Whatever Was, Was Right*

LYNN THORNDIKE

FOUR words will constitute the extremely paradoxical text of this evening's discourse, namely, Whatever was, was right. In the exposition of this text, look not for the rare jewel of consistency in this ugly head. The sense of these four words will be twisted first this way, and then that. As a typical New England farmer on Martha's Vineyard said many years ago, recounting his conversation with the summer visitor next door who had asked him if he skimmed his milk before delivering it: "'Yes,' I told her, 'first I skim it on one side, and then I turn it over and skim it on the other.'"

This text is, of course, a slight alteration of Alexander Pope's utterance of more than two centuries ago: "Whatever is, is right." This is a hard saying, especially if we attempt to apply it to our own age of world wars and cold wars, of economic and social and racial cleavage, when almost everyone, whether Democrat or Republican, employer or member of a trade union, Communist or libertarian, affirms that he is absolutely right, and that those who disagree with him are completely in the wrong, while some go so far as to insist that those who disagree with them, or with whom they disagree,

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should be sent to forced labor camps, or dropped as security risks; that they are not for a moment longer to be entrusted with the education of the young, although they may have been so engaged without interference for most of their lifetime; and that they are plotting to overthrow the government by force.

Fortunately, it is not my intention this evening to attempt the difficult feat of justifying Pope's epigram in its application to the present. The concern of the historian is with the past, and therefore my text is, Whatever was, was right. If Pope could say in the age of Anne and the early Hanoverians, "Whatever is, is right," with some semblance to truth, the corollary, Whatever was then, was right then, would seem to possess equal validity.

This is not to maintain that the state of affairs and the stage of thought then were right according to our present standards and would be satisfactory today. It, of course, would not be possible or even thinkable now. But perhaps it was, if not absolutely and eternally right, about as nearly right as was at that time thinkable and possible.

It must be admitted, however, that the period immediately preceding the birth of Pope in 1688, the year of the Glorious—or, as it has recently been called, respectable Revolution, when the existing government was overthrown by force or something closely approaching thereto, possessed certain features somewhat resembling those of our time. Witch-hunting, it is true, was then on its way out. But the scare as to the alleged Popish Plot, based upon the supposed revelations of the arch-informer, Titus Oates, sent a number of innocent persons to their death. Our fear that Soviet troops may sweep over western Europe is mild compared to the terror of a writer then who was convinced that, while the British navy might prevent the army of Louis XIV from crossing the channel, the pope at Rome had at his instant disposal infinite legions of demons who would have no difficulty in getting there by air.2

In 1685, under James II, came the "Bloody Assize," when more than 300 were hanged, drawn, and quartered, and 800 more were transported. During the trials, we are told, "Jeffreys, who afterwards boasted that he had hanged more traitors than any of his predecessors since the Conquest, roared, swore, and joked at the trembling victims in a way that made his name a terror for years to come."3

England today is in a saner mood. When, in the summer of 1952, it was proposed by some that the House of Commons take action against the "red

2 See note 25 below.
dean," The Church of England Newspaper protested strongly against any such political interference in ecclesiastical affairs, declared that Dr. Johnson's continued tenure of office was "a test of this nation's belief in freedom," and expressed the hope that there would never be anything in Britain so un-British as a Committee on Un-British Activities.4

The historian at least does not have to confine his activities to American ones. He may commune (cave verbum) with the ancient civilizations of Egypt and Babylon, Greece and Rome, China and India, with paganism and Judaism and Islam, and with heresy within the Christian church. He may investigate the past of western Europe, and even that of Russia. As Ramus said in the sixteenth century of mathematics, after he had been forbidden to teach philosophy, "Here, at least, thought is free."

If Pope's dictum was concerned primarily with the order of the universe, Aristotle, more than two millenniums before Pope, was equally optimistic as to mankind and society. In the first chapter of the Politics he said:

Every state is a community of some kind, and every community is established with a view to some good; for men always act in order to obtain what they think good. But if all communities aim at some good, the state or political organization, which is the highest of all and embraces all the others, aims, and in a greater degree than any other does, at the highest good.

The historian, therefore, should attend to and search after what was good and right in any past period. This is not new doctrine. We have often been told that we should study the past sympathetically. But I fear that we have not always done so. I will put the obligation rather strongly.

In questioning or rejecting a previous record of fact or expression of opinion, a later historian should not do so merely because he can see or discover no grounds for it. There must have been grounds for it, or it would not have been made. As Bishop Hurd wrote nearly two hundred years ago, in his Letters on Chivalry and Romance:

Nothing in human nature, my dear friend, is without its reason. The modes and fashions of different times may appear, at first sight, fantastic and unaccountable. But they, who look nearly into them, discover some latent cause of their production.5

The reasons which seemed adequate then may not be so according to present standards and science. But even if it wasn't really so, that does not obliterat...
the fact—for it also is a fact—that it was imaginatively so, or theoretically so, or psychically so, or morally so, or mythically so, or even erroneously so.

