

THE ROLE AND SIGNIFICANCE
OF TECHNIQUE
IN THE MEDIEVAL WORLD

In chapter 79 of his *Doctrina pueril* Raymond Lull, a professional educator whom Jaime the Conqueror engaged to tutor the future king of Majorca, describes "the mechanical arts" at about the middle of the 13th century as "sciences" peculiar to men who "do physical work." Here the *treballan* in the Catalan text has obviously lost all reference to the *tripalium*, the instrument of torture reserved for slaves, and the word is no more pejorative than the Latin *laborant*. For Lull the mechanical arts were not the exclusive province of a lower class of society (the class that Plato had placed on the margin of his "Republic").*

Not only were burghers, knights, princes and prelates obliged to keep in mind that without blacksmiths, carpenters and

Translated by Victor A. Velen.

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laborers, they would die of hunger and cold, but they themselves took an interest, just as the richest of the Saracens, from childhood in practicing one of these arts. If fortune were one day to go against them, they could then earn their daily bread. For these educational and economic reasons Lull dignifies work without reference to any theology (almost unheard of in the Middle Ages) invoking the example of Jesus the carpenter or Paul constructing tents in order to enhance the *Formierung* by which raw materials are technically "perfected" and transformed into a genuinely human work.

A half century later this dignification assumed a new but still incomplete form among the Rhenish mystics. In a curious sermon (Pfeiffer, IX, p. 47 seq.—Quint, *Deutsche Predigten*, Munich 1955, XXVIII, p. 280 seq.) which completely turns around the standard exegesis of *Luke*, X, 38/40, Eckhart opposes the "sensitive" contemplation of Mary seated at the feet of the Lord (so absorbed that she is no longer prepared to "serve" her Master and to fulfill the humble and noble functions relegated to "saintly women") to the greater perfection of Martha, who already lives on the "periphery" of eternity, given over completely to God and yet, here below, "beset with cares," *bei der Sorge*. In the same spirit Tauler sometimes accuses his Dominican friars (and other monks) of succumbing to the pharisaism of a false spiritual comfort in the monastic *otium*; to shame them, he cites the example of a shoemaker, a laborer, who, though practising his trade in the world (and without renouncing marriage) experienced a more true inner conversion (for example, Vetter, *Pred.*, XIX, p. 77, as compared with *Pred.*, XLII, p. 179).

Neither Eckhart nor Tauler go so far however as to exalt the material fruits of labor *as such*. It only seems to them that the normal condition of *homo viator* implies an *operari in mundo* and that the would-be contemplatives, who want to be angels even here on earth, are too often beasts. We are still far removed from the currents which somewhat later were to lead to a vindication of the "engineer" (as in certain passages of the Cusan *Idiota*, which the 16th century transformed into a *Mechanicus* in order to realize in the interlocutor of *De staticis experimentis* a forerunner of Leonardo da Vinci or Cardanus),

far removed also from Calvinist (or pseudo-Calvinist) ethics which made of economic success (and, consequently, of technical productivity) an evident symbol of the elect.

Nevertheless, neither for Lull nor for the Dominican preachers whom we have quoted does a "lowly profession" properly speaking exist. Manual labor, for them, does not belong essentially to an inferior race which could achieve full human dignity only on the spiritual level, not within the order of a social hierarchy whose thomistic angelology could give us a typical analogy (the Angels and Archangels being devoted to "operations" properly speaking, miracles and missions in the service of man, while the Seraphims and Cherubims remain purely contemplative, and while the intermediate orders devote themselves to functions of command, championing prudence more than technique). More "aristocratic" than the Majorcan nobleman, who became a hermit and missionary, a polyglot and logician in order to assure the peace of the world through the unity of doctrine, or than the Turingian knight, a doctor at the Sorbonne and a master of spiritual detachment, the majority of the scolastics of the *Hochmittelalter* remained faithful to Aristotle's classification of the modes of life and placed well below contemplative leisure and also below political and military activity this tireless quest for material progress and profit, which from their time on made possible, more than Greek chrematistics, the techniques of great commerce and banking, the beginnings of industry and the introduction of new agricultural methods in abbatial lands and in certain seigneurial domains. If St. Thomas managed to adapt himself to the realities of his time (as when, for instance, in the fifth book of the *Ethics* he discounts the archaic forms of distributive justice as a division of honors and subsidies, in order to determine the just salary according to the exact proportion of working time), it is amazing that when he takes up again Aristotle's theses on the "mixed regime" he excludes from the start "the oligarchy" (that is, the regime which is in the process of being installed in the new burghers' communes) as the government of the "rich," that is precisely, more and more, of the rising class which draws its resources from technically trained labor. And if this contempt for riches passes for evangelicism, it is in an unpleasant enough tone that the saint

