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THE BIAS OF COMMUNICATION

(1951; 2006)

Second Edition with a new introduction by
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UNIVERSITY OF TORONTO PRESS
Toronto Buffalo London

journalism.[35] The attitude of Bismarck expressed in the remark, "Never believe a statement until you see it contradicted,"[36] was in contrast with Anglo-American journalism. The great pioneers of intellectual life in Germany left a legacy of leadership assumed after about 1832 by the state culminating in a deadening officialdom.[37] Northcliffe in the search for news made unprecedented use of cables and private wires and exploited Paris as a vast and cheap source of journalistic wealth with the result that French influence became more powerful.[38] The diplomatic institutions and techniques of an age of dynastic cabinet politics failed to work in a situation characterized by the press, electrical communications, mass literacy, and universal suffrage.[39] The Treaty of Versailles registered the divisive effects of the printing industry in its emphasis on self-determination. The monopoly of knowledge centring around the printing press brought to an end the obsession with space and the neglect of problems of continuity and time. The newspaper with a monopoly over time was limited in its power over space because of its regional character. Its monopoly was characterized by instability and crises. The radio introduced a new phase in the history of Western civilization by emphasizing centralization and the necessity of a concern with continuity. The bias of communication in paper and the printing industry was destined to be offset by the bias of the radio. Democracy which in the words of Guizot sacrificed the past and the future to the present was destined to be offset by planning and bureaucracy.

[35]J. A. Spender, *The Public Life* (London, 1925), p. 48.
[36]Harold Spender, *The Fire of Life: A Book of Memories* (London, n.d.), p. 36.
[37]Viscount Haldane, *Selected Addresses and Essays* (London, 1928), p. 22.
[38]Max Pemberton, *Lord Northcliffe: A Memoir* (New York, n.d.), p. 62.
[39]O. J. Hale, *Publicity and Diplomacy, with Special Reference to England and Germany, 1890-1914* (New York, 1940), p. 209.

A PLEA FOR TIME

I MUST PLEAD the bias of my special interest in the title of this paper. Economic historians and indeed all historians assume a time factor and their assumptions reflect the attitude towards time of the period in which they write. History in the modern sense is about four centuries old[1] but the word has taken on meanings which are apt to check a concern with facts other than those of immediate interest and its content is apt to reflect an interest in immediate facts such as is suggested by the words "all history proves." As a result history tends to repeat itself but in the changing accents of the period in which it is written. History is threatened on the one hand by its obsession with the present and on the other by the charge of antiquarianism. Economic history is in a particularly exposed position as is evident in the tendency to separate it from economics or to regard it as a basis of support for economics. "Knowledge of the past is at all times needed only to serve the present and the future, not to enfeeble the present or to tear the roots out of the vigorous powers of life for the future" (Nietzsche). The danger that knowledge of the past[2] may be neglected to the point that it ceases to serve the present and the future—perhaps an undue obsession with the immediate, support my concern about the disappearance of an interest in time.

Perhaps the exposed position of economic history may strengthen the urge to discover a solution of the difficulty, particularly as it becomes imperative to attempt to estimate the significance of the

[1]The use of the letters A.D. and B.C. apparently dates from the eighteenth century. Hellenic rationalism might be said to have persisted for 700 years and to have been obscured for 1,200 years. ". . . the longest period of consecutive time in human history on which we can found inductions is, upon the whole, a period of intellectual and moral darkness." Julien Benda, *The Great Betrayal* (London, 1928), p. 159.
[2]History "threatens to degenerate from a broad survey of great periods and movements of human society into vast and countless accumulations of insignificant facts, sterile knowledge, and frivolous antiquarianism" (Morley in 1878). Emery Neff, *The Poetry of History* (New York, 1947), p. 193.

attitude towards time in an analysis of economic change. The economic historian must consider the role of time or the attitude towards time in periods which he attempts to study, and he may contribute to an escape from antiquarianism, from present-mindedness, and from the bogeys of stagnation and maturity. It is impossible for him to avoid the bias of the period in which he writes but he can point to its dangers by attempting to appraise the character of the time concept.

It has been pointed out that astronomical time is only one of several concepts. Social time, for example, has been described as qualitatively differentiated according to the beliefs and customs common to a group and as not continuous but subject to interruptions of actual dates.[3] It is influenced by language which constrains and fixes prevalent concepts and modes of thought. It has been argued by Marcel Granet that the Chinese are not equipped to note concepts or to present doctrines discursively. The word does not fix a notion with a definite degree of abstraction or generality but evokes an indefinite complex of particular images. It is completely unsuited to formal precision.[4] Neither time nor space is abstractly conceived; time proceeds by cycles and is round; space is square.[5]

The linear concept of time was made effective as a result of humanistic studies in the Renaissance. When Gregory XIII imposed the Julian calendar on the Catholic world in 1582 Joseph Justus Scaliger following his edition of Manilius (1579) published the *De emendatione temporum* and later his *Thesaurus temporum* (1606) "probably the most learned book in the world."[6] With his work he developed an appreciation of the ancient world as a whole and introduced a conception of the unity of history at variance with the attitude of the church. While Scaliger assisted in wresting control over time from the church he contributed to the historical tradition

[3]P. A. Sorokin and R. K. Merton, "Social Time: A Methodological and Functional Analysis," *American Journal of Sociology*, XLII, 1936-7.

[4]"In general, the rigidity of the Japanese planning and the tendency to abandon the object when their plans did not go according to schedule are thought to have been largely due to the cumbersome and imprecise nature of their language, which rendered it extremely difficult to improvise by means of signalled communication" (Winston Churchill).

[5]R. K. Merton, "The Sociology of Knowledge," in *Twentieth Century Sociology*, ed. G. Gurvich and W. E. Moore (New York, 1945), pp. 387-8.

[6]H. W. Garrod, *Scholarship, Its Meaning and Value* (Cambridge, 1946), p. 42.

of philosophy until Descartes with his emphasis on mathematics and his unhistorical temper succeeded in liberating philosophy from history. The ideal of mathematical sciences dominated the seventeenth century. It was not until the Enlightenment that the historical world was conquered and until Herder and romanticism that the primacy of history over philosophy and science was established. Historicism was almost entirely a product of the nineteenth century.[7] In geology the precise date of the earth's formation advanced by Bishop Ussher was destroyed. "The weary series of accommodations of Genesis to geology was beginning."[8] In archaeology a knowledge of earlier civilizations implied a vast extension of time. In the hands of Darwin the historical approach penetrated biology and provided a new dimension of thought for science. In astronomy time was extended to infinity. Laws of real nature became historical laws. Even in mathematics arithmetic escaped from its bondage to geometry and algebra as "the science of pure time or order in progression" (Sir William Hamilton) came into its own.

The effects on history were evident in a recognition of the limitations of the written and the printed record. Mommsen made politics proper the subject-matter of historical knowledge but in the last decades of the nineteenth century the limitations of political historiography were evident. Burckhardt and to some extent Lamprecht approached the study of civilization through fine art. The highest value of art as of all free intellectual activity was to provide release from subservience to the will and from entanglement in the world of particular aims and individual purposes.[9] Taine held that intellectual development was the moving force behind political affairs and that the classical spirit was responsible for the French Revolution.[10] Fustel de Coulanges emphasized the myth[11] as a device for studying periods before writing had developed. Worship of the dead

[7]Ernst Cassirer, *The Problem of Knowledge: Philosophy, Science, and History since Hegel*, trans. W. H. Woglom and C. W. Hendel (New Haven, Conn., 1950), pp. 170-3.