The pseudo-literature that clusters about a great name like that of Hermes Trismegistus or Aristotle or Bede or Albertus Magnus, or the alchemical corpus fathered upon Raymond Lull, may not be belittled or passed by on the other side. After all, someone wrote it, someone read it, someone preserved it. It remained associated with the famous name, and sometimes has a unity and a consistency which his genuine works scarcely possess. Was its ascription to him a mere accident? Should it be studied quite independently of and apart from him? At least, it should be studied and related to the thought and writing of its time or times. The Herbarium of the pseudo-Apuleius is as important in the annals of botany and of pictorial art, as the genuine Metamorphoses is in the history of literature, religion, and magic.

When Christopher Borri published his book on the three heavens—elemental, celestial, and empyrean—at Lisbon in 1631, he interpreted the new astronomical discoveries according to his own preconceived ideas and interests: belief in four elements, in the Biblical story of creation, and in the moving Intelligences of Aristotle transformed into Christian angels who moved the planets and stars, and who could extend the scope of their activity in two dimensions, but not in three, which power was reserved to God alone. This point he graphically illustrated by a figure of a seated angel which filled up most of a square, and another figure showing the same angel stretched out a great length within an oblique parallelogram of the same base and altitude, and consequently of the same area as the square.⁶

Such an association today seems incongruous, but at that time it may have aided the new astronomy more than it injured it. It was not the perusal of those of Huygens’ works which announced great scientific discoveries that induced Archdeacon Plume to found the Plumian professorship of astronomy and experimental philosophy at the University of Cambridge, but the reading, which had been recommended to him by no less a personage than Flamsteed, the first astronomer royal, of what seems today the quite illogical and almost worthless Cosmotheoros or The Celestial Worlds Discover’d, or Conjectures concerning the Inhabitants, Plants and Productions of the Worlds in the Planets.⁷

The approach of the historian to the past should be neither that of hero worship nor debunking; neither the frame of mind of those believers in a past golden age who thought that the ancients knew everything and that man had since sadly degenerated, nor that of those who saw hope and hap-

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⁶ Christophorus Borrius, De tribus coelis aereo sidereo empireo (1631), p. 240.
piness only in a future existence beyond the grave, nor in more recent nostalgia for one’s boyhood and horse-and-buggy days. Because whatever was, was right, is no proof that whatever is, is wrong. And while we may justly admire those moderni of the Middle Ages who ventured to criticize the ancients and to express views of their own, nevertheless the doctrine of modern progress does not constitute a sufficient and impeccable leitmotiv for the complicated current and crosscurrents of history.

Cournot, in his book on the course of ideas and of events in modern times, has wisely warned us against the self-assurance of certain thinkers who dismiss with disdain beliefs of which they fail to comprehend the deep roots in the heart of mankind and the soul of society.

What should be especially avoided is the overbearing attitude that whatever was in the past, is wrong in these enlightened times of ours; that times past were motivated by cruelty, tyranny, ignorance, superstition, and bigotry; while our age is marked by humanity, liberty, science, and religious—not to mention other types of—toleration. Equally to be eschewed is the corollary that whatever is now was either unknown to, or disbelieved in, or regarded as being quite wrong, by those benighted centuries.

As Elias Ashmole wrote in the Prolegomena to his Theatrum Chemicum Britannicum of 1652: “And Posterity will pay us in our own Coyne, should we deride the behaviour and dresse of our Ancestors.”

True it is that some things which were once regarded as wrong have come to be thought right, and that, conversely, some good old customs and once cherished ideas have been abandoned. The Turk is no longer characterized as unspeakable, while silence now prevails as to the woes of the Armenians, concerning which a previous generation was so extremely vocal, up to the culminating point when this country was asked to assume a mandate over Armenia at the close of the First World War.

If we judge the past by the yardstick of our present standards and by what is customary in our own experience, our verdict is liable to sudden reversal. For example, in the good old days of the Protestant Reformers and the Economic Revolution, saints’ days went by the board. In England, the summer before last, the Sunday Observer, under the caption, “150 Years Ago,” reprinted the following passage from its issue of August 19, 1804:

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8 Such as may be found expressed in the London Times of July 23, 1954, for “carriages at eleven.”
10 “Il n’a pas la superbe de certains penseurs qui jugent avec dédain des croyances dont ils méconnaissent les racines profondes dans le cœur de l’homme et l’âme des sociétés.” Ibid., I, xix.
By a clause in the London Dock Warehouse Act lately passed, it appears that no other days than Sundays, Christmas days, Good Fridays, and Fastdays, are to be observed at the docks or warehouses as holidays. We trust that this excellent example will be generally adopted in our public offices, and that we shall shortly be relieved from most of the unmeaning holidays (the remnants of ignorance, superstition, and bigotry, and incentives to dissipation and idleness) by which our trade and commerce are at present embarrassed.