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doctor describes the dangers of "democracy" to the pure state, and the plebians as "poor, ignorant people engaged in miserable professions" (*In Pol.*, VII, 10). In this social vision in which the accent is placed on "virtue," and also on "honor," little place remains, it would seem, for technical "ingenuity" in any of its forms.

And yet, neither in theory nor in practice were any of the doctrinal elements lacking in the West in the 13th century that would have made the period more sensitive to this sort of value.

From the Sophists to the Victorins, passing via middle-stoicism and patristics, the philosophico-theological tradition capable of making a nobleman of *homo faber* follows in fact a continuous line, despite occasional resistance, Plato for instance (when he denies that a true musician uses strings and pegs, *Resp.*, VII, 531 a) or, more explicitly, Seneca (*Ep.* 80), when he reproaches Posidonius for having justified inventors who discovered the art of melting metals and of forging them for the needs of man; for the former the only "sages were those who could read in the cosmos the harmony of universal reason and who, through moral education, attempted to render man more worthy of the divine inspiration that he carries in him.

In his treatise on the *Creation of Man*, Gregorius of Nyssa points to the great innovation that the work of the sixth day contributed to the universe. Having created from nothing the stars, vegetation and animals, the sky and the earth, God finally installs in this magnificent "palace" the being he had formed in his image and likeness, who would become for all that had been "prepared" for him the "contemplator" and the "master." Here Biblical exegesis rejoins by another route the biological theme of Aristotle, making man the most perfect of living beings, and it gives from the outset a providential value to the insufficiencies of origin stressed by Protagorean myth. We recall, in fact, that when Epimetheus made *anthropos* emerge from the earth and fire (as the Creator of the "jahvist" *Genesis*, II, 7, moulds the earthly *humus*, breathing his own life into it in order to make a man), this Cinderella of creation, far from being from the start of the game the "king" of the universe, remains a poor naked animal, without any natural weapon, who survives

only because Prometheus steals the gift of fire for him, the secret of all technique. Protagoras no doubt went no further. Plato adds that man, the tamer of animals and master of minerals, remains incapable of living in peace in a well-ordered republic; he therefore needs the divine gift of new *technai*, transcending all others and of a universal order: the "virtues" of modesty and justice (*Prot.*, 322 c/d). According to the Bible, on the contrary, it is from the beginning and not by chance that man—physically and corporeally—was created as the king of all things; on the other hand, voluntary disobedience introduced disorder at every level and gave the sense of punishment to a type of "work" which, without it, would only have been a harmonious utilization of the earthly realm. Despite these differences, Gregorius of Nyssa does not hesitate to integrate into Biblical tradition—with all that it implies of the distrust of a pastoral people for the race of blacksmiths, the descendants of Cain (*Gen.*, IV, 22)—points in common with and borrowed from Cicero on the physical inferiority of man, which is compensated for by his technical aptitudes, themselves favored, and by the privilege of having an upright position and possessing hands. It is on this last point that in a more static perspective, without reference either to the mistakes of Epimetheus, or further to some sort of original sin, that Aristotle, we know, insisted on, in the same biological texts in which he suggests (without recourse to any form of evolutionism, expressly rejecting even the "pre-Lamarckism" of Anaxagoras as well as the "pre-Darwinism" of Democritus), a structural and hierarchic continuity, from the plant whose head is in a manner of speaking fixed in the earth, to man who, upright on his feet, looks toward the heavens (reproducing in his own attitude the "natural" order from the highest to the lowest), endowed by nature (to serve his intelligence) with two hands with opposite fingers, each of which is a "tool using tools" (*órganon prò orgánon*, *Parts of the Animals*, IV, 10, 687 a). It is hence in appearance only that man was born naked and disgraced. For all eternity (for Aristotle) man is superior to all living beings because of his manual dexterity as well as his power of reason. *Homo sapiens* is from the outset and forever *homo artifex*, and intelligence, which assures his throne, is inseparable from his