[8]Leslie Stephen, *History of English Thought in the Eighteenth Century* (London, 1876), I, 458.

[9]Cassirer, *The Problem of Knowledge*, p. 277.

[10]*Ibid.*, p. 251.

[11]See H. and H. A. Frankfort, J. A. Wilson, T. Jacobsen, and W. A. Irwin, *The Intellectual Adventure of Ancient Man: An Essay on Speculative Thought in the Ancient Near East* (Chicago, 1946).

was regarded as the inner bond uniting divergent expressions of faith.

I have attempted to show elsewhere[12] that in Western civilization a stable society is dependent on an appreciation of a proper balance between the concepts of space and time. We are concerned with control not only over vast areas of space but also over vast stretches of time. We must appraise civilization in relation to its territory and in relation to its duration. The character of the medium of communication tends to create a bias in civilization favourable to an overemphasis on the time concept or on the space concept and only at rare intervals are the biases offset by the influence of another medium and stability achieved. Dependence on clay in Sumerian civilization was offset by dependence on stone in Babylon and a long period of relative stability followed in the reign of the Kassites. The power of the oral tradition in Greece which checked the bias of a written medium supported a brief period of cultural activity such as has never been equalled. Dependence on the papyrus roll and use of the alphabet in the bureaucracy of the Roman Empire was offset by dependence on parchment codex in the church and a balance was maintained in the Byzantine Empire until 1453. "Church and Army are serving order through the power of discipline and through hierarchical arrangement" (Metternich).[13] On the other hand in the West the bias of the parchment codex became evident in the absolute dominance of the church and supported a monopoly which invited competition from paper as a new medium. After the introduction of paper and the printing press, religious monopoly was followed by monopolies of vernaculars in modern states. A monopoly of time was followed by a monopoly of space. A brief survey of outstanding problems of time will perhaps assist in enabling us to understand more clearly the limitations of our civilization.

The pervasive character of the time concept makes it difficult to appreciate its nature and difficult to suggest its conservative influence. The division of the day into 24 hours, of the hour into 60 minutes, and of the minute into 60 seconds suggests that a sexagesimal system prevailed in which the arrangement was worked out and this

[12] *Empire and Communications* (Oxford, 1950).

[13] Cited by Alfred Vagts, *A History of Militarism* (New York, 1937), p. 16.

carries us immediately into Babylonian history.[14] The influence persists in systems of measurement and more obviously, for example, in Great Britain where the monetary system is sexagesimal. The advantages of the sexagesimal system are evident in calculations which permit evasion of the problem of handling fractions and have been exploited effectively in the development of aviation with its demands for rapid calculation.

In a system of agriculture dependent on irrigation the measurement of time becomes important in predicting periods of floods and the important dates of the year, seed-time and harvest. A concern with time was reflected in the importance of religion and in the choice of days on which festivals might be celebrated. The selection of holy days necessitated devices by which they could be indicated and violation of them could be avoided.[15] Dependence on the moon for the measurement of time meant exposure to irregularities such as have persisted in the means of determining the dates for Easter. Sumerian priesthoods apparently worked out a system for correcting the year by the adjustment of lunar months but the difficulties may have contributed to the success of Semitic kings with an interest in the sun, and enabled them to acquire control over the calendar and to make necessary adjustments of time over the extended territory under their control.[16] With control over time kings began the system of reckoning in terms of their reigns; our present statutes defy Anno Domini and date from the accession of the king in whose reign they are enacted. Control over time by monarchies, on the other hand, in addition to the human limitations of dynastic and military power, was limited by the continuity of priesthoods and the effectiveness of an ecclesiastical hierarchy.

[14] See J. T. Shotwell, "The Discovery of Time," *Journal of Philosophy, Psychology, and Scientific Methods*, 1915, 198-206, 254-316. It is argued that mathematics made the use of time possible. See F. Thureau-Dangin, "Sketch of a History of the Sexagesimal System," *Osiris*, VII. The Sumerian system was developed by crossing the numbers 10 and 6. Babylonian science was weak in geometry whereas the Greek science was strong. The Greeks learned the sexagesimal system through astronomy and discovered the Hindu system with a zero.

[15] J. T. Shotwell, *An Introduction to the History of History* (New York, 1922), pp. 43-4.

[16] The calendar was apparently organized by Marduk and was under the control of the ruler of Mesopotamia. Frankfort *et al.*, *The Intellectual Adventure of Ancient Man*, p. 181.

In Egypt and Babylonia the principal changes in nature were accompanied by appropriate rituals which were part and parcel of cosmic events. Time was a succession of recurring plans each charged with peculiar value and significance.[17] In a sense it was a biological time with a sequence of essentially different phases of life. In Egypt as in Babylonia the importance of the Nile floods and dependence on irrigation were linked with the celebration of religious festivals and the importance of determining an exact date. It is possible that the absolutism of Egyptian dynasties was dependent on the ability of kings to determine the sidereal year in relation to the appearance of the star Sirius. Recognition of the first dynasty by the Egyptians implied a recognition of time as dating from it. The joining of the two lands in Egypt apparently coincided with kingship and implied an emphasis on religious ceremony and ritual. The power of absolute kings over time and space was reflected in the pyramids which remain a standing monument to justify their confidence, in the development of mummification, a tribute to their control over eternity, and in the belief in immortality. The power of the absolute monarchy may have been weakened by the priesthood which discovered the more reliable solar year. Absolutism passed with control over time into the hands of the priesthood and checked expansion over space in the Egyptian Empire.

In Egypt the power of the absolute monarchy reflected in the monumental architecture of the pyramids and in sculpture was offset by the power of the priesthood based on a complex system of writing and the use of papyrus. The emphasis of a civilization on means of extending its duration as in Egypt accompanied by reliance on permanence gives that civilization a prominent position in periods such as the present when time is of little significance. In Babylonia the power of the priesthood was dependent in part on a mastery of complex cuneiform writing on clay tablets, and an increasing power of the monarchy on the creation of new and elaborate capitals emphasizing sculpture and architecture. Relative stability was gradually established over a long period by compromises between political and religious power. In turn the Kassites, the Assyrians, and the Persians recognized the power of the Babylonian priesthood. In Egypt

[17] *Ibid.*, pp. 23-5.

the power of the priesthood checked the possibilities of political development of the monarchy and prevented effective conquest by conquerors such as the Hyksos and later the Assyrians and the Persians. Monopolies of control over time exercised by the priesthoods of Babylonia and Egypt made the problems of political organization in the Assyrian and Persian empires and indeed of later empires insuperable.

The Babylonian priesthood in its concern with time contributed to the study of astrology and astronomy by the introduction of a system of chronology at the era of Nabonassar in 747 B.C. It possibly followed the discovery that every 18 years and 11 days the moon returned almost to the same position in relation to the sun.[18] The discovery of the periodic character of celestial phenomena and the possibility of prediction gave Babylonia an enormous influence on religious cults and led to the domination of fatalism based on scientific knowledge.

The limited possibility of political organizations expanding their control over space incidental to the control of priesthoods in their monopolies of knowledge over time facilitated the development of marginal organizations such as those of the Jews in Palestine. Periods of expansion and retreat in political organization centring on Egypt or Babylonia weakened an emphasis on political organization and strengthened an emphasis on religious organization. The marginal relation to cultures with monopolies of complex systems of writing favoured the development of relatively simple systems of writing such as emerged in the alphabet of the Phoenicians and the Aramaeans. In these marginal cultures religious organization emphasized a system of writing in sharp contrast with those of Egypt and Babylonia, and in compensation for lack of success in political organization with control over space built up an elaborate hierarchy with control over time. The latter emphasized the sacred character of writing and drew on the resources of Egyptian and Babylonian civilizations to an extent obvious to students of the Old Testament. There was "no engrossment in the moment but full recognition that human life is a great stream of which the present is only the realized moment. . . . It was no accident that the supremely religious people

[18] Shotwell, *An Introduction to the History of History*, p. 45.

of all time were likewise our first great historians." (W. A. Irwin.) History emerged with the Hebrews as a result of the concern with time.