Even in relatively recent textbooks we were told, and heard with abhorrence, that in France in the fifteenth century there came to be as many as fifty religious holidays in a year. But today many workers take fifty-two Saturdays off per year, not to mention legal holidays and their vacation period, so that the fifteenth-century gildsmen now appear to have been overworked.

But this change in point of view and perspective seems proof that whatever is, is right, rather than that whatever was, was right.

Fluctuations in the prices of commodities and depreciation of the coinage, which are nowadays covered up by the pompous words "inflation" and "going off the gold standard," are other matters on which we may no longer point the finger of scorn at an uneconomic past. Probably there was as much reason for them then as now, or as little justification for them now as then.

Famines in the Middle Ages are another feature that seems to have been greatly exaggerated. It is very suspicious how the chroniclers of different times and places repeat the same stock account of a famine such as no living man could remember, of the poor dying in the streets, of bread made out of clay or dust instead of flour, and of mothers who are forced to eat their own children. At the same time the monks have enough on hand to feed several hundreds gratuitously, while some farmers and grain-dealers export their stocks where they can get more money for them, in seeming defiance of the law of supply and demand. At Basel in 1275 things came to such a pass that even the Dominicans had to eat rye bread.

Despite the fact that boys in medieval schools spent six or eight years on little else than the study of the Latin language and grammar, the notion became widespread since that time that medieval Latin was barbarous, incorrect, and ungrammatical.

Navigators in the sixteenth and early seventeenth centuries spread the report of the existence of a great continent to the south of Asia, Africa, and South America, and such a terra firma was often depicted upon early modern maps. But after the voyages of Cook in the Pacific in the eighteenth century, it was believed that its nonexistence had been demonstrated, or that at best it was meant to apply to Australia. Today polar expeditions have proved that there are large land masses toward the South Pole, and a continental Antarctica has reappeared upon our maps.
Whatever Was, Was Right

One is tempted to hazard the assertion that in the progress of civilization there has been no great gain without some corresponding loss—possibly even the further surmise that in periods of seeming decline there has been no great loss without some slight compensating gain. Ours is an age of speed and velocity; motor cars that can go 140 miles an hour, although speed limits may be much less than that, airplanes that land us in Los Angeles in time for lunch. But the morning mail and the Sunday newspaper are delivered later and later.

Moreover, one age excels in one respect, another in another. The fist-hatchet was developed to a high point in the Old Stone Age; the atomic bomb, in ours. The modern evolution of aviation, though faintly forecast by efforts and dreams of previous generations, is little short of a miracle. But “Those flights upon the banks of Thames” by Will Shakespeare have not since been equaled.

It is, indeed, possible to overestimate the significance and importance of material change. Gustave Le Bon even went so far as to assert: “Things hardly change. Only the ideas which we have regarding them can change greatly. It is on the basis of those ideas that we have to take action.”

It is with somewhat dubious satisfaction that one reads in the report of the President’s Material Policy Commission, known as the Paley Report: “The quantity of most metals and mineral fuels used in the United States since the First World War exceeds the total used throughout the entire world in all of history preceding 1914,” and that, whereas ores which averaged less than thirteen per cent of copper were considered not worth working in the eighteenth century, by 1900 the average content of ores used in the United States was five per cent and by 1950 had dropped below one per cent.

With this may be compared the utterance of Tommaso Campanella who wrote of the sixteenth and early seventeenth centuries: “Our age has added more to history in a hundred years than the whole world in four thousand, and more books have been published in this century than in five thousand years before.”

There has been marvelous modern progress in artificial illumination. Even the friction match is a relatively recent invention, and within our own life-span lighting by natural or artificial gas has given way to electricity. We sing:

Lynn Thorndike

Where the lights are brightly gleaming
I long to mingle with the throng

but we no longer ask:

Watchman! Tell us of the night,
What its signs and wonders are?

Darkness has lost many of its terrors, but also much of its charm and magic. We even illuminate Gothic cathedrals and Roman amphitheaters by misplaced floodlights, instead of resting content with Byron:

... when the rising moon begins to climb
Its topmost arch and gently pauses there;
When the stars twinkle through the loops of time

When the light shines serene, but doth not glare

... for divine
Should be the light which streams here, to illume
... the azure gloom

Of an Italian night...15

True it is that cathedrals can stand the floodlights and show up better under them than most modern edifices and monuments. But we are so used to floodlights and spotlights and close-ups and flashlights, that we won’t pay much attention to a cathedral or amphitheater, unless it is emphasized in some such unnatural way, and nothing is left to the imagination.