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technical ingenuity. In the *historical* dimensions that the Judeo-Christian tradition superimposed on this vision, it would appear that there was nothing opposed to what the synthesis of the Cappadocians repeated and used as the basis for a whole theological development.

The Middle Ages could meditate all the better over these formulas since in the word *ars* it inherited a term with many meanings, which like its German homologue applied to nearly every human capability.¹ We know all that the idea itself of "great art" represented, the concept of the *initiate* who at the same time endeavored to transmute metals by artisanship and, in reality, at a higher level of hermeneutics, attempted through his "operation" to discover the true meaning of nature.²

A whole sector of the Medieval population knew well these secret arts, which required a painstaking technique in the most modern sense of the word, but which at the same time made use of harmless magic in order to produce effects from a distance. Jew or baptized, a doctor was always suspected of sorcery. Even in hunting, an *ars nobilis* as any other, we know that from prehistoric times incantation had been a part of the hunter's skill. Architecture, so rich in esoteric recipes, sculpture, which weds allegoric abundance with a meticulous artisanal representation, and politics, which crowns the knight or king with a halo of magic powers, are far from being entirely rationalized (despite what could be imagined by reading Aristotle). It

¹ For a whole German tradition *göttliche Kunst* established for a long time the highest wisdom of a being comparing itself to its Creator.

² These two levels are linked in a statement which Friedrich Heer, without revealing his source, attributes to a Franciscan monk of the 14th century, John of Rupescissa (*Mittelalter*, Zürich, 1961, p. 479), who spent a part of his life in prison: "It serves no purpose to aim at or to attain the heights of this art, if one does not purify his senses by leading a saintly life and by profound contemplation, in such a way so as not only to understand the inner being of nature but also to know how to modify what in nature can be altered, a secret held by very few men." Such a declaration might also have been made by another monk, Roger Bacon, who saw "the grace of God" in the invention of a living mirror, through which, repeating the exploit ascribed to Archimedes, the Christians could triumph over the Infidels with machines invented with competent knowledge once the *mirabilia naturae* had been fathomed and transformed into techniques for conquest.

appears that the Middle Ages of the "intellectuals," of the universities and clerics was always wary of these quasi-mysterious techniques, as well as of all the trades properly speaking to do with "machines," with the secrets of fabrication, which called upon this suspect *arrière-plan*. Legends circulated about "Master Albert," who, as later Faust and perhaps Descartes, was supposed to have constructed an automaton, a homuncule, and who in the middle of the winter was said to have made fruit trees blossom in Cologne.³ Even though Lull's *ars magna* was to become, in the eyes of posterity, the prototype itself of a completely formalized logical system, the desire to employ it for practical purposes devaluated it in the mind of the clerics, and the Majorcan himself was also considered briefly to be a sort of magician. Merchants were distrusted, not only because their profits, despite all casuistry, did not fit well into the rigid system of Aristotelian economics, but also because the first great merchants in Europe were the Syrians, who were more or less dark-skinned, and the Vikings, who were three-quarters pirates and adventurers whose warehouses were more depots for stolen goods than wholesale stores.

