black-figured style of bodies silhouetted like black paper cutouts upon light grounds had prevailed for some generations, and it allowed an entire series of advances in the technique of representation, favoring always the decorative integration of figure and ground by harmonious and interesting void shapes. But this manner limited the painter's expressive resources. The solid dark figure prevented him from describing gestures or expressions, and it drew the eye to and beyond the figural contour rather than into the content of any linear enclosure.

About 520–500 B.C., black-figure style had reached that stage in the exploration of these graphic possibilities which we have here designated as “late.” At the same time a radical technical change was introduced that allowed a new form-class to take shape. The relation of figure and ground was inverted by the simple device of letting the linear enclosures have the color of the pottery ground, while the surrounding areas were painted black. This new red-figure style allowed painters to describe gesture and expression by more copious linear means than before, but it destroyed the old harmonious relation of figure and ground, conferring upon

the figure a prepotence that robbed the ground of its former decorative significance. The innovation permitted the opening of a new series: early and late examples of red-figure style follow in order after the disappearance of late black-figure technique.

About eighty or ninety Athenian vessels are preserved on which scenes are painted in both styles, and some of these represent the same scene, such as Heracles and the bull, by the Andokides painter, on opposite sides of the same vessel, in black-figure and red-figure techniques, as if to contrast the possibilities of the old and the new styles. These dimorphic vases (or “bilingual” vases as Beazley called them) are unique ancient documents of the coexistence of different formal systems for an individual painter. They show with great clarity the nature of the artistic decision at any and every moment of history, in the perpetual crisis between custom and innovation, between exhausted formula and fresh novelty, between two overlapping classes of forms.

A group of students upon my suggestion once arranged random selections of black-figure and red-figure vase paintings in order by early and late formal traits. They worked separately under instruction to disregard all other traits such as technique and vessel-shape. The outcome of each list was a pairing of early black-figure with early red-figure, and late with late, associating things of similar systematic age rather than by absolute chronological date.

Another kind of simultaneity comes from a tomb of the third century A.D. at Kaminaljuyu in the Guatemalan highland. In this tomb A. V. Kidder found many stuccoed tripod vessels, all of the same shape, and of a variant most familiar from Teotihuacán in the Valley of Mexico, a thousand miles away. These vessels were painted in clear unfired earth colors of two styles: early classic Maya and Teotihuacán II, which differ from one another about as widely as Byzantine and Irish manuscript illumination in the ninth century. Kaminaljuyu was a colonial outpost of Teotihuacán on the edge of lowland Maya civilization. Maya pottery traditions were less advanced than in Mexico at that moment, although the Maya were in other respects the possessors of a learning much more complicated than that of their Mexican contemporaries, es-

pecially in written astrological and astronomical lore. The potters of Kaminaljuyu, who probably furnished painted vessels in commercial quantities to Maya buyers, simultaneously worked in both styles, that of their homeland and that of their clients.

In brief, the more completely we know the chronology of events, the more obvious it becomes that simultaneous events have different systematic ages. A corollary is that the present always contains several tendencies competing everywhere for each valuable objective. The present was never uniformly textured, however much its archaeological record may appear to have been homogeneous. This sense of the present which we live each day, as a conflict between the representatives of ideas having different systematic ages and all competing for possession of the future, can be grafted upon the most inexpressive archaeological record. Every sherd mutely testifies to the presence of the same conflicts. Each material remnant is like a reminder of the lost causes whose only record is the successful outcome among simultaneous sequences.

The topography of simultaneous classes can be presented in two groups, guided and self-determining. The guided sequences depend explicitly upon models taken from the past: thus revivals, renaissances, and all other model- or tradition-bound forms of behavior are guided sequences.

Self-determining sequences are much rarer, and they are harder to detect. Early Christian art was a deliberate rejection of pagan traditions. The survivals of pagan antiquity were either strategic or unconscious in early Christianity. The Christian sequence, however, rapidly became model-bound, as when the close array of these revivals of Early Christian architectural types finally constituted the Early Christian tradition.¹³

These terms—guided and self-determining sequences—are more than mere synonyms of tradition and revolt. Tradition and revolt suggest cyclical sequence: revolt is linked to tradition in a circular motion, with revolt becoming tradition, which breaks again into revolting fractions and so on *da capo*. Our terms were chosen to avoid this suggestion of necessary cyclical recurrence.

It follows that self-determining motions are necessarily brief,

and that guided motions usually become the substance of history. In general, self-determining classes cease either when they turn into classes guided by their own past victories, like Early Christian art or when they lose the field of actuality to some other series. Any present moment therefore consists principally of guided series, each contested by self-determining motions of dissidence. These gradually subside as their substance is kneaded into previous tradition, or as they themselves become new traditional guides to behavior.

Lenses vs. Fibers of Duration

Here is a possible resolution to the question asked by the proponents of *Strukturforschung* (p. 24). We do not need to assume with them that the parts of culture are all either central or radial. They seem to think of a culture as if it were a circular lens, varying in thickness according to the antiquity of the pattern. Instead, we can imagine the flow of time as assuming the shapes of fibrous bundles (p. 33), with each fiber corresponding to a need upon a particular theater of action, and the lengths of the fibers varying as to the duration of each need and the solution to its problems. The cultural bundles therefore consist of variegated fibrous lengths of happening, mostly long, and many brief. They are juxtaposed largely by chance, and rarely by conscious forethought or rigorous planning.