Innovators and reformers too often have had single-track minds which were taken possession of and overwhelmed by one dominating idea. A solitary reason for making a change may appeal to them so powerfully that it alone is sufficient to stir them to action, goad them into agitation, and impel them into propaganda. Of arguments to the contrary they take no account. How the situation which they wish to alter came about, they do not inquire, or, if they do, assign it to an unwholesome origin and ascribe it to evil motives. Nor are they interested in the many reasons, past and present, why this state of affairs has continued for so long, and possibly should continue for still longer. For them, the very fact that it has endured for so long a time is in the nature of presumptive evidence that it has outlived its usefulness, and its long persistence they regard not as a sign of inherent merit but as so much the more a lag from the march of modern progress. They do not pause to reflect that ancient Egyptian civilization may have lasted so long because it was not continually being reformed. They do not consider that many things

15 From Childe Harold's Pilgrimage, Canto IV, stanzas cxliv, cxxviii.
have died a natural death: say, building pyramids, phlebotomy, homeopathy, clear and distinct enunciation on the stage, the trireme and maniple, the troubadours and courtly love, “spare the rod and spoil the child,” mid-Victorianism, women’s Browning clubs, New England thrift, domestic service in the United States, poll taxes, the study of Greek, and the ideal of a just price.

The iconoclasts who smashed statues, shattered stained glass windows, and whitewashed over religious paintings, thought only of ridding the church of idolatry, and recked not of the irreparable loss to art, archaeology, and history. Those who agitated for laws against child labor had no idea that these laws might encourage idleness and be a cause of juvenile delinquency. A recent speaker at an educational conference at Sheffield said that it is not sufficiently recognized that adolescence is a new problem.

For the first time in history we were keeping in a state of tutelage persons who were physically, emotionally, and often intellectually adult.

Shakespeare’s Juliet, said Mr. Briton, was 13. Today she would be put into a county council institution, and Romeo imprisoned. General Wolfe held an important Army command at 17; today he would be stigmatized as an “early leaver” from the grammar school. By the age of 19 Joan of Arc had defeated the finest military machine in Europe, crowned a King of France, and herself suffered martyrdom. If today she were training as a teacher, she would be allowed out after 10 P.M. once a term, on written application and on promise to take another member of the college with her.

However, it is to be remembered that the German humanist Wimpheling published an educational work entitled Adolescentia as early as the year 1500. Adolescence had also been one of the topics which a Franciscan doctor and professor had discussed with Antonio de la Scala, ruler of Verona from 1375 to 1388.

A good illustration of this reforming attitude is furnished by the proposal, made frequently of late, to alter the calendar to a year of thirteen months of twenty-eight days each, in order that the same day of the month may always fall on the same day of the week, and confusion become worse confounded. The chief, if not the sole, argument for this proposed change would seem to be business convenience, although a sop is thrown to religion, which once

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17 Printed at Strasburg by N. Flach, 74 fols. in-4.
18 Basel MS. A.VI.6, fols. 22ra–141vb: rubric, “Incipiunt profisimata secundum ordinem qualibet id est de qualibet materia indifferenter . . . Edita per eximium doctorem fratrem Franciscanum de Concelano ordinis minorum professorum, que quidem se habent per modum dialogorum videlicet domino Anthonio interroganti et respondetur per dictum doctorem ut post prologum subsequentem plenius continetur”; incipit, “Nescio excelse princeps si in laudem . . .” Franciscus’s surname is also found spelled Conedano, Coronellis, and, in Chevalier and Sbaralea, Cornegliano.
controlled the calendar, by retaining Sundays. If present proneness toward uniformity also plays some part in it, the perennial human love of variety can pretty surely be counted upon soon to rebel against this and to tire of holiday week-ends which always begin and close the same as they have before. Moreover, the proposal pays no attention to astronomical, historical, and numerical considerations. Thirteen is a prime number, whereas twelve is divisible by two, three, four, and six, and corresponds to the four seasons of the year and to the twelve signs of the zodiac. These last, however, have now become astronomically passé, although still much in favor in the interior decoration of ocean liners. On the other hand, the new proposal retains the old planetary week of seven days, indeed makes it the very essence of the calendar, although the number of planets has long since been known to exceed seven. At present the historian is able to check on the correctness of a past date by noting whether in the year as stated the given day of the month would have fallen upon the reported day of the week. With the proposed new calendar these would be identical for any and every year, so that there would be no means of guarding against an error in a figure. I doubt if this consideration has ever entered the heads of the advocates of the thirteen-month calendar.

Such innovations and reforms and changes, which were made from some one compelling reason, or from mere love of change, are of course likely to be undone for another compelling reason which had been overlooked before, or from the same mere love of change. Sometimes the change is even for the worse. A favorite indoor sport of librarians and keepers of manuscripts in the eighteenth and nineteenth centuries was to renumber the leaves of the manuscripts, sometimes erroneously, sometimes numbering fly leaves, sometimes omitting to number blank leaves in the course of the codex, so that in the self-same manuscript the new numbering may first spurt ahead of the old and then lag behind it.

