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The Lost Tools of Learning

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First delivered at Oxford in 1947

"Is it not the great defect of our education today that although we often succeed in teaching our pupils 'subjects,' we fail lamentably on the whole in teaching them how to think?"

THAT I, WHOSE EXPERIENCE of teaching is extremely limited, should presume to discuss education is a matter, surely, that calls for no apology. It is a kind of behavior to which the present climate of opinion is wholly favorable. Bishops air their opinions about economics; biologists about metaphysics; inorganic chemists about theology; the most irrelevant people are appointed to highly technical ministries; and plain, blunt men write to the papers to say that Epstein and Picasso do not know how to draw. Up to a certain point, and provided that the criticisms are made with a reasonable modesty, these activities are commendable.

Too much specialization is not a good thing. There is also one excellent reason why the veriest amateur may feel entitled to have an opinion about education. For if we are not all professional teachers, we have all, at some time or other, been taught. Even if we learned nothing—perhaps in particular if we learned nothing—our contribution to the discussion may have a potential value.

I propose to deal with the subject of teaching, properly so-called. It is in the highest degree improbable that the reforms I propose will ever be carried into effect. Neither the parents, nor the training colleges, nor the examination boards, nor the boards of governors, nor the ministries of education would countenance them for a moment. For they amount to this: that if we are to produce a society of educated people, fitted to preserve their intellectual freedom amid the complex pressures of our modern society, we must turn back the wheel of progress some four or five hundred years, to the point at which education began to lose sight of its true object, towards the end of the Middle Ages.

Before you dismiss me with the appropriate phrase—reactionary, romantic, medievalist, *laudator temporis acti*, or whatever tag comes first to mind—I will ask you to consider one or two miscellaneous questions that hang about at the back, perhaps, of all our minds, and occasionally pop out to worry us.

When we think about the remarkable early age at which the young men went up to the university in, let us say, Tudor times, and thereafter were held fit to assume responsibility for the conduct of their own affairs, are we altogether comfortable about that artificial prolongation of intellectual childhood and adolescence into the years of physical maturity which is so marked in our day? To postpone the acceptance of responsibility to a late date brings with it a number of psychological complications which, while they may interest the psychiatrist, are scarcely beneficial either to the individual or to society. The stock argument in favor of postponing the school leaving-age and prolonging the period of education generally is that there is now so much more to learn than there was in the Middle Ages.

This is partly true, but not wholly. The modern boy and girl are certainly taught more subjects—but does that always mean that they actually know more?

Has it ever struck you as odd, or unfortunate, that today, when the proportion of literacy throughout Western Europe is higher than it has ever been, people should have become susceptible to the influence of advertisement and mass propaganda to an extent hitherto unheard-of and unimagined? Do you put this down to the mere mechanical fact that the press and the radio and so on have made propaganda much easier to distribute over a wide area? Or do you sometimes have an uneasy suspicion that the product of modern educational methods is less good than he or she might be at disentangling fact from opinion and the proven from the plausible?

Have you ever, in listening to a debate among adult and presumably responsible people, been fretted by the extraordinary inability of the average debater to speak to the question, or to meet and refute the arguments of speakers on the other side? Or have you ever pondered upon the extremely high incidence of irrelevant matter which crops up at committee meetings, and upon the very great rarity of persons capable of acting as chairmen of committees? And when you think of this, and think that most of our public affairs are settled by debates and committees have you ever felt a certain sinking of the heart?

> *The modern boy and girl are certainly taught more subjects—but does that always mean that they actually know more?*

Have you ever followed a discussion in the newspapers or elsewhere and noticed how frequently writers fail to define the terms they use? Or how often, if one man does define his terms, another will assume in his reply that he was using the terms in precisely the opposite sense to that in which he has already defined them?

Have you ever been faintly troubled by the amount of slipshod syntax going about? And if so, are you troubled because it is inelegant or because it may lead to dangerous misunderstanding?

