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## THE ORDER OF LEARNING<sup>1</sup>

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Part 2 of 2

Let me explain, therefore, that by a proper teaching of the liberal arts, I mean only a teaching of the fundamental practices which these arts regulate: the performance of reading, writing, speaking, listening, measuring and observing. Arts are habits. Hence they are not possessed at all by students who can verbally recite their rules. The rules are important only as regulating the performance of acts, which acts in turn, often repeated, then form the habits, which are the arts as vital transformations of the soul's operative powers. This can be done only in a scheme of education which orders learning in the following manner:

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<sup>1</sup> An address delivered at the dinner meeting of the Western Division of the American Catholic Philosophical Association, in San Francisco, April 19, 1941; and here published as delivered, except for the appended footnotes.

(1) *On the elementary level:* gives the predispositions for intellectual discipline, by the study of multiple languages, especially the highly inflected ancient ones; by the routines of mathematics; and by the cultivation of the senses and imagination as the intellect's most important adjuncts.

(2) *On the secondary or collegiate level:* spends all of the four years primarily on the liberal arts, and not on the mastery of subject-matters. In short, a liberal education, crowned by the Bachelor of Arts degree, should consist in an ability to read and write, speak and listen, observe and think. A college graduate should be a liberal artist, and nothing more—as if this were not enough to hope for, and strive for, with all one's might and main.

Let me explain this last point, for it is likely to be misunderstood. First, let me say that I make no distinction between secondary and collegiate education. The B.A. degree should be given at what is now the end of high school, or at least at what is now the end of the sophomore year of our so-called colleges. After that comes the university. The three levels of education—and there is no place for a fourth—are rightly ordered when the first, or elementary, is seen as entirely preparatory and pre-intellectual, pre-dispositive toward liberal training; when the second, or general, is seen as entirely liberal, partly terminal and partly preparatory for the study of subject-matters; when the third, or specialized, is seen as devoted to the mastery of special subject-matters, to the acquirement of the speculative virtues. (I shall return to this point later.)

I do not mean that the liberal arts are ever ultimate ends, ends in themselves. On the contrary, they are only intermediate ends, and as such, means to further and higher ends. They are specifically the indispensable means to the speculative virtues as ends. The acquisition of the arts is for the sake of mastering subject-matters. But I wish to repeat one point: *they are not only means, they are indispensable as means.* Lacking real skill in the liberal arts, no one can become a master of any intellectual subject-matter.

In order to acquire the arts, the subject-matters must be used. This preliminary use of subject-matter must not be confused with the ultimate approach to it after the arts have been acquired. When the basic subject-matters are used at the collegiate or secondary level, they must be subordinated to the acquirement of the arts: they are then merely the matter on which the mind is being exercised to learn how to think—not, *then*, to learn what to think. That comes later. This is not a misuse of subject-matter, as, of course, it would

be, if it were the only use.

The most concrete way to make my point here is, perhaps, to discuss the role of the great books, used, according to the St. John's scheme, as the representative formulations of all the basic subject-matters. President Stringfellow Barr has explained the role of the great books in the St. John's plan by comparing them to a large bone thrown to a puppy. For four years the puppy fights with the bone, tries to eat it, swallow it, devour it. At the end of the four years the result of all this agitation is not measured by looking at the bone to see how badly chewed up it is; rather, look at the puppy's teeth to see if they have grown sharper. Now, unless the bone is a real bone, a bone that can challenge the puppy to get his teeth in, there will be little agitation and even less sharpening of teeth. Of course, as Mr. Barr points out, the puppy must have the illusion that it is getting meat off the bone, or it won't play the game. So the student must be given the illusion that he is really mastering the great books, that he is really imbibing the great ideas, or he will not continue long at the process of exercising his intellect just for the sake of exercise. The faculty must cultivate this illusion, but they must know that it is an illusion. The worst educational horror occurs when the faculty get taken in by this illusion themselves. The fundamental point of this analogy between puppy and student, bone and great books, is that the arts cannot be acquired (teeth sharpened) unless the great books are used as the representatives of subject-matter. Textbook representations of subject-matter simply will not work, for the simple reason that textbooks are so written as not to require any liberal art on the part of the student. They try to make everything easy. They are predigested pap. How would the puppy's teeth ever get sharpened if he were continually fed upon mush?