When Magdalen Hall at Oxford was replaced in 1874 by the second foundation of Hertford College, not only did what had been catalogued by Coxe in 1852 as MS. 2 of Magdalen Hall become MS. 4 of Hertford College, but some busy hand renumbered the leaves of a treatise which had been 127–136 in Coxe's catalogue to folios 140–147. This did not mean that the text in question had shrunk in the interim from ten to eight leaves but merely that the aforesaid busy hand had been in too much of a hurry and skipped two leaves, which it subsequently renumbered 141a and 141b.

In manuscript Digby 57 at the Bodleian, Oxford, the astronomical tables of William Reade, bishop of Chichester from 1340 on, for the meridian of
Oxford, end on the leaf which bears the old numbering 39 and has been newly numbered 43. The following leaf has the old numbering 40 but was left unnumbered by the new dispensation, which kept the number 44 for the next leaf, on which further tables begin with the old number 41. The numberings thus remain three apart until we reach the point where two leaves have been cut out which bore the old numbers 104 and 105, consequently old leaves 106 and 107 received the new numbers 107 and 108. Then the leaves which were originally numbered 108–112 have no new numbers, and old 113 becomes new 109, leaving the old numbering now four ahead of the new, whereas it had started four behind the other. Three more blank leaves with old numbers from 148 to 151 increase the discrepancy to seven; by the time fol. 192 old and 178 new has been reached the numberings are fourteen apart.

On the other hand, manuscripts in which there was no old numbering have sometimes been left in that condition, or only every tenth leaf indicated, or those on which new treatises begin. In one case the new foliation is indicated only in the catalogue. 20

Renumbering the leaves was bad enough, but librarians and cataloguers were not content to stop there; they loved to renumber the manuscripts themselves. Toward the close of the seventeenth century the famous scholar Mabillon and other Benedictines drew up in longhand an excellent catalogue of the manuscripts in the royal library at Paris, giving the page on which each item began and its opening words. 20 But when the printed catalogue was issued in 1744 in four folio volumes, not only were these helpful details omitted, and somewhat fewer items listed merely in numerical order, but the attempt was made to renumber the manuscripts according to a new arrangement in topical order. This was unlikely to prove much of a success in any case, since many manuscripts are a complex of treatises on different subjects. But in the rearrangement some manuscripts were apparently overlooked and at the last moment, instead of receiving integral numbers of their own, had to be squeezed in as Latin MS. 7377 A, 7377 B, 7377 C, and so on. Since then new manuscripts have not been numbered topically but simply in the order of their acquisition, and usually have been catalogued even more briefly.

In the nineteenth century Valentinelli in cataloguing the manuscripts at the library of St. Mark's, Venice, 21 regrouped them topically in classes, but they are still arranged in the library itself by the old shelf-marks. So are the Ashburnham manuscripts at the Laurentian library in Florence, though the

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19 MS. E.III.61 of the Cambridge University Library.
catalogue issued in the late nineteenth century by the Ministry of Public Instruction added a new numbering.\textsuperscript{22}

The oldest known arithmetic in French, an anonymous work of the thirteenth century, to which the abbé Lebeuf had called attention in 1741, and Daunou again in 1824, and which was published by Charles Henry in 1882,\textsuperscript{23} had in the interim been sought for in vain by M. Chasles, historian of mathematics, despite repeated search for it by the librarians of the Bibliothèque Sainte-Geneviève ("malgré les recherches réitérées de MM. les conservateurs de cette bibliothèque"), because the aforesaid Daunou, during his administration as head of the Bibliothèque Sainte-Geneviève, had changed the number of the manuscript from BB2 in-4\(^0\) to R.I.17.\textsuperscript{24}

In the realm of printed books the British Museum, which is in many ways the best library in the world, has recently instituted a reform for which it no doubt has excellent reasons. Where in the past a number of treatises by different authors and printed at different times but often bearing on the same subject, had been bound together and given a common shelf-mark, these are now being rebound separately and given each a new shelf-mark, so that the entries for them in the printed catalogue no longer apply, and one must look the shelf-marks up again. Moreover, under the old arrangement, when one put in a slip for a certain work, one would often be pleasantly surprised to find with it other treatises in the same field of one's investigation, of whose existence one had been previously ignorant.\textsuperscript{25} Furthermore, when one is allowed to order only ten volumes a day, under the new dispensation one can obtain only ten treatises, whereas under the old regime one might see thirty or forty. Fortunately my volumes on the seventeenth century were nearly completed before the new process had gotten well under way. Otherwise I would have had to spend more time and cover less ground. Which again illustrates the point that no great reform is without some small loss for someone.