Do you ever find that young people, when they have left school, not only forget most of what they have learned (that's only to be expected) but forget also, or betray that they have never really known, how to tackle a new subject for themselves? Are you often bothered by coming across grown-up men and women who seem unable to distinguish between a book that is sound, scholarly and properly documented, and one that is to any trained eye, very conspicuously none of these things? Or who cannot handle a library catalogue? Or who, when faced with a book of reference, betray a curious inability to extract from it the passages relevant to the particular question which interests them?

Do you often come across people for whom, all their lives, a "subject" remains a "subject," divided by watertight bulkheads from all other "subjects," so that they experience very great difficulty in making an immediate mental connection between, let us say, algebra and detective fiction, sewage disposal and the price of salmon—or, more generally, between such spheres of knowledge as philosophy and economics, or chemistry and art?

Are you occasionally perturbed by the things written by adult men and women for adult men and women to read?

We find a well-known biologist writing in a weekly paper to the effect that: "It is an argument against the existence of a Creator" (I think he put it more strongly but since I have, most unfortunately, mislaid the reference, I will put his claim at its lowest) "an argument against the existence of a Creator that the same kind of variations which are produced by natural selection can be produced at will by stock-breeders."

One might feel tempted to say that it is rather an argument for the existence of a Creator. Actually, of course, it is neither; all it proves is that the same material causes (recombination of the chromosomes by crossbreeding and so forth) are sufficient to account for all observed variations—just as the various combinations of the same thirteen semitones are materially sufficient to account for Beethoven's Moonlight Sonata and the noise the cat makes by walking on the keys. But the cat's performance neither proves nor disproves the existence of Beethoven; and all that is proved by the biologist's argument is that he was unable to distinguish between a material and a final cause.

Here is a sentence from no less academic a source than a front page article in the [London] *Times Literary Supplement*:

> "The Frenchman, Alfred Epinas, pointed out that certain species (e.g., ants and wasps) can only face the horrors of life and death in association."

I do not know what the Frenchman actually did say; what the Englishman says he said is patently meaningless. We cannot know whether life holds any horror for the ant, nor in what sense the isolated wasp which you kill upon the window pane can be said to "face" or not to "face"

the horrors of death. The subject of the article is mass behavior in man; and the human motives have been unobtrusively transferred from the main proposition to the supporting instance.

Thus the argument, in effect, assumes what it sets out to prove—a fact which would become immediately apparent if it were presented in a formal syllogism. This is a small and haphazard example of a vice which pervades whole books—particularly books written by men of science on metaphysical subjects.

Another quotation from the same issue of the T.L.S. comes in fittingly here to wind up this random collection of disquieting thoughts—this time from a review of Sir Richard Livingstone's *Some Tasks for Education*:

> "More than once, the reader is reminded of the value of an intensive study of at least one subject, so as to learn "the meaning of knowledge" and what precision and persistence is needed to attain it. Yet there is elsewhere full recognition of the distressing fact that a man may be master in one field and show no better judgment than his neighbor anywhere else; he remembers what he has learned, but forgets altogether how he learned it."

I would draw your attention particularly to that last sentence, which offers an explanation of what the writer rightly calls the "distressing fact" that the intellectual skills bestowed upon us by our education are not readily transferable to subjects other than those in which we acquired them: "he remembers what he has learned, but forgets altogether how he learned it."

Is it not the great defect of our education today that although we often succeed in teaching our pupils "subjects," we fail lamentably on the whole in teaching them how to think?

They learn everything, except the art of learning. It is as though we had taught a child, mechanically and by rule of thumb, to play "The Harmonious Blacksmith" upon the piano, but had never taught him the scale or how to read music; so that, having memorized "The Harmonious Blacksmith", he still had not the faintest notion how to proceed from that to tackle "The Last Rose of Summer." Why do I say, "As though"? In certain of the arts and crafts we sometimes do precisely this—requiring a child to "express himself" in paint before we teach him how to handle the colors and the brush. There is a school of thought which believes this to be the right way to set about the job. But observe—it is not the way in which a trained craftsman will go about to teach himself a new medium. He, having learned by experience the best way to economize labor and take the thing by the right end, will start off by doodling about on an odd piece of material, in order to "give himself the feel of the tool."