And if the great builders were more respected, those who kept the secrets of construction hidden away in parchments (which were nothing more nor less perhaps than mathematical formulas, most likely of projective geometry, which could not be found either with Boetius or even Vitruvius), it was enough to read the *Liber de consecratione ecclesiae* of Suger in order to ascertain the whole background plan for the construction of an abbey or a cathedral. And again, in the case of Saint-Denis, it was a partly political undertaking, essentially Capetian in character. The Benedictine abbot himself chose the materials for the first "gothic" church in the domainal forests and quarries of the Île-de-France, and it was with the support of the most important bishops of the "domain" that he collected the necessary funds for the enterprise. But, although he speaks of his work as a cold technician, one easily feels that, for him, the essential aspect of this art was the manner in which "the mysterious and

³ These legends continue to circulate in present-day esoteric circles, where they are propagated in private.

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uniform light penetrates" Saint-Denis finally "through the high and saintly windows." Light and mathematics were very alive, not only in Chartres in the 12th century, but later at Oxford with Grosseteste, and as far as Silesia with Witelò. But during its great period the University of Paris was not much interested in this mystical ennoblement of architectural technique.

The only "arts" worthy of true esteem were the *artes liberales*, which the Middle Ages inherited from the old hellenic and hellenistic *paideia* (the Platonic *quadriivium*, but mainly the *trivium* with its logico-grammatical emphasis). These were certainly "techniques," but their aim was not disinterested, and they did not act directly on the matter nor require a manual apprenticeship; they were techniques which primarily—and this is their only justification against the suspicion of "anti-dialectics"—remained subordinated to theology. Certainly, more and more, alongside the masters of the *sacra pagina* and the *doctrina sacra*, the university formed its canonists, jurists and great "commis" who transformed the Church and the State into juridical and bureaucratic "machines," but precisely at a level on which the "mechanics" was not immediately apparent as such, because it used fingerwork only through the intermediary of the "scribes." The logicians, on their part, were to become such able "technicians" that, here too, the subtle "mechanism" of the *disputatio* for a long time concealed its potential poison, and Pierre d'Ailly, although he publicly denounced the danger of legalism, at the end of the 14th century, hardly betrayed (less than his friend Gerson) the cold demonism of the "formalizes." Increasingly cut off from reality, dialectics evidently at least did not risk establishing man as a new Prometheus, by distracting him from contemplation in order to deliver him over to creative work. And if the theologians perceived in this the danger of a more secret alienation, their *contemptus mundi* also very frequently delighted in mechanized techniques, rich in *gradus* and *scalae*. By considering "technization" in this way the Eckhartians, as we have seen, occasionally and as if by accident gave new dignity to the most humble work of the *artifex*, while depriving it of all that could transform it into a disquieting means for a veritable "conquest" of nature.

However, although the philosophers and theologians were

hardly receptive to a new world (to which the confessional manuals, on the contrary, testify), in the "practice" of life itself the Middle Ages assisted the development of all sorts of techniques of "conquest," but more often without acknowledging them, without taking pride in them, and without understanding their revolutionary nature. We are gradually becoming aware of this flowering, too long misunderstood, through the inventories of abbeys, through illuminated manuscripts, the capitals and portals of churches, and the analysis of the monuments themselves. Friedrich Heer points out that for many centuries the ethics of "work" and of this "conquest" remained for the most part "local" knowledge. And it is quite certain that, all through the Middle Ages, practically unknown to Parisian students who were commenting on the Bible and Aristotle, men reforested the woods, reclaimed swamps,⁴ and not only colonized immense, nearly desert regions in the north and east of Europe, but in the heart of the old Romanized countries, between the time of Charlemagne and Saint Louis, even doubled, sometimes tripled, the average output of the soil, attaining a level of "productivity" that was to remain constant until the technical leap forward of the last hundred and fifty years. Certain great abbeys played a decisive role in this work; in any event they have furnished us with the most informative documents. Their stewards read and adapted ancient treatises on agriculture, perfected their agricultural tools and introduced new methods of crop rotation. But, as Duby pointed out in a book as rich in its documentation as it is prudent in its syntheses,⁵ others besides the monks contributed to this evolution: rulers, such as Henry Plantagenet in the Loire valley, damned rivers between dikes in order to protect their Angevin orchards from the waters; great seigneurs