When printing with movable type was first invented or introduced into western Europe in the middle of the fifteenth century, high hopes were raised in the mind of every intellectual. Here was an innovation that was not merely

\textsuperscript{22} Ministero della pubblica istruzione, \textit{Indici e Cataloghi}, VIII. I Codici Ashburnhamiani della R. Biblioteca Mediceo-Laurenziana di Firenze (Rome), I, fasc. i (1887); ii (1888); iii (1890); iv (1896).

\textsuperscript{23} Boncompagni's \textit{Bollettino di Bibliografia e di storia delle scienze matematiche e fisiche}, XV (1882), 53-55.

\textsuperscript{24} \textit{Ibid.}, p. 50.

\textsuperscript{25} Or they may be on a quite different subject, as was the case with the work which feared invasion of England by papal demons and which had no connection with my field of investigation then, so that I failed to note its author and title.
a mechanical improvement but of stupendous mental and educational promise. Instead of merely enabling man to move faster—like the horse, the locomotive, the automobile, and the airplane, it enabled one to read faster, to think faster, and, it was for some time fondly believed, to publish faster. A historical work entitled *Fasciculus temporum*, in the edition of 1482, said of the decade from 1444 to 1454 that the most subtle science of impression of books, unheard of in all previous ages, was discovered about this time in the city of Mainz.

This is the art of arts, the science of sciences, by the exercise of whose swiftness the desirable treasure of wisdom and knowledge, after which all men instinctively yearn, springing so to speak from dark and deep hiding-places, enlightens and enriches this wretched world. For the infinite virtue of books, once revealed at Athens, Paris, or other universities or a very few sacred libraries and to certain students, by this invention is spread abroad in every tribe, people, nation, and language.

Similarly Polydore Vergil, in his work on the inventors of things, which first appeared in 1499, after describing the library of the dukes of Urbino as the most celebrated in Italy, continued:

So that was a great boon to mortals, but in no way to be compared with what we have gained in our time, having found a new way of writing. For as many letters are printed in one day by one man as scarcely could be written by many in a whole year. By it there has been diffused among us a great abundance of books for all disciplines, so that no longer will there be any work that even a needy man will have to do without.

Alas, poor Polydore! The cost of printing in this country has tripled in the last fifteen years. The needy man may perhaps be able to obtain access in a public or university library to the scholarly work which he can no longer afford to purchase. That is to say, he can, if the scholarly work in question has ever been published. But the chances are that its author has been unable to afford to do this. There are many foundations that will provide funds to stimulate early training in research, to launch the first feeble barks on the sea of learned investigation, or even, to some extent, to support the carrying on of further study. But there are very few that will finance the publication of the accomplished results and the mature findings of ripe and advanced

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26 "Chronica que dicitur fasciculus temporum edita in alma universitate colonie agrippine super rhenum a quodam devoto cartusiensi finit feliciter. Sepius quidem iam impressa sed negligentia correctorum in diversis locis a vero originali minus iuste emendata. Nunc vero non sine magna labore ad pristinum statum reducta cum quibusdam additionibus per humilem virum Bernhardum Richel civem Basileensem sub anno domini Mcccclxxxii x kal. mensii marciit." I examined this edition at Berne; according to Stillwell, *Incunabula in American Libraries* (1940), R259, there are only two copies of it in North America. The edition in the Columbia University Library (Stillwell R262) does not include the passage on printing.

27 *De inventoribus rerum*, II, 7.
scholarship. They help in sowing the seed and fertilizing the soil. But they do nothing to harvest the crops, which are left to rot on the stalks.

Let us appeal to these noble foundations in the words of an old hymn:

Lords of harvest! Send forth reapers;
Hear us, lords, to you we cry;
Send them now the sheaves to gather,
Ere the harvest time pass by.

The truest and surest sense in which we may say, Whatever was, was right is not that it was morally or intellectually irreproachable but that it fitted precisely into the picture of those days, matched the warp and woof of the contemporary fabric, formed a harmonious part of the whole, conformed to the spirit of the age and to the ideals and practices of the period, and was neither anachronistic nor misplaced, springing naturally from what preceded and leading on inexorably to what followed. It is the historian’s task and function to make sure that his interpretation of any document or monument, event or person, is right in this sense, to determine the correct date of a manuscript or charter, painting or building, battle or institution; to place a work by say Albertus Magnus or Aristotle, both in its proper sequence in that individual’s personal intellectual development, and in its influence on the thought of its own age and of subsequent intellectual or artistic history. Just as in the reconstruction of the skeleton and physique of an extinct animal, or a broken Greek vase or Roman mosaic, all the remaining bones or fragments or tesserae must be arranged in exactly their original positions. Just as physicians in the Middle Ages held that every individual had his own peculiar complexio or physical constitution and mental ego, which must be taken into account in prescribing for him, so every period in history and stage of civilization had its own inimitable complex, to which certain customs and ideas and institutions belong, and to which others are quite alien and foreign.

True it is that a particular custom or idea or institution may continue without much alteration through several or even many successive periods. But the aggregate of customs keeps shifting; the combination of ideas is never the same; the fabric of institutions alters. Similarly unsettled is the relationship between the three at any two times.