They learn everything, except the art of learning.

Let us now look at the medieval scheme of education—the syllabus of the schools. It does not matter, for the moment, whether it was devised for small children or for older students; or how long people were supposed to take over it. What matters is the light it throws upon what the men of the Middle Ages supposed to be the object and the right order of the educative process.

The syllabus was divided into two parts: the Trivium and Quadrivium. The second part—the Quadrivium—consisted of "subjects," and need not for the moment concern us. The interesting thing for us is the composition of the Trivium, which preceded the Quadrivium and was the preliminary discipline for it. It consisted of three parts: Grammar, Dialectic, and Rhetoric, in that order.

Now the first thing we notice is that two at any rate of these "subjects" are not what we should call "subjects" at all: they are only methods of dealing with subjects.

Grammar indeed is a "subject" in the sense that it does mean definitely learning a language —at that period it meant learning Latin. But language itself is simply the medium in which thought is expressed. The whole of the Trivium was in fact intended to teach the pupil the proper use of the tools of learning, before he began to apply them to "subjects" at all. First, he learned a language: not just how to order a meal in a foreign language, but the structure of language—any language—and hence of language itself—what it was, how it was put together and how it worked. Secondly, he learned how to use language: how to define his terms and make accurate statements; how to construct an argument and how to detect fallacies in argument (his own arguments and other people's). Dialectic, that is to say, embraced Logic and Disputation. Thirdly, he learned to express himself in language: how to say what he had to say elegantly and persuasively. At this point, any tendency to express himself windily or to use his eloquence so as to make the worse appear the better reason would, no doubt, be restrained by his previous teaching in Dialectic. If not, his teacher and his fellow-pupils, trained along the same lines, would be quick to point out where he was wrong; for it was they whom he had to seek to persuade.

At the end of his course, he was required to compose a thesis upon some theme set by his masters or chosen by himself, and afterwards to defend his thesis against the criticism of the faculty. By this time he would have learned—or woe betide him—not merely to write an essay on paper, but to speak audibly and intelligibly from a platform, and to use his wits quickly when heckled. The heckling, moreover, would not consist solely of offensive personalities or of irrelevant queries about what Julius Caesar said in 55 BC—though no doubt medieval dialectic was enlivened in practice by plenty of such primitive repartee. But there would also be questions, cogent and shrewd, from those who had already run the gauntlet of debate, or were making ready to run it.

> *The whole of the Trivium was in fact intended to teach the pupil the proper use of the tools of learning, before he began to apply them to "subjects" at all.*

It is, of course, quite true that bits and pieces of the medieval tradition still linger, or have been revived, in the ordinary school syllabus of today.

Some knowledge of grammar is still required when learning a foreign language—perhaps I should say, "is again required"; for during my own lifetime we passed through a phase when the teaching of declensions and conjugations was considered rather reprehensible, and it was considered better to pick these things up as we went along. School debating societies flourish; essays are written; the necessity for "self expression" is stressed, and perhaps even over-stressed.

"Grammar" belongs especially to the "subject" of foreign languages, and essay-writing to the "subject" called "English"; while Dialectic has become almost entirely divorced from the rest of the curriculum, and is frequently practiced unsystematically and out of school hours as a separate exercise, only very loosely related to the main business of learning.

Taken by and large, the great difference of emphasis between the two conceptions holds good: modern education concentrates on teaching subjects, leaving the method of thinking, arguing, and expressing one's conclusions to be picked up by the scholar as he goes along; medieval education concentrated on first forging and learning to handle the tools of learning, using whatever subject came handy as a piece of material on which to doodle until the use of the tool became second nature.

"Subjects" of some kind there must be, of course. One cannot learn the use of a tool by merely waving it in the air; neither can one learn the theory of grammar without learning an actual language, or learn to argue and orate without speaking about something in particular.