Contact of barbarians on the north shore of the Mediterranean with older civilizations was followed by the emergence of Greek civilization. An emphasis on problems of space incidental to a concern with conquest of territory was evident in the Homeric poems developed in the oral tradition. Geometry with its bias toward measurement and space imposed restrictions on a concern with time. The spread of a money economy strengthened an interest in numbers and arithmetic and in turn in mystery religions in conflict with the established Apollonic religion. The flexibility of an oral tradition enabled the Greeks to work out a balance between the demands of concepts of space and time in a city state. In the reforms of Cleisthenes control over time was wrested from religion and placed at the disposal of the state. The results of a balanced society were evident in the defeat of the Persians and the flowering of Greek culture in the fifth century. But such a balance was not long maintained.[19] Cleisthenes created a senatorial year with ten prytanies of 36 or 37 days in each solar year averaging 365¼ days over a period free from cycles and intercalations, but the old civil calendar sanctioned by religious observance continued. The Metonic cycle[20] of 19 years, 30 days in each month, was introduced on June 27 (Julius) 432 B.C. and became a norm for the accurate measurement of time. A change was made to a new senatorial year probably in the year of anarchy 404-3. When democracy was re-established the senatorial year was made to conform to the civil year. The Callippic cycle was introduced in the first summer solstice June 27-8, 330 B.C. with 30 days to each month and every sixty-fourth day dropped.

The spread of writing in the latter part of the fifth and in the fourth centuries accentuated strains which destroyed Greek civiliza-

[19]A new concern with time was evident in Herodotus who presented a history "that neither the deeds of men may fade from memory by lapse of time, nor the mighty and marvellous works wrought partly by the Hellenes, partly by the Barbarians, may lose their renown." See also Thucydides' reasons for writing history.

[20]See J. K. Fotheringham, "The Metonic and Callippic Cycles," *Monthly Notices of the Royal Astronomical Society*, LXXXIV, 384; also B. D. Meritt, *The Athenian Calendar in the Fifth Century* (Cambridge, Mass., 1928), pp. 72, 102, 122, 126.

tion. Following the collapse of Greece and the success of Alexander, the East was divided in the Hellenistic kingdoms. In Egypt in a new capital at Alexandria the Ptolemies attempted to offset the influence of the priesthood at Thebes and of Babylonian science by the creation of a new religion and the encouragement of research in libraries and museums. Aristotelian influence was evident in the concern with science and in developments in astronomy. The names of the planets and constellations remain as testimonials to the interest of antiquity in astronomy. Leap year was introduced in 239 or 238 B.C. but was later abandoned until taken up by the Romans.

After the conquest of Egypt by the Romans Julius Caesar employed Sosigenes, an Egyptian astronomer, to work out an accurate calendar and it is probably significant that the new calendar recognized the festivals of Isis and contributed to the spread of Egyptian and other religions in the Empire. Exploitation of the irregular measurement of time for political purposes[21] and demands for regularity and the power of Julius Caesar in enforcing the new calendar led to a change from the beginning of the new year on March 1 to January 1 in 46 B.C., or 708 years from the date of the foundation of Rome, and to a year of 365¼ days. A fixed date of reckoning, that of the founding of the city, reflected the interest of Rome in the unique character of a single day or hour and the belief that continuity was a sequence of single moments. An emphasis on specific single acts at a unique time contributed to the growth of Roman law notably in contracts in which time is of the essence. Alternate odd months were given 31 days and even months 30 days excepting February which had 29 days but 30 days every fourth year. The month following that named for Caesar, July, was called Augustus and was given the same number of days. A day was taken from February and given to August. September and November were

[21]The calendar was controlled by the college of pontifices. Of 192 days in a year on which people could be called together only 150 were left after ruling out days falling on market days, the last day of the Roman eight-day week, and days of seasonal games. An intercalary month was inserted in February every two years to bring the linear year into harmony with the solar year but in the early second century B.C. the pontifices obtained the right to insert it at will. The magisterial year for purposes of litigation, public contracts, and the like was changed according to their interests. These abuses were brought to an end by Caesar and the days added to the year by him as *dies fasti* were possibly intended as meeting days. See L. R. Taylor, *Party Politics in the Age of Caesar* (Berkeley, Calif., 1949), pp. 79-80.

reduced to 30 days and October and December increased to 31 days to avoid three months in succession with 31 days.

A powerful bureaucracy at Rome and at Constantinople maintained control over time. Toward the end of the third century a 15-year cycle was introduced for tax purposes and after 312 A.D. the Egyptian date of indiction was changed from August 29 to September 1, the beginning of the Byzantine year. As a result of the influence of astronomy each day became sacred to a planet and the liturgy of the mysteries of Mithra contributed to the substitution of the seven-day week for the Roman eight days about the time of Augustus. December 25 as the date of the birth of the sun in the worship of Mithra was replaced by Christmas Day between 354 and 360 A.D.[22] Easter probably took the place of festivals celebrating Attis at the vernal equinox.[23] The Christians used March 1 as the beginning of the year following the Mosaic ordinance as to the Passover.

Following the collapse of the Empire in the West the church supported the system of dating events from the supposed year of the birth of Christ. The concern of religion for the domination of time evident in stories of the flood designed to show that a past had been wiped out and that a new era began, in the beginnings of Egyptian time, in the history of Greece and Rome continued in the Christian era. St. Cyril was reputed to have drawn up a table of 95 years (five cycles of 19 years each) to be based on the accession of Diocletian in 284 A.D. The base was changed to the Incarnation and the table introduced into the calendar of the West by Dionysius Exiguus in 525 A.D. St. Wilfrid secured adoption of the system to celebrate Easter on or after March 15 at Whitby in 664 A.D. in opposition to the Celtic system which allowed the celebration of Easter on the 14th and calculated the moon on a cycle of 84 years. From the time of Bede, in England the year was reckoned from the Incarnation. The system was carried by missionaries to the eastern regions of the Franks and the Incarnation became the official date in 839. Under the influence of Otto the Great it was adopted in the papal chancery

[22]Franz Cumont, *Astrology and Religion among the Greeks and Romans* (New York, 1912), pp. 162-5.

[23]J. G. Frazer, *Adonis, Attis, Osiris: Studies in the History of Oriental Religion* (London, 1906), p. 200.

in 963.[24] Use of the imperial year and indiction had apparently begun in the papal chancery in 537 and had become general practice in 550. They were never used after 781 A.D.[25] Charles the Great visited Rome in that year and under Hadrian the Frankish practice of using a double form of dating documents was used, the pontifical year replacing the regnal of the emperor at Constantinople.

By at least the last quarter of the ninth century Frankish emperors reckoned from Christmas Day as the beginning of the New Year. Religious movements stimulating devotion to the Virgin Mary led to the establishment of Lady Day (March 25) as the beginning of the year in the French chancery after 1112 and in England in the latter part of the twelfth century. After the middle of the thirteenth century, possibly as a result of the study of Roman law and the increasing use of almanacs, there was a gradual return to the Roman system in which the year began on January 1. It was not until 1752 that the beginning of the year was moved from March 25 to January 1 in England.[26] The pagan form of reckoning was gradually restored by the modern state. As in Egypt and in Rome control over time by the church was emphasized by architecture notably in the enduring monuments of the Gothic cathedral.