May I conclude this section of my remarks by the summary statement *that unless and until students become reasonably competent liberal artists, they are incompetent to approach or learn—really learn—any of the fundamental truths in the basic subject-matters, for the means of forming the speculative virtues are lacking.* Teachers can indoctrinate students. Teachers can stuff their memories with pat verbal formulae,—in Latin or in English,—but they cannot teach them as if they were rational animals, instead of parrots, simply because their rational powers have not been sufficiently disciplined in the difficult arts of learning itself. The liberal arts, in my conception of them, are nothing but the arts of teaching and being taught. They are the basic skills of learning, and must, therefore, precede the effort of the mind to learn. Just as I would make mastery of the liberal arts—the old, but not meaningless, de-

gree—the only requirement for one who wishes to teach the young in school or college (how many teachers would there be, if this standard were imposed?), so I would make bachelorhood, or a novitiate in the arts, the one test for admission to the university as the place where subject-matters are studied. This would close our universities down quicker than any military draft is likely to do.

To all of this, let me add a few brief comments. *First*, this is not a defense or apologia for the St. John's plan. What I am proposing is the fundamental order of the best ancient and mediaeval educational systems. It was the order, the very wise order, proposed by Plato in *The Republic*. It was the mediaeval order, which really put Platonic policy into actual practice; the work of the liberal arts faculty served to prepare boys for the universities, where under the auspices of the three basic faculties (law, medicine, and theology) they studied the subject-matters. Having become skilled in learning, which meant they could read and write with reasonable competence, they were now admitted to the status of competent learners. It was the original intention of the Jesuit *Ratio Studiorum*, which has not—may I be forgiven for saying—been sufficiently retained in spirit, as well as in letter, by post Renaissance Jesuit institutions. And although it is this order which St. John's is trying to re-establish, that should certainly not stand in the way of Catholic colleges adopting it, for the idea is fundamentally a Greek and mediaeval idea. It was not invented by the proponents of the St. John's scheme. It is an idea that belongs to all the great traditions of Catholic education, and yet Catholic institutions today do not exemplify it in practice.

Second, this basic educational idea, about the priority of the liberal arts to the study of subject-matter, also has significance for the relation of all schooling to adult education. Real learning must be the work of more mature persons than boys and girls in school and college. Children are too young, too inexperienced, too unstable, to acquire wisdom. Hence, they should be given what they, at their age, are able to receive: the formation of the artistic, not the speculative, virtues. If they graduate from college liberal artists, then, whether they go on to the university or not, they will be able to continue the pursuit of truth throughout a life of adult learning, when maturity makes the formation of speculative habits possible.

*Finally*, there is the question, Where, *institutionally*, should the subject-matters be taught and studied? I have already indicated the answer: in the university. The answer is, of course, practical, only if the B.A. is given earlier than it is at present. If Catholic educators say this is not possible, because of the opposition of the vari-

ous accrediting agencies, I can only answer that until Catholic institutions throw off the yoke of the accrediting boards, and exercise a free judgment on basic educational questions, they will never be able to realize in practice any of the principles which belong to Catholic education.

We are now prepared to consider my second and last major point: the order of learning in the field of the speculative virtues, the order of studies at the university level. And here, to limit my discussion, I shall consider the teaching of philosophy as a case in point.

### *III. The Order of Teaching and Learning Philosophy—the Order of the Means to the Virtue of Wisdom*

Here I have two fundamental points to make, which I shall try to make briefly. The first concerns the *objective order* of the subject-matters themselves; the second concerns the *methods of teaching* the subject-matters, with reference to the distinction between the order of knowledge and the order of *learning*.

By the objective order of the subject-matters I mean, of course, the order of the objects of knowledge *secundum se*—the order of things known according to their intrinsic knowability, rather than their relative knowability, that is, their knowability to us.

In the first place, it is necessary briefly to condemn all the Wolffian errors—all the false divisions of subject-matter, the wrong ordering of the parts of philosophy, invented by Christian Wolff, most unfortunately adopted by later scholasticism, and now dominating the philosophy curriculum of so many Catholic institutions. The correction of the Wolffian errors—the wrong divisions, the wrong orderings—can be made simply by anyone who understands the Thomistic theory of abstraction, which Wolff violates at every point. (I shall not concern myself further with Wolff—it is such a distasteful matter to discuss—but rather go at once to the right objective ordering of subject-matters.)

Theology is certainly first if the objective ordering be in terms of the object which is most knowable in itself, though not to us. This indicates at once that the objective ordering of subject-matters cannot be the same as the subjective ordering, for the latter must be in terms of what is most knowable to us as coming first, and, in these terms, theology would come last.