The debating subjects of the Middle Ages were drawn largely from Theology, or from the Ethics and History of Antiquity. Often, indeed, they became stereotyped, especially towards the end of the period; and the far-fetched and wire-drawn absurdities of scholastic argument fretted Milton and provide food for merriment even to this day. Whether they were in themselves any more hackneyed and trivial than the usual subjects set nowadays for "essay-writing" I should not like to say: we may ourselves grow a little weary of "A Day in My Holidays," "What I should Like to Do when I Leave School," and all the rest of it. But most of the merriment is misplaced, because the aim and object of the debating thesis has by now been lost sight of.

A glib speaker in the Brains Trust once entertained his audience (and reduced the late Charles Williams to helpless rage) by asserting that in the Middle Ages it was a matter of faith to know how many archangels could dance on the point of a needle. I need not say, I hope, that it never was a "matter of faith"; it was simply a debating exercise, whose set subject was the nature of angelic substance; were angels material, and if so, did they occupy space? The answer usually adjudged correct is, I believe, that angels are pure intelligences, not material, but limited, so that they have location in space but not extension. An analogy might be drawn from human thought, which is similarly non-material and similarly limited.

Thus, if your thought is concentrated upon one thing—say, the point of a needle—it is located there in the sense that it is not elsewhere; but although it is "there," it occupies no space there, and there is nothing to prevent an infinite number of different people's thoughts being concentrated upon the same needle-point at the same time. The proper subject of the argument is thus seen to be the distinction between location and extension in space; the matter on which

the argument is exercised happens to be the nature of angels (although, as we have seen, it might equally well have been something else); the practical lesson to be drawn from the argument is not to use words like "there" in a loose and unscientific way, without specifying whether you mean "located there" or "occupying space there." Scorn in plenty has been poured out upon the medieval passion for hair-splitting: but when we look at the shameless abuse made, in print and on the platform, of controversial expressions with shifting and ambiguous connotations, we may feel it in our hearts to wish that every reader and hearer had been so defensively armored by his education as to be able to cry: *Distinguo*.

For we let our young men and women go out unarmed, in a day when armor was never so necessary. By teaching them to read, we have left them at the mercy of the printed word. By the invention of the film and the radio, we have made certain that no aversion to reading shall secure them from the incessant battery of words, words, words. They do not know what the words mean; they do not know how to ward them off or blunt their edge or fling them back; they are a prey to words in their emotions instead of being the masters of them in their intellects. We who were scandalized in 1940 when men were sent to fight armored tanks with rifles, are not scandalized when young men and women are sent into the world to fight massed propaganda with a smattering of "subjects"; and when whole classes and whole nations become hypnotised by the arts of the spell-binder, we have the impudence to be astonished. We dole out lip-service to the importance of education—lip-service and, just occasionally, a little grant of money; we postpone the school leaving-age, and plan to build bigger and better schools; the teachers slave conscientiously in and out of school-hours, till responsibility becomes a burden and a nightmare; and yet, as I believe, all this devoted effort is largely frustrated, because we have lost the tools of learning, and in their absence can only make a botched and piecemeal job of it.

What, then, are we to do? We cannot go back to the Middle Ages. That is a cry to which we have become accustomed. We cannot go back—or can we?

> *For we let our young men and women go out unarmed, in a day when armor was never so necessary.*

Distinguo. I should like every term in that proposition defined. Does "Go back" mean a retrogression in time, or the revision of an error? The first is clearly impossible per se; the second is a thing which wise men do every day.

"Cannot"—does this mean that our behavior is determined by some irreversible cosmic mechanism, or merely that such an action would be very difficult in view of the opposition it would provoke? "The Middle Ages"—obviously the twentieth century is not and cannot be the fourteenth; but if "the Middle Ages" is, in this context, simply a picturesque phrase denoting a particular educational theory, there seems to be no a priori, already "gone back," with modifications, to, let us say, the idea of playing Shakespeare's plays as he wrote them, and not in the

"modernized" versions of Cibber and Garrick, which once seemed to be the latest thing in theatrical progress.