⁴ In an improvised lecture at the Royaumont Abbey last year Louis Armand noted the role of the abbey in the development of "market-gardening" cultures, which came into being as a direct result of this "drainage" work. He saw in it the proof of a "technical" knowledge and a capacity for "looking ahead." But if the Cistercians, friends of King Louis IXth, thus contributed to changing the face of the great Paris suburbs, it does not appear that this labor left its imprint on their theoretical mystique.

⁵ G. Duby, *L'économie rurale et la vie des campagnes dans l'Occident médiéval*, 2 vols. Paris, 1962.

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who, victims of their own taste for luxury, frequently indebted and needing more "yield" from their lands, even agreed to renounce in part the joys of the hunt, and in order to fill their granaries with fine selected grains, encouraged the technical initiatives of their administrators. It was not only in Corbie or Saint-Germain-des-Près that agriculture was practised in an increasingly rational way, as a "mechanical art" worthy of the highest esteem.⁶ Triennial crop rotations, regular harrowing, an increase in the number of forges (attested to by inventories and also by the popularization of the names Lefèvre, Smith and Schmid), iron plows on wheels and mould-boards (unknown in antiquity and which were not to change form until the "Brabant" of the 19th century), the invention of horse shoes, the collar harness, the forehead-strap, the substitution of straight Roman causeways for an elastic system of macadam roads, the construction of wind and water mills (which on one small stream alone in the Rouen region multiplied in two centuries from two to seventeen), are as much evidence of a genuine technical revolution.

But it was a revolution that was far from restricted to the field of agriculture. At the same time that travelers brought back news from the Orient, directly or by way of Islam, of processes as valuable as the so-called Arabic numerals (in reality Indian), the astrolabe and gunpowder, we see the development of the art of glassmaking and the use of glass windows, the fabrication of lenses and eyeglasses, clockmaking, the paper industry, and soon the rudder for great depths which was to permit longer sea voyages. Far from despising the *artes mechanicae*, medieval man had already boldly started out on the road that was to make his grandsons the masters and owners of nature.

It is thus quite remarkable that at the very beginning of this revolution the monks of Saint-Victor noted it down very simply, without shame or surprise, in a more precise and significant fashion than was to be done later by isolated scholars such as Lull or Eckhart and Tauler. The *Didascalon* by Hugo and later the *Liber Exceptionum* by Richard (of which Jean

⁶ Ch. Südhof, "Die Stellung der Landwirtschaft im System der mittelalterlichen Künste," *Zeitschrift für Agrargeschichte und Agrarsoziologie*, 1956.

Chatillon has just put out an excellent edition) are important testimonies to this effect. They are encyclopedias, but they are more metaphysical and theological than practical in their basic intention. Written by monks, in the manner of Isidor of Seville, they provide a program of Christian culture and teach us about a vision of the world.

Returning to the Aristotelian division of the sciences into "theoretical," "practical" and "poetic," besides theology and mathematics (which form the *theoretica*), ethics, economics and politics (which constitute the *practica*), before logic (grammar, dialectics, rhetoric) to which moreover he devotes only a few lines, Richard presents condensed in two crowded pages the important section of the "mechanics," which contains, he says, *universa quae humanis necessitatibus inveniuntur grata, comoda, necessaria*. Melding the realities of his own time with literary souvenirs of antiquity, he divides (perhaps for symbolic reasons) this *mechanica* into seven *artes* which, including hunting in all its forms, *medicine* (including surgery), *theatrics*, or all entertainment, not excepting the games of gladiators or the playing of female flutists at banquets, take their place in a most interesting fashion in a whole series of professions, carefully described with a wealth of technical terms sometimes difficult to understand. The first group is the *lanificium* (which concerns in all its stages the preparation of flax, wool and other textile fibers, animal or vegetable). The second is *armatura* (which comprises architecture and metallurgy, the art of stone cutting, of fabricating bricks and tiles, with a list of all the instruments *ad hoc*). Then comes *navigatio*, which includes commerce in all its forms (*industria vendendi et emendi*). He is far from seeing in it only a secondary need or a sinful activity. Richard underscores the *moral* value of a technique which leads to the discovery of unknown shores (*invisa littora*) and which works in favor of peace and friendship among peoples, thanks to the exchange of goods, "turning private goods into common goods" (*privata bona communia facere*) and mitigating in some way the effects of sin and separation. Finally the *agricultura* (which in fact precedes in the order of exposition the *venatio*, *medicina* and *theatrica*), is described briefly in its four aspects: culture of cereals and vegetables, arboriculture and viticulture,