The sages of ancient and medieval and early modern times—from Hermes Trismegistus to Albumasar to Cornelis Drebbel—did not realize that their secrets might become out-of-date and, if withheld too long, no longer suit an ensuing age.

How seldom has an ancient statue or monument been properly restored! How difficult it is for a translator to put himself in the place of the past
original author! How still more difficult to put his readers in the frames of mind of the original hearers of long ago! Rarely, indeed, does a modern rendering receive the praise which a recent reviewer has accorded to A. J. Arberry's Moorish Poetry. Professor G. E. von Grunebaum writes: "The translation has always caught up the motifs or the conceits of the original and . . . will evoke in the English reader (or hearer) a mood closely akin to . . . that presumably experienced by the Arab reader (or hearer)." 28

Even Shakespeare, although he has been called not of one age but for all time, can be more fully appreciated, if we realize the hold which such beliefs as alchemy and the witchcraft delusion had upon the thought of his age. The passage

\[ \text{... the prophetic soul} \]
\[ \text{Of the wide world, dreaming on things to come} \]

is to be read in the light of the widespread credence then in divination from dreams, in the existence of a world soul, mystic thought transference, universal sympathy and magnetism. And in the case of the subsequent lines,

\[ \text{The mortal moon hath her eclipse endured,} \]
\[ \text{And the sad augurs mock their own presage;} \]
\[ \text{Incertainties now crown themselves assured,} \]
\[ \text{And peace proclaims olives of endless age.} \]

commentators would not have attempted the far-fetched identification of the moon with Queen Elizabeth I, had they measured the prevalence then of astrological predictions and fear of eclipses. Then? Even today one may overhear a stolid businessman at an adjoining table in a London restaurant express great worry as to the immediate future and the hope that the current moon may pass without the injury to him and his business which it threatens.

Moreover, in Shakespeare's time Newton had not yet subjected the movements of the heavenly bodies, which had long been considered eternal and incorruptible, to the same physical laws as terrestrial phenomena. Rather it was still the general belief, as it had been for centuries past, that all terrestrial phenomena and change were subject to the motion and influence of the heavenly orbs. 29

Blind to this background, Pierre Bayle, who shared many of the defects of would-be reformers and care-free skeptics, could write in 1682: "There has never been anything more impertinent, more chimerical than astrology,

28 *Speculum*, XXVIII (1953), 856.
29 The quotations are from Sonnet 107.
30 See my "The True Place of Astrology in the History of Science," *Isis*, XLVI (September, 1955), 273-78.
nothing more disgraceful to human nature.”

Pure caprice, according to Bayle, gave their names and figures to the signs of the zodiac, upon whose supposed qualities astrological predictions are based. But why pure caprice should thus prevail in organized human thought is a question which does not seem to have occurred to him.

Of “olives of endless age” the commentators have said less. Maybe the allusion is not merely to olive branches as emblems of peace, but to the trees themselves, which naturally are long-lived and were protected in ancient Athens by the death penalty for one who destroyed a sacred olive tree. During the Peloponnesian War, many of the trees were destroyed. Afterwards a suit was brought against an Athenian on the charge of having uprooted the stump of such a sacred olive. Perhaps Shakespeare was acquainted with the oration which Lysias composed for that occasion.

There are, of course, exceptions to every rule. Sometimes one encounters not merely a surprisingly modern attitude in or statement by a medieval writer, but even what might almost seem an uncanny insight or foresight into present-day conditions. Thus, when Melchion de Friquento of Naples in 1437 carried his astronomical table of conjunctions of the sun and moon at nineteen-year intervals down to A.D. 2007, he not only made it evident that he did not share the belief which has often been attributed to his time, that the end of the world was imminent, but also set a date which seems none too soon to the eschatology of our atomic age.

Although Pope suggested that “Whatever is, is right,” he did not apply this paradox historically, as we have been trying to do, to previous periods, but dismissed the thousand years or so before Erasmus with the stinging couplet:

A second deluge learning then o’errun
And the monks finished what the Goths begun.

If Pope thus spoke with the voice of classicism, even the succeeding romantic movement, while stressing the importance of medieval literature and art, failed to result in a just appreciation of medieval intellectual achievement, and, in particular, of medieval science. Of such almost complete blindness to the scientific knowledge and information current in the Middle Ages, a few striking illustrations may be given from within the reach of our own recollection.

31 Pierre Bayle, *Lettre à M.L.A.D.C., docteur de Sorbonne: où il est prouvé par plusieurs raisons tirées de la philosophie et de la théologie que les comètes ne sont point le présage d’aucun malheur...* (1682), p. 39.


34 *Essay on Criticism*, lines 691–92.
Henry Osborn Taylor, a former president of this Association, in the first edition of *The Medieval Mind* almost completely omitted the subject of medieval science.