Let us amuse ourselves by imagining that such progressive retrogression is possible. Let us make a clean sweep of all educational authorities, and furnish ourselves with a nice little school of boys and girls whom we may experimentally equip for the intellectual conflict along lines chosen by ourselves. We will endow them with exceptionally docile parents; we will staff our school with teachers who are themselves perfectly familiar with the aims and methods of the Trivium; we will have our buildings and staff large enough to allow our classes to be small enough for adequate handling; and we will postulate a Board of Examiners willing and qualified to test the products we turn out. Thus prepared, we will attempt to sketch out a syllabus—a modern Trivium "with modifications"; and we will see where we get to.

But first: what age shall the children be? Well, if one is to educate them on novel lines, it will be better that they should have nothing to unlearn; besides, one cannot begin a good thing too early, and the Trivium is by its nature not learning, but a preparation for learning. We will therefore "catch 'em young," requiring only of our pupils that they shall be able to read, write and cipher.

These, in a rough-and-ready fashion, I will call the Poll-parrot, the Pert, and the Poetic — the latter coinciding, approximately, with the onset of puberty. The Poll-parrot stage is the one in which learning by heart is easy and, on the whole, pleasurable; whereas reasoning is difficult and, on the whole, little relished. At this age one readily memorizes the shapes and appearances of things; one likes to recite the number-plates of cars; one rejoices in the chanting of rhymes and the rumble and thunder of unintelligible polysyllables; one enjoys the mere accumulation of things.

The Pert Age, which follows upon this (and, naturally, overlaps it to some extent) is only too familiar to all who have to do with children: it is characterized by contradicting, answering-back, liking to "catch people out" (especially one's elders) and the propounding of conundrums (especially the kind with a nasty verbal catch in them). Its nuisance-value is extremely high. It usually sets in about the Lower Fourth.

The Poetic Age is popularly known as the "difficult" age. It is self-centered; it yearns to express itself; it rather specializes in being misunderstood; it is restless and tries to achieve independence; and, with good luck and good guidance, it should show the beginnings of creativeness, a reaching-out towards a synthesis of what it already knows, and a deliberate eagerness to know and do some one thing in preference to all others. Now it seems to me that the lay-out of the Trivium adapts itself with a singular appropriateness to these three ages: Grammar to the Poll-parrot, Dialectic to the Pert, and Rhetoric to the Poetic age.

Let us begin, then, with Grammar. This, in practice, means the grammar of some language in particular; and it must be an inflected language. The grammatical structure of an uninflected language is far too analytical to be tackled by any one without previous practice in Dialectic.

Moreover, the inflected languages interpret the uninflected, whereas the uninflected are of little use in interpreting the inflected.

I will say at once, quite firmly, that the best grounding for education is the Latin grammar. I say this, not because Latin is traditional and medieval, but simply because even a rudimentary knowledge of Latin cuts down the labor and pains of learning almost any other subject by at least 50 per cent. It is the key to the vocabulary and structure of all the Romance languages and to the structure of all the Teutonic languages, as well as to the technical vocabulary of all the sciences and to the literature of the entire Mediterranean civilization, together with all its historical documents.

Those whose pedantic preference for a living language persuades them to deprive their pupils of all these advantages might substitute Russian, whose grammar is still more primitive. (The verb is complicated by a number of "aspects"—and I rather fancy that it enjoys three complete voices and a couple of extra aorists—but I may be thinking of Basque or Sanskrit.) Russian is, of course, helpful with the other Slav dialects. There is something also to be said for classical Greek. But my own choice is Latin.

Having thus pleased the Classicists I will proceed to horrify them by adding that I do not think it either wise or necessary to cramp the ordinary pupil upon the Procrustean bed of the Augustan Age, with its highly elaborate and artificial verse-forms and oratory. The post-classical and medieval Latin, which was a living language down to the end of the Renaissance, is easier and in some ways livelier, both in syntax and rhythm; and a study of it helps to dispel the widespread notion that learning and literature came to a full-stop when Christ was born and only woke up again at the Dissolution of the Monasteries.