If we apply these principles to all the fundamental theoretic sub-

ject-matters, we will find that, just as in the objective order, theology precedes metaphysics, and metaphysics, the philosophy of nature, and the philosophy of man, which is one of its parts, and the whole of philosophy, as dealing with essences, the whole of science, as dealing with phenomenal accidents; so in the subjective order, the members of this series are perfectly reversed: science should be studied before philosophy, and the philosophy of man before the philosophy of nature, and these before metaphysics and theology.

There are two other points of order, which I must mention in passing: (a) the priority of the theoretic to the practical (which, curiously enough, is both an objective and a subjective priority, for the theoretic is both more knowable in itself and to us); and (b) the priority of objectively constituted subject-matters such as metaphysics and the philosophy of nature, to such problematically constituted subject-matters as the philosophy of law, or of art, or of education, or of knowledge itself.

Now within each sphere of subject-matter, there is supposed to be an order of principles and conclusions. There is some truth in this, of course, but I think it has been excessively over-simplified by the scholastic acceptance of Aristotelian logic, as giving a true and adequate account of the intrinsic structure of bodies of knowledge. In this connection, let me make the following observations:

(1) Aristotelian logic is primarily the logic of philosophy, and not at all the logic of science; and in so far as Aristotle did not clearly distinguish philosophy and science, his logic is both confused and inadequate.

(2) Even as the logic of philosophical knowledge, it is restricted to the philosophy of nature, to what Aristotle calls physics. The *Organon* is totally inadequate as an account of metaphysical knowledge: its concepts, judgments, or purely analytical reasonings. The supposition that Aristotelian logic is applicable to metaphysics results in the false notion that metaphysics is exclusively, or even primarily, a deductive science, demonstrating conclusions from first principles.

(3) In general, the influence of the *Posterior Analytics*, as giving the picture of the structure of scientia—any scientia—is disastrous; for, in fact, the only science there pictured is mathematics, and primarily geometry. As Gilson has pointed out, Aristotle's logic, and especially the *Posterior Analytics*, cannot be applied to any of Aristotle's own philosophical

works. His own *Physics* and *Metaphysics* violate the account of scientia given in the *Posterior Analytics*.

(4) The major errors which have arisen in the scholastic tradition, as a result of following Aristotle's *Organon* as if it were a good, a true, and an adequate logic, are these: an attempt to expound both physics and metaphysics in a too-simple deductive order, whereas in truth, these basic philosophical subject-matters are circular rather than linear in the connection of their propositions; a misconception of first principles, especially the law of contradiction, as if they were sources of deductive demonstration, as if other truths could be drawn from them deductively, whereas they are merely regulative principles of other inferences; the failure to see that most of the basic truths of philosophy, being existential judgments, are the result of a *posteriori* inferences from fact, not deductive inferences from prior analytical principles.

All of these points, though they are primarily concerned with the intrinsic and objective order of knowledge itself, have some significance for the order of learning, and of teaching in relation to learning. But, certainly, one thing is already clear: the objective order of subject-matters—of objects as knowable in themselves and apart from us—does not and cannot determine the right subjective order of teaching and learning. We must find other principles, peculiarly relevant to the subjective order, in order to make these determinations. Let us proceed to them at once.

There are two basic principles which, it seems to me, help us determine the order of learning, and to adjust that subjective order to the objective order of subject-matters.

The first of these is the very nature of teaching itself. Teaching, like agriculture and like medicine, is a *cooperative art*, not a simply productive art, transforming the obediential potentialities of inert matter. Teaching, as a cooperative art, must work with the determinate potentialities of living matter—and the rules of teaching must be adapted to the very nature of learning. Let me expand a little on this point.

Hippocrates, who perfectly understood the nature of healing as an art cooperating with nature, distinguished three modes of therapy, and ordered them according to the degree in which they were cooperative—the best being the most cooperative with living matter, the worst being operative upon living matter as if it were dead and inert. He placed the control of regimen (the patient's diet, hours of

sleep and work, climate, etc.) first; second, and as auxiliary to regimen, he placed medication, the introduction of foreign substances into the body to work as catalysts do; last, and recommended only as a last resort in extremity, he placed surgery, which is, strictly speaking, operative rather than cooperative, and therefore does violence to nature. Teaching is like healing. The basic modes of teaching can, therefore, be compared to the three types of therapy which Hippocrates distinguished. Indoctrination does violence to the mind, as surgery does violence to the body: one puts something in by force, as the other takes something out by force. Lectures and textbooks are like medicine—only second-best as a method of teaching, and then good only as auxiliary to the prime procedure, which is the dialectical way, the way of teaching which conforms to the order of discovery in learning. The Socratic method is, in a sense, the only right method of teaching. Socrates is the prototype of the teacher, as Hippocrates is the prototype of the healer—for both had a proper respect for nature, and understood the subordination of themselves as artists. This is the meaning of Socrates' description of himself as a midwife in the birth of knowledge.