Gregory XIII introduced a calendar reform in 1582 in which the cumulative inaccuracies of a year based on 365¼ days were corrected and October 5 reckoned as October 15. While the Roman Catholic church exercised a dominant control over time other religions Jewish and Protestant asserted their rights notably in the determination of holidays. This division weakened the state in the creation of friction and strengthened it by compelling an insistence on unity. Significantly Protestant states grudgingly conceded the advantage of the change but it was not until 1750 that Great Britain ordered September 2, 1752, to be followed by September 14. It was only after the overthrow of the Tsarist régime in Russia that the Julian calendar was superseded by the Gregorian.

[24]R. L. Poole, *Chronicles and Annals: A Brief Outline of Their Origin and Growth* (Oxford, 1926), p. 26.

[25]R. L. Poole, *Lectures on the History of the Papal Chancery Down to the Time of Innocent III* (Cambridge, 1915), p. 38.

[26]See R. L. Poole, "The Beginning of the Year in the Middle Ages," *Proceedings of the British Academy*, X.

The Christian system followed Roman religion in giving a fixed year, that of the birth of Christ, a unique position. Control over time was not only evident in chronology but also in its place in the life of the Middle Ages. Spread of monasticism and the use of bells to mark the periods of the day and the place of religious services introduced regularity in the life of the West. Sun-dials, whose usefulness was limited in the more cloudy skies of the north, gave way to water clocks and finally to devices for measuring time with greater precision.[27] The modern hour came into general use with the striking clock in the fourteenth century.[28]

Regularity of work brought administration, increase in production, trade, and the growth of cities. The spread of mathematics from India to Baghdad and the Moorish universities of Spain implied the gradual substitution of Arabic for Roman numerals and an enormous increase in the efficiency of calculation.[29] Measurement of time facilitated the use of credit, the rise of exchanges, and calculations of the predictable future essential to the development of insurance. Introduction of paper, and invention of the printing press hastened the decline of Latin and the rise of the vernaculars. Science met the demands of navigation, industry, trade, and finance by the development of astronomy and refined measurements of time which left little place for myth or religion. The printing press supported the Reformation and destroyed the monopoly of the church over time though the persistence of its interest is evident in feast days. The church recognized at an early date the threat of astronomers to the monopoly over time and treated them accordingly.

The struggle between church and state for control over time had centred about a series of measures in the states in the West and the iconoclastic controversy in the Byzantine Empire in the East. The fall of Constantinople in 1453 which followed the perfection of artillery came as a profound shock to Europe. A bulwark of opposition to the absolute supremacy of the papacy had been removed and new states became attracted to the problem of duration and to the possibility

[27]A. P. Usher, *A History of Mechanical Inventions* (New York, 1929); also Lewis Mumford, *Technics and Civilization* (New York, 1934).

[28]M. P. Nilsson, *Primitive Time-reckoning* (London, 1920).

[29]L. T. Hogben, *From Cave Painting to Comic Strip* (London, 1949), pp. 103 ff.; see also Etienne Hajnal, "Le rôle social de l'écriture et l'évolution européenne," *Revue de l'Institut de Sociologie*, 1934.

of devices which had contributed to the solution of problems of longevity in the Byzantine Empire. The experiment of the Tudors[30] had many parallels with that of the Byzantine Empire—notably the emphasis on a sort of Caesaropapism by Henry VIII in becoming head of the Anglican church, on the destruction of monasteries paralleling the iconoclastic controversy, and on the position of women on the throne in contrast with the prohibitions of Salic law. As the Tudors assumed the mantle of divine right from the papacy they laid the foundation for internal struggles for control over time evident in the contention over monopolies[31] under Elizabeth and James I, and in the absolute supremacy of parliament. The interest of parliament in time was evident in the statute of limitations, restrictions on the period for patents and copyright, the rule against perpetuity in wills, and abolition of entail. The interest of the state in the subject of mortmain has been followed by estate taxes to check control over time beyond life itself. It was not until 1774 that perpetual copyright in common law was destroyed by a decision of the courts following the refusal of Scottish courts to recognize the pretensions of English common law and London booksellers. The concern of the Crown in the problem of time and in the permanence of dynasties was evident in the choice of names for monarchs, to mention only the four Georges. A growing interest in problems of permanence of the British Empire was evident in Gibbon's *Decline and Fall of the Roman Empire*. The struggle over control of time on the Continent led the French to start a new era at the birth of the republic on September 22, 1792. Names descriptive of the seasons, such as Thermidor for the summer, were introduced. The arrangement was brought to an end in 1805 following the Concordat of 1802. Holidays determined by the church were suppressed and new holidays were created by the modern state. Economic inefficiencies incidental to the growth in numbers of religious holidays were paralleled by industrial controversies over shorter working weeks.

[30]Byzantine policy also had implications for the French. The Edict of Nantes was supported by an illustration of tolerance told by Jacques-Auguste de Thou (1533-1617) in *Continuation of the History of His Time*, to the effect that the Pope visited Constantinople in 526 to plead against the persecution of Arianism. See A. A. Vasiliev, *Justin the First: An Introduction to the Epoch of Justinian the Great* (Cambridge, Mass., 1950), pp. 220-1.

[31]C. H. McIlwain, *Constitutionalism, Ancient and Modern* (Ithaca, N.Y., 1940), p. 124.

Weakening of control over time by the church and limited control by the state left a vacuum which was occupied by industry. The church, particularly in the monastic orders, had introduced a rigorous division of time for services following the spread in the use of clocks and the bell. But industrial demands meant fresh emphasis on the ceaseless flow of mechanical time. Establishment of time zones facilitated the introduction of uniformity in regions. An advance in the state of industrialism reflected in the speed of the newspaper press and the radio meant a decline in the importance of biological time determined by agriculture. Demands for the reform of the calendar and daylight saving schemes follow the impact of industrialism. The persistence of Easter as a movable feast points to the conservative character of time arrangements.

The demands of industry on time have been paralleled by the demands of business. Family concerns extending over generations were followed by more flexible and permanent arrangements in partnerships and corporations. Certain types of industries such as communication, particularly newspapers, were apparently suited to family control, partly because of the need for advertising and use of the same name over a long period to give an appearance of permanence where permanence and dependability were important. The length of life of corporations has been dependent on concern of management with policies affecting duration and with the character of an industry. Centennial volumes are published to reflect the element of permanency and as a form of institutional advertising. The long history of the Hudson's Bay Company was perhaps in part a result of the necessity of conducting operations extending over a period of five or six years between the date of purchase of goods and the date of the sale of furs. Periods of expansion and consolidation imply an alternative interest in time and place.

Conflict between different groups over monopolies of time hastened the intervention of the state. Devices emphasizing rapid turnover of goods, whether technological (for example, in the substitution of buses for street railways), or commercial (for example, in the introduction of pennies to secure newspaper sales and in an emphasis on changing fashions as in the case of motor cars or the publication of books by popular authors), tend to conflict with long-

term investment supported by savings voluntary or compulsory, whether insurance or old age pensions. Competition between consumers' goods with rapid turnover and durable goods implies conflict within an economy and conflict between nations emphasizing the durable character of goods, such as England, and those emphasizing a less durable character, such as North America. As a result the state intervenes with policies ranging from the breaking of trusts to the devices of socialism. In fields concerned with durable goods and involving long-term investment of capital, such as railways, electric power, forests, and steel, state intervention has been marked. The ultimate steps are taken in a concern with long-term budgets and long-term capital arrangements and with five-year plans. The need for a sane and balanced approach to the problem of time in the control of monopolies, and in the whole field of interest theory and in other directions, is evident in the growth of a bureaucracy in a totalitarian state. The static approach to economic theory has been of limited assistance in meeting the problems of time.