The eleventh edition of the *Encyclopaedia Britannica*, in apparent utter ignorance of works on cosmology and astronomy from Macrobius to Sacrobosco, and on botany and zoology from Macer to Albertus Magnus, said of the Physiologus, "the name Physiologus [was] given to a cyclopedia of what was known and imagined about earth, sea, sky, birds, beasts and fishes, which for a thousand years was the authoritative source on these matters and was translated into every European tongue."85 This myth concerning the Physiologus is as quaint and childish as any of the stories about animals in that popular manual. It affords an excellent illustration of the weird impossible romantic notions concerning the Middle Ages and natural science then which are still entertained by many specialists in the sciences today, who display the same gullibility as that which they impute to their predecessors.

In 1893, in the *Sitzungsberichte* of the learned Vienna Academy, Norbert Herz, author of a history of the determination of the orbits of planets and comets, and of a treatise upon Kepler's astrology, could make a statement which today sounds astonishing, that the Alfonsine Tables of about 1270 were the last astronomical tables to be drawn up before the invention of printing.86 Now we know of tables of Barcelona for the years 1361–1433, those by Jacob Poel at Perpignan in 1361, those of Nicholaus de Heybech at Erfurt in 1384 or 1394, and of many, many others.87

The first mention of a zebra in a European language had hitherto been dated in the year 1641, but Wickersheimer has recently found one mentioned in a medical work which was composed between 1249 and 1251.88 As against the old canard that surgery in the Middle Ages was left in the hands of barbers, we now find the daily press recording the acquisition by the Yale Medical Library of the Codex Paneth of 1326, and "the amazingly advanced surgical instruments of the time. Many of the scalpels, surgical saws, forceps and orthopedic instruments shown in this manuscript look remarkably modern. In fact, some of the instruments shown ... are still in use today."89

Sometimes, however, the shoe is on the other foot, and an invention which...
had been claimed for the Middle Ages, is traced back to classical times. Thus Feldhaus dates artesian wells in 165 B.C., and derives the word from the Latin artus, rather than from Artois.\footnote{Franz Maria Feldhaus, \textit{Die Maschine im Leben der Völker} (1954), p. 185.}

In our schools it used to be taught on the one hand that everybody before Columbus believed that the earth was flat and, on the other hand, that everyone before Copernicus adhered to the Ptolemaic or geocentric system. These two erroneous assumptions were furthermore quite contradictory, since the geocentric hypothesis implies and requires a spherical earth at the center of the spherical heavens—more evidently, indeed, than the heliocentric hypothesis of Copernicus or the elliptical orbits of Kepler. To the cogent reasons which Ptolemy, whose \textit{Almagest} was available in Latin translation from 1175 on, while his system had been vaguely familiar before through such writers as Macrobius, found frequently in early medieval manuscripts, and who estimated the earth's circumference at 252,000 stades and held that the southern hemisphere was habitable—to the cogent reasons of Ptolemy for believing that the earth was a sphere, John of Sacrobosco in the early thirteenth century added the illustration of the ship from the top of whose mast a signal on shore can still be seen after it has vanished from the sight of a person standing at the foot of the mast, an illustration still employed in the altered form of the top of the mast being visible from shore after the hull of the vessel has disappeared from view below the curvature of the wave.

The Middle Ages had few better friends and advocates than the author of \textit{Mont St. Michel and Chartres}. One graduate student told me that he had been led by reading it to work for the Ph.D. degree in medieval history. Another stood up all night long in a third-class French railroad carriage in order to visit the famous abbey. But the education of Henry Adams did not extend to the point of learning that the earth was known to be spherical in the medieval period, as was set forth in the Latin translations of the \textit{Almagest} of Ptolemy and of its Arabic derivatives, in the early thirteenth-century \textit{Sphere} of Sacrobosco and similar textbooks, in the \textit{Divine Comedy} of Dante, and many other places. Yet in \textit{The Education of Henry Adams}, first published posthumously in 1904, we still read at page 485 in the edition of 1918, “the compass coerced the most imbruted mariner to act on the impossible idea that the earth was round.”

No apter illustration can be offered of the progress that has since been made in the study of medieval science. No more convincing instance need be adduced to demonstrate that the more we study the past, the more we find that it was right, not wrong as previously supposed on the basis of
insufficient evidence and knowledge. The more we know concerning any past period, the better our opinion of it becomes. Charges of ignorance against it are usually a sign of our ignorance about it. Charges of bigotry and superstition against it may be due to our own prejudice and narrow-mindedness.

Mr. Toastmaster, members of the American Historical Association and of other learned societies meeting here with us, loyal friends and welcome guests, denizens of one world "dreaming on things to come," may you live to see the time when whatever shall be, will be right,

And peace proclaims olives of endless age!

_Columbia University_

*Whatever Was, Was Right*