The second principle is the basic distinction between discovery and instruction as types of learning. Discovery is learning without a teacher; instruction is learning with a teacher's aid. But both are, *as learning*, essentially the same, and the order of learning must be essentially the same, therefore, whether the learner proceeds by discovery or by instruction. Furthermore, what is most important of all, since the teacher is always only a cooperative cause, and never a primary or sole cause, of learning, the intellectual activities which occur without aid in the case of discovery must be going on also in the case of instruction.

From these two principles, we can conclude that the order of teaching must follow the order of learning, and that this order is primarily the order of discovery, for, as we have seen, even in learning by instruction the primary causes of learning are the same sort of acts which cause discovery, when the learning goes on without a teacher's aid. The significance of this point—which I think is of the greatest importance—may not be grasped unless it is put into contrast with the now prevalent error. Today, in most cases, teaching proceeds as if the order of teaching should follow the order of knowledge, the objective order of knowledge itself, even though we know that this objective order cannot be followed in the process of discovery. In fact, it is completely reversed. Instruction which departs from the order of discovery also departs from the order of learning, for the way of discovery is the primary way of

the mind to truth, and instruction merely imitates nature in imitating discovery. The objective structure of knowledge in no way indicates the processes of the mind in growth.

Now the order of discovery is primarily inductive and dialectical, not deductive and scientific. Let me explain. The usual distinction between induction and deduction—going from particulars to universal or universals to particulars—has always seemed to be somewhat superficial, if, in fact, it is correct at all. Rather, it seems to me, the deductive order is going from what is more knowable in itself to what is less knowable in itself; and thus there is an objective foundation for less intelligible truths in more intelligible ones—the intelligibility being intrinsic to the object known, being *secundum se*, not *quoad nos*. In contrast, the inductive order is going from what is more knowable to us to what is less knowable to us. Thus, the deductive order is the demonstration of conclusions from prior principles, or, where demonstration does not take place, the analytical expansion of prior truths in terms of their consequences; whereas the inductive order is the discovery of self-evident principles, on the one hand, and, on the other, it is the inferential procedure whereby every basic existential proposition is known—for *no existential proposition (concerning God, or substance, or the diversity of essences) can be demonstrated deductively*. All *a posteriori* inferences are inductive, not deductive, and these are among the most fundamental inferences of the mind in the discovery of truth about the things. The other fundamental step is the intuitive induction of first principles.<sup>2</sup>

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<sup>2</sup> I have elsewhere more fully discussed and illustrated these points, here barely indicated, concerning the relation of induction and deduction to one another, and concerning the nature of the dialectical procedure as inductive. Vd. “A Dialectic of Morals,” in *The Review of Politics*, III, I, 2, 3. (This piece has been separately published in a little booklet, by the editors of *The Review of Politics*, and is, I think, generally obtainable.) It is necessary, however, for me to explain here that there are two sorts of induction: intuitive induction, which is the immediate generalization from experience of self-evident principles; and rational, or dialectical, induction, which is the *a posteriori* and mediated process of proving basic existential propositions from our perception of observable facts. The non-deducible truths are of two sorts: those which are self-evident, and hence cannot be proved at all; and those which are existential in their signification and hence cannot be proved deductively, but can, and must, be proved inductively, when the existences being affirmed are not directly observable. All of the fundamental truths of philosophy are, therefore, the work of induction, intuitive or rational. I hope shortly to publish a companion piece to “A Dialectic of Morals,” to be entitled “A Dialectic of Substance, Essence, and Man,” in which I shall develop further the theory of induction here mentioned, and in which I shall illustrate this theory by showing how all the fundamental truths in the philosophy of nature are inductively discovered, with deductive procedure playing only and always a subordinate and auxiliary role—doing the work of analytical elaboration.

Therefore, the methods of teaching any subject-matter should be primarily inductive and dialectical, rather than deductive and simply expository, for the former method is a conformity of teaching to the order of learning, as that is naturally exhibited in the order of discovery, which teaching must imitate as a cooperative art; whereas the latter method is a conformity of teaching to the order of knowledge itself, and this is an order which should not determine teaching, for it does not determine learning. The practical implications of this conclusion can be quickly drawn:

*First*, for any subject-matter, and for philosophy pre-eminently (precisely because it is wisdom and the most difficult sort of knowledge to possess by way of speculative habit), teaching must be by the Socratic method.