A balanced civilization in its concern with the problem of duration or time and of extent or space is faced with several difficulties. Systems of government concerned with problems of duration have been defeated in part by biology, when dynasties fail to provide a continued stream of governing capacity, and by technology,[32] when invaders are able to exploit improvements in the methods of warfare at the expense of peoples who have neglected them. Writing as a means of communication provides a system of administration of territory for the conquerors and in religion a system of continuity but in turn tends to develop monopolies of complexity which check an interest in industrial technology and encourage new invaders. "For where there is no fear of god, it [the state] must either fall to destruction, or be supported by the reverence shown to a good Prince; which indeed may sustain it for a while, and supply the want of religion in his subjects. But as human life is short, its government must of course sink into decay when its virtue, that upheld and informed it, is extinct." (Machiavelli.) A balanced concern with space or extent of territory and duration or time appears

[32]See Benjamin Farrington, *Head and Hand in Ancient Greece: Four Studies in the Social Relations of Thought* (London, 1947).

to depend on a dual arrangement in which the church is subordinate to the state and ensures that the mobilization of the intellectual resources of the civilization concerned, by religion or by the state, will be at the disposal of both and that they will be used in planning for a calculated future in relation to the government of territory of definite extent. If social stratification is too rigid and social advancement is denied to active individuals as it is in plutocracies a transpersonal power structure will be threatened with revolt.[33]

The tendency of a monopoly over time in religion to lead to an accumulation of wealth invites attacks from the state with demands for redistribution evident in the embarrassments of the church in the Middle Ages, and in the attacks on monasteries in England and in the Byzantine Empire, and in confiscation of the property of the Jews. The linking of church and state in an absolute monarchy and the accumulation of wealth may lead to revolution as it did in France and Russia. This implies a fundamental break with a concept of time increasingly out of line with the demands of a bureaucracy centring on space. The bias of communication in space or in time involves a sponge theory of the distribution of wealth which assumes violence.

It is beyond the bounds of this paper to enumerate the inventions for the measurement of time or to suggest their implications in the various developments of modern industrialism. It is concerned with the change in attitudes toward time preceding the modern obsession with present-mindedness, which suggests that the balance between time and space has been seriously disturbed with disastrous consequences to Western civilization. Lack of interest in problems of duration in Western civilization suggests that the bias of paper and printing has persisted in a concern with space. The state has been interested in the enlargement of territories and the imposition of cultural uniformity on its peoples, and, losing touch with the problems of time, has been willing to engage in wars to carry out immediate objectives. Printing has emphasized vernaculars and divisions between states based on language without implying a concern with time. The effects of division have been evident in development of the book, the pamphlet, and the newspaper and in the growth of regionalism as

[33]N. S. Timasheff, *An Introduction to the Sociology of Law* (Cambridge, Mass., 1939), p. 207.

new monopolies have been built up. The revolt of the American colonies, division between north and south, and extension westward of the United States have been to an important extent a result of the spread of the printing industry. In the British Empire the growth of autonomy and independence among members of the Commonwealth may be attributed in part to the same development. In Europe division between languages has been accentuated by varying rates of development of the printing industry. Technological change in printing under constitutional protection of freedom of the press in the United States has supported rapid growth of the newspaper industry. Its spread to Anglo-Saxon countries has sharpened the division between English and languages spoken in other areas and in turn contributed to the outbreak of the First World War. Not only has the press accentuated the importance of the English language in relation to other languages, it has also created divisions between classes within English-speaking countries. Emphasis on literacy and compulsory education has meant concentration on magazines and books with general appeal and widened the gap between the artist concerned with improvement of his craft and the writer concerned with the widest market. The writing of history is distorted by an interest in sensationalism and war. The library catalogue reflects an obsession of commercialism with special topics, events, periods, and individuals, to mention only the names of Lincoln, Napoleon, Churchill, Roosevelt, and others.

Large-scale production of newsprint made from wood in the second half of the nineteenth century supported large-scale development of newspaper plants and a demand for effective devices for widening markets for newspapers. The excitement and sensationalism of the South African War in Great Britain and of the Spanish-American War in the United States were not unrelated to the demands of large newspapers for markets. Emergence of the comics[34] coincided with the struggle for circulation between Hearst and Pulitzer in New York. Increased newspaper circulation supported a demand for advertising and for new methods of marketing, notably the department store. The type of news essential to an increase in circulation, to an increase in advertising, and to an increase in the

[34]Coulton Waugh, *The Comics* (New York, 1947).

sale of news was necessarily that which catered to excitement. A prevailing interest in orgies and excitement was harnessed in the interests of trade. The necessity for excitement and sensationalism had serious implications for the development of a consistent policy in foreign affairs which became increasingly the source of news. The reports of MacGahan, an American newspaper man, on Turkish activities were seized upon by Gladstone and led to the defeat of Disraeli.[35] The activity of W. T. Stead in the *Pall Mall Gazette* was an important factor in the fiasco of Gordon's expedition to Egypt. While it would be fatal to accept the views of journalists as to their power over events it is perhaps safe to say that Northcliffe played an important role in shifting the interest of Great Britain from Germany to France and in policy leading to the outbreak of the First World War.

Technological advance in the production of newspapers accompanied the development of metropolitan centres. In the period of western expansion "all these interests bring the newspaper; the newspaper starts up politics, and a railroad."[36] A large number of small centres were gradually dwarfed by the rise of large cities. In turn the opinion of large centres was reflected in their newspapers and in an emphasis on differences. "No," said Mr. Dooley, "They've got to print what's different."[37] Large centres became sources of news for distribution through press associations and in turn press associations became competitive with an emphasis on types of news which were mutually exclusive. The United Press became a competitor of the International News Service (Hearst) and of the Associated Press. The limitations of news as a basis of a steady circulation led to the development of features and in particular the comics and photography. Improvements in the reproduction of photographs coincided with the development of the cinema. News and the cinema complemented each other in the emphasis on instability. As a result of the struggle between various regions or metropolitan centres political stability was difficult to achieve. "It is one of the peculiar weaknesses

[35]Archibald Forbes, *Souvenirs of Some Continents* (London, 1894).

[36]Matthew Josephson, *The Robber Barons: The Great American Capitalists, 1861-1901* (New York, 1934), p. 27.

[37]Cited by L. M. Salmon, *The Newspaper and the Historian* (New York, 1923), p. 29.

of our political system that our strongest men cannot be kept very long in Congress."[38] While Congress was weakened the power of the president was strengthened. Theodore Roosevelt appealed to the mass psychology of the middle class and significantly gave the press a permanent room in the White House.[39] Oswald Garrison Villard claimed that "Theodore Roosevelt did more to corrupt the press than anyone else."[40]

The steadying influence of the book as a product of sustained intellectual effort was destroyed by new developments in periodicals and newspapers. As early as 1831 Lamartine would write: "Le livre arrive trop tard; le seul livre possible dès aujourd'hui, c'est un journal." The effect of instability on international affairs has been described by Moltke: "It is no longer the ambition of princes; it is the moods of the people, the discomfort in the face of interior conditions, the doings of parties, particularly of their leaders, which endanger peace."[41] The Western community was atomized by the pulverizing effects of the application of machine industry to communication. J. G. Bennett is said to have replied to someone charging him with inconsistency in the *New York Herald*, "I bring the paper out every day." He was consistent in inconsistency. "Advertisement dwells [in] a one-day world."[42]

Philosophy and religions reflected the general change. In the words of *Punch*: "It was the gradually extended use of the printing press that dragged the obscure horrors of political economy into the full light of day: and in the western countries of Europe the new sect became rampant." Hedonism gained in importance through the work of Bentham. Keynes has described his early belief by stating that he belonged to the first generation to throw hedonism out the window and to escape from the Benthamite tradition. ". . . I do now regard that as the worm which has been gnawing at the insides of modern civilisation and is responsible for its present moral decay. We used to regard the Christians as the enemy, because they appeared

[38]Brand Whitlock, *Forty Years of It* (New York, 1925), p. 157.