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pastoral activity and the art of gardening. But the most important is the Victorin affirmation according to which this art, as all the others, stems at the same time from philosophy and pure technicity: *ratio agriculturæ pertinet ad philosophum, administratio ad rusticum*. Thus the artisan finds his place in a universal system which elevates pure technique by refusing to separate it from theoretical knowledge and moral finality. Reconciling Seneca and Posidonius, Richard cites indiscriminately, among the *inventores artium*, the initiators of theology and of physics, the discoverers of the art of textile making and of arithmetic, the first musicians and the first navigators. In this strange list Abraham and Moses are side by side with Isis and Ceres; Orpheus, Varro and Scotus Erigena join the industrious Minerva; and Parmenides takes his place beside "Jubal, son of Cain" (whose line, consequently is in no way damned). All these discoveries are placed in the perspective, at the same time historical and communal, of an active struggle of all of humanity against the consequences of sin. Deprived, in fact, of the three qualities conferred upon Adam (knowledge, virtue and corporeal immortality), man disposes of three "remedies"⁷: wisdom (*theorica*), virtue (*practica*) and—on the same plane—

⁷ As Professor Benz very opportunely recalled in the course of a private conversation that followed my lecture (and his), Saint Augustine examines in the last book of his *Civitas Dei* (XXII, 24) the *damnatorum solatia* which God squandered on "men of flesh." Their rhetorical enumeration serves mainly to set off, by a *fortiori* reasoning, the recompenses reserved for the "blessed" after the resurrection of the body (*quæ igitur illa sunt, si tot ac talia ac tanta sunt ista?*). They are therefore hardly providential "remedies" comparable to those of wisdom and of virtue. Saint Augustine, who does not attempt to distribute them systematically, takes care to point out the "ambivalence" of these *artes, partim necessariae, partim voluptuariae*. Beside medicine, on the same level, he cites the art of making poisons, and on a very Platonic level, the technique of the cook who prepares the *condimenta et gulæ irritamenta*. Of eloquence and dialectics, the only thing he maintains is that they served more illustrious philosophers to "defend their errors and falsehoods." Speaking of the marvelous complexity of the human body, he stresses that in order to know it, man must have recourse to the *crudelis diligentia* of those called *anatomici*. If it is true that God, in creating the world, prepared a marvelous environment for man, and that by endowing him with an erect position and hands, he placed at his disposal useful technical instruments, in a world of sin one can hardly expect from these potentialities anything but ill usage. If the Victorins were inspired by this text, it is clear that they interpreted it differently.

technique (*mechanica*). In this perspective the hard law of work is thus not simply punishment for original sin; it becomes a positive means for redemption.⁸ And the mechanical arts seem even to outweigh to a certain extent the *trivium*; neither grammar, in fact, nor rhetoric, nor dialectics (whose presumed inventor, Parmenides, however, figures in the list of the great benefactors) are expressly cited as “remedies” for the consequences of sin.