*Second*, the Socratic, or dialectical, method is the only way to avoid the substitution of verbal memory for intellectual habit. It always puts questions before answers. It does not rest when a student gives a verbally right answer, but always tries to undermine the right answer to test it, for if it is just parrot-like speech, the answer will not stand the dialectical attack. It places the highest value on questions, rather than upon answers; for a question in search of answers is an educational dynamo, whereas an answer in search of the question it answers is an educational dud.

*Third*, it follows, of course, that lectures and textbooks are taboo, for the most part, because lectures usually are deductive or analytical expositions following the order of knowledge, rather than dialectical inquiries adapted to the order of discovery; and textbooks are even worse than lectures as manuals for the memory, rather than challenges to the mind.

*Fourth*, right teaching must be done either without any books, *if the teacher is a Socrates*, or, if the teacher is not Socrates, the only books he can use to good effect are the very greatest books, on a given subject, which have ever been written, for only such books will be above both himself and his students; only such books will stimulate him to inquire and thus to lead his students in inquiry; only such books will pose both teacher and students problems, rather than give them simply codified, and readily memorizable, answers.

*Fifth*, the simplest test for right teaching,—teaching well-ordered as an aid to learning—is this: that the teacher should find himself actively engaged in discovery of the truth, at the same time that he

is helping his students (though they be moving at a lower level) to make discoveries also, proportionate to their age and condition. When the teacher proceeds by the wrong method—by lecture-expositions and quizzes on textbooks or manuals—it seldom, if ever, happens that the teacher himself learns anything new. His state of mind is not an inquiring one. That shows he is not really doing the work of a teacher, for the work of a teacher must conform to the work of learning, and this can only take place if the teacher is really learning at the same time that he teaches.

*Finally*, it is only by such dialectical and inductive procedure, that the truth is learned, not in complete abstraction from the problems it solves or the errors it corrects, but in the context of complicated alternatives. This again is the trouble with textbooks. They seldom make the problems live, or state the errors vigorously enough to make them real dangers and real obstacles to the mind.

#### *IV. Conclusion*

I should like to conclude with an observation on the life of *philosophia perennis* in the three great epochs of European intellectual history, for this has a bearing on the teaching of philosophy today.

In the modern period, we, like the Middle Ages, can do both sorts of work, and we must do both sorts for two reasons. (1) The old opponents have returned—the sophists, the atomists, etc. But the cultural situation has changed, because of science. Hence we must devise new arguments; the inductive work must be redone. (2) The advance of modern philosophy, like the advance of mediaeval philosophy, is proportionate to a cultural change. Mediaeval philosophy was improved by Christian faith—primarily in metaphysics and natural theology. Modern philosophy can improve in physics (philosophy of nature) and in logic, because of the great cultural achievement of modern times—the distinction between science and philosophy—unknown to the Greeks and the Middle Ages. In the spheres of physics and logic, “Modern philosophy” should be a term of praise, as Christian philosophy is in the spheres of metaphysics and natural theology.

We must not close our eyes to the fact that modern scholasticism has two defects. It fails to understand the intrinsic opportunities of philosophy in the modern era; it fails to take a right pride in modernity. And it tries to do only one of the two kinds of philosophical work—the expository, the analytical and deductive, and not the inquiring, the dialectical and inductive. This is reflected in the way

philosophy, and other subject-matters also, is taught in Catholic schools.

The reform of the methods of teaching (especially philosophy) is important, not only for the rectification of Catholic education with respect to means, as it works toward the right ends, but also for the sake of philosophy itself. *Philosophia perennis* cannot live unless it has living workers dwelling in its mansions, not just inmates and retainers. Live workers will come of age in any generation only if they are nourished by teaching which vitalizes them in all the ways of the life of thought. The prevalent teaching of *philosophia perennis* is truly disproportionate to its potential vitality. “When perennial philosophy shakes off the dead skin of scholasticism, and really comes *to live* in a modern metamorphosis, the event will be signified by a renewal of the dialectical enterprise with which philosophy originated in the Greek period, as well as by the renovation of the edifice which the Middle Ages raised upon Greek foundations. And each—the renewal and the renovation—will penetrate the other.”<sup>3</sup> That day, devoutly to be wished for, will not dawn without a basic rectification of the order of learning in Catholic institutions. 

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<sup>3</sup> “A Dialectic of Morals,” *loc. cit.*, III. 1, p. 7.