[39]Matthew Josephson, *The President Makers, 1896-1919* (New York, 1940), p. 145.

[40]Oswald Garrison Villard, *Fighting Years: Memoirs of a Liberal Editor* (New York, 1939), p. 151.

[41]Vagts, *A History of Militarism*, p. 173.

[42]Wyndham Lewis, *Time and Western Man* (London, 1927), p. 28.

as the representatives of tradition, convention and hocus-pocus. In truth it was the Benthamite calculus, based on an over-valuation of the economic criterion, which was destroying the quality of the popular Ideal. Moreover, it was this escape from Bentham, joined with the unsurpassable individualism of our philosophy, which has served to protect the whole lot of us from the final *reductio ad absurdum* of Benthamism known as Marxism."[43] But Keynes was to conclude "we carried the individualism of our individuals too far" and thus to bear further testimony to the atomization of society. In religion "the new interest in the future and the progress of the race" unconsciously undermined "the old interest in a life beyond the grave; and it has dissolved the blighting doctrine of the radical corruption of man."[44] We should remind ourselves of Dean Inge's remarks that popular religion follows the enslavement of philosophy to superstition. The philosophies of Hegel, Comte, and Darwin became enslaved to the superstition of progress. In the corruption of political science confident predictions, irritating and incapable of refutation, replaced discussion of right and wrong.[45] Economists (the Physiocrats) "believed in the future progress of society towards a state of happiness through the increase of opulence which would itself depend on the growth of justice and 'liberty'; and they insisted on the importance of the increase and diffusion of knowledge."[46] The monopoly of knowledge which emerged with technological advances in the printing industry and insistence on freedom of the press checked this development.

The Treaty of Versailles recognized the impact of printing by accepting the principle of the rights of self-determination and destroyed large political organizations such as the Austrian Empire. Communication based on the eye in terms of printing and photography had developed a monopoly which threatened to destroy Western civilization first in war and then in peace. This monopoly emphasized individualism and in turn instability and created illusions

[43] John Maynard Keynes, *Two Memoirs* (London, 1949), pp. 96-7.
[44] J. B. Bury, *A History of Freedom of Thought* (London, 1928), p. 227.
[45] W. R. Inge, *Diary of a Dean, St. Paul's 1911-1934* (London, 1950), pp. 193-198.
[46] J. B. Bury, *The Idea of Progress, an Inquiry into Its Origin and Growth* (London, 1920), p. 175.

in catchwords such as democracy, freedom of the press, and freedom of speech.

The disastrous effect of the monopoly of communication based on the eye hastened the development of a competitive type of communication based on the ear, in the radio and in the linking of sound to the cinema and to television. Printed material gave way in effectiveness to the broadcast and to the loud speaker.[47] Political leaders were able to appeal directly to constituents and to build up a pressure of public opinion on legislatures. In 1924 Al. Smith, Governor of the State of New York, appealed directly by radio to the people and secured the passage of legislation threatened by Republican opposition. President F. D. Roosevelt exploited the radio as Theodore Roosevelt had exploited the press. He was concerned to have the opposition of newspapers in order that he might exploit their antagonism. It is scarcely necessary to elaborate on his success with the new medium.

In Europe an appeal to the ear made it possible to destroy the results of the Treaty of Versailles as registered in the political map based on self-determination. The rise of Hitler to power was facilitated by the use of the loud speaker and the radio. By the spoken language he could appeal to minority groups and to minority nations. Germans in Czechoslovakia could be reached by radio as could Germans in Austria. Political boundaries related to the demands of the printing industry disappeared with the new instrument of communication. The spoken language provided a new base for the exploitation of nationalism and a far more effective device for appealing to larger numbers. Illiteracy was no longer a serious barrier.

The effects of new media of communication evident in the outbreak of the Second World War were intensified during the progress of the war. They were used by the armed forces in the immediate prosecution of the war and in propaganda both at home and against the enemy. In Germany moving pictures of battles were taken[48] and shown in theatres almost immediately afterwards. The German

[47] William Albig, *Public Opinion* (New York, 1939), p. 220.
[48] S. Kracauer, *From Caligari to Hitler* (Princeton, N.J., 1947), pp. 297-8. "The camera's possibility of choosing and presenting but one aspect of reality invites it to the worst kinds of deceit." *The Journals of André Gide*, trans. Justin O'Brien, IV (New York, 1951), 91.

people were given an impression of realism which compelled them to believe in the superiority of German arms; realism became not only most convincing but also with the collapse of the German front most disastrous. In some sense the problem of the German people is the problem of Western civilization. As modern developments in communication have made for greater realism they have made for greater possibilities of delusion. "It is curious to see scientific teaching used everywhere as a means to stifle all freedom of investigation in moral questions under a dead weight of facts. Materialism is the auxiliary doctrine of every tyranny, whether of the one or of the masses."[49] We are under the spell of Whitehead's fallacy of misplaced concreteness. The shell and pea game of the country fair has been magnified and elevated to a universal level.

The printing industry had been characterized by decentralization and regionalism such as had marked the division of the Western world in nationalism and the division and instability incidental to regions within nations. The radio appealed to vast areas, overcame the division between classes in its escape from literacy, and favoured centralization and bureaucracy. A single individual could appeal at one time to vast numbers of people speaking the same language and indirectly, though with less effect, through interpreters to numbers speaking other languages. Division was drawn along new lines based on language but within language units centralization and coherence became conspicuous. Stability within language units became more evident and instability between language units more dangerous.

The influence of mechanization on the printing industry had been evident in the increasing importance of the ephemeral. Superficiality became essential to meet the various demands of larger numbers of people and was developed as an art by those compelled to meet the demands. The radio accentuated the importance of the ephemeral and of the superficial. In the cinema and the broadcast it became necessary to search for entertainment and amusement. "Radio . . . has done more than its share to debase our intellectual standards."[50] The demands of the new media were imposed on the older media,

[49]Amiel, *Journal intime*, June 17, 1852.