Chatillon points out that this “very comprehensive vision of terrestrial humanity” (for the Victorins linked to a simple narrative of a great history, from the origins to the conquest of England) “soon disappears from the scholastic horizon.” A disappearance (or at least a partial eclipse) that is all the more paradoxical, as we have pointed out, since it coincides with the centuries in which the economico-technological structures of the new Promethean society were actively being prepared. Between the 12th and the 15th centuries there were undoubtedly some apologies for the mechanical arts. Although each of its themes is traditional, we nonetheless believe we discover a new accent in the sermon delivered in celebration of the Epiphany in January 1456 by the cardinal of Cusa, Bishop of Brixen. The preacher evokes the myth of Protagoras and the idea of progress in the time in which—with explicit reference to the Incarnation—the “natural” work of man and the “supernatural” graces collaborate; for him these are joined in order to give man his full measure:

“Men as animals are born completely naked,” says the Cusan. “But the art of weaving has clothed them, permitting them to live better. In addition, they eat cooked food, live in houses, tame horses, practice all sorts of arts that permit them to live better, and owe much gratitude to those who invent them. We might add that many live in pain and misery, while others are rich and lead joyous lives. It is natural then that by some grace

⁸ In the sermon on Martha and Maria, quoted above, Eckhart points out that from the admission of the Spirit, the Apostles worked ceaselessly to promote the kingdom of God, as Jesus himself had “worked” on earth for the salvation of men. He sees in it the justification of the “toil” of Martha in the service of Christ and his disciples. He does not go so far however as to magnify work that transforms matter as such.

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or some art, man should endeavor to achieve greater peace and happiness."⁹

If man succeeded in this partly through "diversity of the arts and products of the arts," about which the *compendium* of 1463 said that it "manifests, in an evident and varied way, that the intellect of man is one and indivisible,"¹⁰ and which first requires the theoretical study of ethics, politics and economics, none of these is fully sufficient, for only *religio* will lead him finally to the "eternal life." But of all the doctrines of salvation, the most complete is that of Christ, who calls on all men to share in his divine "filiation," since his is "at the same time the way of grace and of nature."¹¹

Is this not in a more elaborate style the integral humanism already suggested by the Victorins? Among the gifts of Zeus and those of Prometheus, the Cusan stresses continuity. In disdain the arts of fire, by which man progressively puts his own realm in order, does one not risk mutilating the disposition to work of *homo viator*? In a recent article (*Forum-France*, December 1963) former government minister André Philip wrote, "If one wants to *democratize the technocrats*, one must at the same time *technicize the democrats*." By democracy the author of this formula means in reality a whole "spiritual" conception of man. The necessary reconciliation of "wisdom" and "technique" requires, he says, that one must first teach how "to pose the concrete problems of the world," in such a way that everyone

⁹ *Cusanus-Texte, I: Predigten, 1/5, Vier Predigten im Geiste Eckhardts*, publ. Koch, Heidelberg, 1937, p. 94 seq.

¹⁰ The fourth book of the *Idiota (Dialogus de staticis experimentis, 1450)* already specifically noted the cardinal's interest in the development of a science founded on mathematics and oriented toward the invention of practical tools for research and material progress.

¹¹ The dream of the Cusan is the moral and religious unification of humanity according to the doctrine of Christ as *homo maximus*. The Incarnation, which he believes to be indispensable to all philosophies, has its full meaning for him in the collective effort of humanity toward the progress of scientific knowledge, of the technique to master, of the *concordia catholica* and the *pax fidei*. In a book which has just been published, Karl Jaspers stresses the "setback" of what we have called elsewhere "semi-utopias," but he sees in this setback itself a "symbol" of success, the metaphysical sign of a lucid appeal to human freedom (*Nicolaus Cusanus*, Munich, 1964).

will be able freely “to take his responsibilities.” Is not the fault of the scholastics, in which pure “intellectuals” delight in all periods and in every style (be it that of existentialist rhetoric), precisely the disregard, even contempt, for these “problems” and “responsibilities?” If man loses sight of his vocation as *homo faber*, he strongly risks being *homo sapiens* only in appearance, a useless luxury, a pure epi-phenomenon, in a society in which the technical instrument—its true value not appreciated nor situated in its rightful place—escapes the control of the mind and is exempt from all finality.