[50]Ilka Chase, *Past Imperfect* (New York, 1942), p. 236. For a reference to the breath-taking feats of tight-rope walking to avoid any possible offence by the major networks see *ibid.*, p. 234.

the newspaper and the book. With these powerful developments time was destroyed and it became increasingly difficult to achieve continuity or to ask for a consideration of the future. An old maxim, "sixty diamond minutes set in a golden hour," illustrates the impact of commercialism on time. We would do well to remember the words of George Gissing: "Time is money—says the vulgarest saw known to any age or people. Turn it round about, and you get a precious truth—money is time."[51]

May I digress at this point on the effects of these trends on universities. William James held that the leadership of American thought was "passing away from the universities to the ten-cent magazines."[52] Today he might have argued that it had passed to the radio and television. But it is still necessary to say with Godkin in the last century: ". . . there is probably no way in which we could strike so deadly a blow at the happiness and progress of the United States as by sweeping away, by some process of proscription kept up during a few generations, the graduates of the principal colleges. In no other way could we make so great a drain on the reserved force of character, ambition, and mental culture which constitutes so large a portion of the national vitality."[53] By culture he meant "the art of doing easily what you don't like to do. It is the breaking-in of the powers to the service of the will."[54]

If we venture to use this definition we are aware immediately of the trends in universities to add courses because people like to do them or because they will be useful to people after they graduate and will enable them to earn more money. In turn courses are given because members of the staff of the universities like to give them, an additional course means a larger department and a larger budget and, moreover, enables one to keep up with the subject. These tendencies reflect a concern with information. They are supported by the text-book industry and other industries which might be described as information industries. Information is provided in vast

[51]George Gissing, *The Private Papers of Henry Ryecroft* (London, 1914), p. 287.

[52]Norman Hapgood, *The Changing Years: Reminiscences* (New York, 1930).

[53]E. L. Godkin, *Reflections and Comments, 1865-1895* (New York, 1895), p. 157.

[54]*Ibid.*, p. 202.

quantities in libraries, encylopaedias, and books. It is disseminated in universities by the new media of communication including moving pictures, loud speakers, with radio and television in the offing. Staff and students are tested in their ability to disseminate and receive information. Ingenious devices, questionnaires, intelligence tests are used to tell the student where he belongs and the student thus selected proceeds to apply similar devices to members of the staff. A vast army of research staff and students is concerned with simplifying language and making it easier for others to learn the English language and for more people to read and write what will be written in a simpler language. In the words of Santayana, "It doesn't matter *what* so long as they all read the *same* thing." Ezra Pound quotes the remark of an American professor: "The university is not here for the exceptional man."[55] Henry Adams in a discussion of teaching at Harvard summarized the problem in the remark, "It can not be done."[56] I have attempted to use the word information consistently though I am aware that the proper word is education. George Gissing has referred to "the host of the half-educated, characteristic and peril of our time." ". . . education is a thing of which only the few are capable; teach as you will, only a small percentage will profit by your most zealous energy."[57] "To trumpet the triumphs of human knowledge seems to me worse than childishness; now, as of old, we know but one thing—that we know nothing."[58]

The relative adaptability of various subjects to mechanical transmission has threatened to destroy the unity of the university. "The University, as distinct from the technological school, has no proper function other than to teach that the flower of vital energy is Thought, and that not Instinct but Intellect is the highest form of a supernatural Will."[59] It tends to become a congeries of hardened avid departments obsessed with an interest in funds in which the department which can best prove its superficiality or its usefulness is most successful. Governments have been insensitive to the crucial signi-

[55]*The Letters of Ezra Pound, 1907-1941,* ed. D. D. Paige (New York, 1950), p. xxiii.
[56]*Ibid.*, p. 338.
[57]George Gissing, *The Private Papers of Henry Ryecroft,* p. 70.
[58]*Ibid.*, p. 178.
[59]Henry Adams, *The Degradation of the Democratic Dogma* (New York, 1919), p. 206.

ficance of a balanced unity in universities and have responded to the pleas of specific subjects with the result that an interest in unity has been distorted to give that strange inartistic agglomeration of struggling departments called the modern university. The University of Oxford has recognized the threat and has set up a committee on the effects of university grants on balance in university subjects. It will probably be argued that social scientists have lost out in this race for government grants or that they should suffer for views as to the dangers of direct government intervention in the social sciences to the political health of the community. But I am afraid that just as with other subjects if the federal government should provide grants the social sciences will be on hand with the most beautifully developed projects for research that federal money can buy.

Under these circumstances we can begin to appreciate the remarks of an Oxford don who said after solving a very difficult problem in mathematics, "Thank God no one can use that." There must be few university subjects which can claim immunity or few universities which will refrain from pleading that their courses are useful for some reason or other.[60] The blight of lying and subterfuge in the interests of budgets has fallen over universities, and pleas are made on the grounds that the universities are valuable because they keep the country safe from socialism, they help the farmers and industry, they help in measures of defence. Now of course they do no such thing and when such topics are mentioned you and I are able to detect the odour of dead fish. Culture is not concerned with these questions. It is designed to train the individual to decide how much information he needs and how little he needs, to give him a sense of balance and proportion, and to protect him from the fanatic who tells him that Canada will be lost to the Russians unless he knows more geography or more history or more economics or more science. Culture is concerned with the capacity of the individual to appraise problems in terms of space and time and with enabling him to take the proper steps at the right time. It is at this point that the

[60]For example, the teaching that "intellectual activity is worthy of esteem to the extent that it is practical and to that extent alone. . . . the man who loves science for its fruits commits the worst of blasphemies against that divinity." Benda, *The Great Betrayal,* p. 121. The scholar's defeat "begins from the very moment when he claims to be practical." *Ibid.*, p. 151.

tragedy of modern culture has arisen as inventions in commercialism have destroyed a sense of time. "Our spiritual life is disorganized, for the over-organization of our external environment leads to the organization of our absence of thought."[61] "There is room for much more than a vague doubt that this cult of science is not altogether a wholesome growth—that the unmitigated quest of knowledge, of this matter-of-fact kind, makes for race-deterioration and discomfort on the whole, both in its immediate effects upon the spiritual life of mankind, and in the material consequences that follow from a great advance in matter-of-fact knowledge."[62] "In the long run, utility, like everything else, is simply a figment of our imagination and may well be the fatal stupidity by which we shall one day perish" (Nietzsche).

The limitations of Western culture can perhaps be illustrated by reference to the subject with which I pretend some acquaintance, namely the social sciences. Enormous compilations of statistics confront the social scientist. He is compelled to interpret them or to discover patterns or trends which will enable him to predict the future. With the use of elaborate calculating machines and of refinements in mathematical technique he can develop formulae to be used by industry and business and by governments in the formulation of policy. But elaboration assumes prediction for short periods of time. Work in the social sciences has become increasingly concerned with topical problems and social science departments become schools of journalism. The difficulty of handling the concept of time in economic theory and of developing a reconciliation between the static and dynamic approaches is a reflection of the neglect of the time factor in Western civilization. It is significant that Keynes should have said that in the long run we are all dead and that we have little other interest than that of living for the immediate future. Planning is a word to be used for short periods—for long periods it is suspect and with it the planner. The dilemma has been aptly described by Polanyi, "laissez-faire was planned, planning is not." The results have been evident in the demand for wholesale govern-

[61] Albert Schweitzer, *The Decay and the Restoration of Civilization* (London, 1932), p. 32.

[62] Thorstein Veblen, *The Place of Science in Modern Civilization and Other Essays* (New York, 1919), p. 4.

ment activity during periods of intense difficulty. The luxury of the business cycle has been replaced by concerted measures directed toward the welfare state and full employment. Limited experience with the problem has involved expenditures on a large scale on armaments.

The trend towards centralization which has accompanied the development of a new medium of communication in the radio has compelled planning to a limited extent in other directions. Conservation of natural resources, government ownership of railways and hydro-electric power, for example in Canada and by T.V.A. in the United States, and flood control are illustrations of a growing concern with the problems of time but in the main are the result of acute emergencies of the present. Concern with the position of Western civilization in the year 2000 is unthinkable. An interest in 1984 is only found in the satirist or the utopian and is not applicable to North America. Attempts have been made to estimate population at late dates or the reserves of power or mineral resources but always with an emphasis on the resources of science and with reservations determined by income tax procedure, financial policy, or other expedients. Obsession with present-mindedness precludes speculation in terms of duration and time. Morley has written of the danger of a "growing tendency to substitute the narrowest political point of view for all the other ways of regarding the course of human affairs, and to raise the limitations which practical exigencies may happen to set to the application of general principles, into the very place of the principles themselves. Nor is the process of deteriorating conviction confined to the greater or noisier transactions of nations. . . . That process is due to causes which affect the mental temper as a whole, and pour round us an atmosphere that enervates our judgment from end to end, not more in politics than in morality, and not more in morality than in philosophy, in art, and in religion."[63]

Concern of the state with the weakening and destruction of monopolies over time has been supported by appeals to science whether in an emphasis on equilibrium suggested by the interest of the United States in a balanced constitution following Newtonian mathematics or in an emphasis on growth, competition, and survival of the fittest

[63] John, Viscount Morley, *On Compromise* (London, 1921), p. 6.

of Darwin. Attempts to escape from the eye of the state have been frustrated by succession duties, corporation laws, and anti-combine legislation. The demands of technology for continuity have been met by rapid expansion of the principle of limited liability and devices such as long-term leases guaranteeing duration but these have provided a base for active state intervention in income taxes. Little is known of the extent to which large corporations have blocked out the utilization of future resources other than in matters of general policy. A grasping price policy sacrifices indefinite possibilities of growth. A monopolist seeks expanding business at a reasonable profit rather than the utmost immediate profit.[64] Organization of markets and exchanges facilitates the determination of predictions and the working-out of calculations which in turn have their effect on immediate production as an attempt to provide continuity and stability, but limitations progressively increased as evident in business cycles and their destruction of time rigidities. The monopoly of equilibrium was ultimately destroyed in the great depression and gave way to the beginnings of the monopoly of a centralized state. The disappearance of time monopolies facilitated the rapid extension of control by the state and the development of new religions evident in fascism, communism, and our way of life.

The general restiveness inherent in an obsession with time has led to various attempts to restore concepts of community such as have appeared in earlier civilizations. The Middle Ages have appeared attractive to economic historians, guild socialists, and philosophers, particularly those interested in St. Thomas Aquinas. "The cultivation of form for its own sake is equally typical of Romanticism and Classicism when they are mutually exclusive, the Romantic cultivating form in detachment from actuality, the Classicist in subservience to tradition" (Fausset).[65] It is possible that we have become paralysed to the extent that an interest in duration is impossible or that only under the pressure of extreme urgency can we be induced to recognize the problem. Reluctance to appraise the Byzantine Empire may in part be a result of paralysis reinforced by a distaste for any discussion of possible precursors of Russian government. But the concern of the Byzantine Empire in the Greek tradition was with form, with space and time. The sense of community built up by the Greeks assumed a concern with time in continuity and not in "a series of independent instantaneous flashes" (Keynes) such as appealed to the Romans and Western Christianity. "Immediacy of presentment was an inevitable enemy to construction. The elementary, passionate elements of the soul gave birth to utterances that would tend to be disconnected and uneven, as is the rhythm of emotion itself."[66] There was a "parallel emergence, in all the arts, of a movement away from a need which, whether in the ascendant or not, was always felt and honoured: the craving for some sort of continuity in form."[67] The effort to achieve continuity in form implies independence from the pressure of schools and fashions and modes of expression. In the words of Cazamian the indefinite duration of productive vitality in art and letters requires that the individual writer or reader be reinstated in the full enjoyment of his rights.[68]

Wyndham Lewis has argued that the fashionable mind is the time-denying mind. The results of developments in communication are reflected in the time philosophy of Bergson, Einstein, Whitehead, Alexander, and Russell. In Bergson we have glorification of the life of the moment, with no reference beyond itself and no absolute or universal value.[69] The modern "clerks" "consider everything only as it exists *in time,* that is as it constitutes a succession of particular states, a 'becoming,' a 'history,' and never as it presents a state of permanence beyond time under this succession of distinct cases." William James wrote: "That the philosophers since Socrates should have contended as to which should most scorn the knowledge of the particular and should most adore knowledge of the general, is something which passes understanding. For, after all, must not the most honourable knowledge be the knowledge of the most valuable realities!

[64]J. M. Clark, *Alternative to Serfdom* (New York, 1948), p. 65.
[65]E. E. Kellett, *Fashion in Literature* (London, 1931), p. 282.
[66]Louis Cazamian, *Criticism in the Making* (New York, 1929), p. 72.
[67]*Ibid.*, p. 64.
[68]*Ibid.*, p. 129. The novelists Smollett, Fielding, Sterne, Richardson, Defoe, and the cockney artist Hogarth all had "an intimate connection with early journalism, sharing its time-sense as a series of discrete moments, each without self-possession, as well as its notion of the 'concrete' as residing in the particular entity or event sensorily observed." Milton Klonsky, "Along the Midway of Mass Culture," *Partisan Review,* April, 1949, p. 351.
[69]Lewis, *Time and Western Man,* p. 27.

And is there a valuable reality which is not concrete and individual."[70] The form of mind from Plato to Kant which hallowed existence beyond change is proclaimed decadent. This contemporary attitude leads to the discouragement of all exercise of the will or the belief in individual power. The sense of power and the instinct for freedom have proved too costly and been replaced by the sham independence of democracy.[71] The political realization of democracy invariably encourages the hypnotist.[72] The behaviourist and the psychological tester have their way. In the words of one of them: "Great will be our good fortune if the lesson in human engineering which the war has taught us is carried over, directly and effectively, into our civil institutions and activities" (C. S. Yoakum).[73] Such tactlessness and offence to our good sense is becoming a professional hazard to psychologists. The essence of living in the moment and for the moment is to banish all individual continuity.[74] What Spengler has called the Faustian West is a result of living mentally and historically and is in contrast with other important civilizations which are "ahistoric." The enmity to Greek antiquity arises from the fact that its mind was ahistorical and without perspective.[75] In art classical man was in love with plastic whereas Faustian man is in love with music.[76] Sculpture has been sacrificed to music.[77]

The separation and separate treatment of the senses of sight and touch have produced both subjective disunity and external disunity.[78] We must somehow escape on the one hand from our obsession with the moment and on the other hand from our obsession with history. In freeing ourselves from time and attempting a balance between the demands of time and space we can develop conditions favourable to an interest in cultural activity.

It is sufficient for the purpose of this paper if attention can be drawn on the occasion of the 150th anniversary of a university on

[70]Benda, *The Great Betrayal*, pp. 78-80.
[71]Lewis, *Time and Western Man*, p. 316.
[72]*Ibid.*, p. 42.
[73]Cited *ibid.*, p. 342.
[74]*Ibid.*, p. 29.
[75]*Ibid.*, p. 285.
[76]*Ibid.*, p. 295.
[77]*Ibid.*, p. 299.
[78]*Ibid.*, p. 419. For a discussion of the effects of printing on music see Constant Lambert, *Music Ho! A Study of Music in Decline* (London, 1934).

this continent[79] to the role of the university in Western civilization. Anniversaries remind us of the significance of time. Though multiples of decades are misleading measures as the uniform retiring age of 65 is inhuman in its disrespect of biological differences they draw attention to a neglected factor. The university is probably older than Hellenistic civilization and has reflected the characteristics of the civilization in which it flourished, but in its association with religion and political organization it has been concerned with problems of time as well as of space. I can best close this paper by an appeal to Holy Writ. "Without vision the people perish."

[79]This paper was presented at the University of New Brunswick in 1950.