However, I am running ahead too fast. We are still in the grammatical stage. Latin should be begun as early as possible—at a time when inflected speech seems no more astonishing than any other phenomenon in an astonishing world; and when the chanting of "amo, amas, amat" is as ritually agreeable to the feelings as the chanting of "eeny, meeny, miney, mo."

During this age we must, of course, exercise the mind on other things besides Latin grammar. Observation and memory are the faculties most lively at this period; and if we are to learn a contemporary foreign language we should begin now, before the facial and mental muscles become rebellious to strange intonations. Spoken French or German can be practiced alongside the grammatical discipline of the Latin.

In English, the verse and prose can be learned by heart, and the pupil's memory should be stored with stories of every kind—classical myth, European legend, and so forth. I do not think that the Classical stories and masterpieces of ancient literature should be made the vile bodies on which to practice the techniques of grammar—that was a fault of medieval education which we need not perpetuate. The stories can be enjoyed and remembered in English, and related to their origin at a subsequent stage. Recitation aloud should be practiced—individually or in chorus; for we must not forget that we are laying the ground work for Disputation and Rhetoric.

The grammar of History should consist, I think, of dates, events, anecdotes, and personalities. A set of dates to which one can peg all later historical knowledge is of enormous help later on in establishing the perspective of history. It does not greatly matter which dates: those of the Kings of England will do very nicely, provided that they are accompanied by pictures of costume, architecture, and all "every-day things," so that the mere mention of a date calls up a strong visual presentment of the whole period.

Geography will similarly be presented in its factual aspect, with maps, natural features and visual presentment of customs, costumes, flora, fauna and so on; and I believe myself that the discredited and old-fashioned memorizing of a few capital cities, rivers, mountain ranges, etc., does not harm. Stamp-collecting may be encouraged.

Science, in the Poll-parrot period, arranges itself naturally and easily round collections —the identifying and naming of specimens and, in general, the kind of thing that used to be called "natural history," or, still more charmingly, "natural philosophy."

To know the names and properties of things is, at this age, a satisfaction in itself: to recognize a devil's coach-horse at sight, and assure one's foolish elders that, in spite of its appearance, it does not sting; to be able to pick out Cassiopeia and the Pleiades, and possibly even to know who Cassiopeia and the Pleiades were; to be aware that a whale is not a fish, and a bat not a bird —all these things give a pleasant sensation of superiority; while to know a ring-snake from an adder or a poisonous from an edible toadstool is a kind of knowledge that has also a practical value.

The grammar of Mathematics begins, of course, with the multiplication table, which, if not learnt now, will never be learnt with pleasure; and with the recognition of geometrical shapes and the grouping of numbers.

These exercises lead naturally to the doing of simple sums in arithmetic; and if the pupil shows a bent that way, a facility acquired at this stage is all to the good. More complicated mathematical processes may, and perhaps should, be postponed, for reasons which will presently appear.

So far (except, of course, for the Latin), our curriculum contains nothing that departs very far from common practice. The difference will be felt rather in the attitude of the teachers, who must look upon all these activities less as "subjects" in themselves than as a gathering-together of material for use in the next part of the Trivium.

What that material actually is, is only of secondary importance; but it is as well that anything and everything which can usefully be committed to memory should be memorized at this period, whether it is immediately intelligible or not.

The modern tendency is to try and force rational explanations on a child's mind at too early an age. Intelligent questions, spontaneously asked, should, of course, receive an immediate and rational answer; but it is a great mistake to suppose that a child cannot readily enjoy and remember things that are beyond its power to analyze—particularly if those things have a strong imaginative appeal (as, for example, Kubla Khan), an attractive jingle (like some of the memory-

rhymes for Latin genders), or an abundance of rich, resounding polysyllables (like the *Quicunque Vult*).

This reminds me of the grammar of Theology. I shall add it to the curriculum, because Theology is the Mistress-science, without which the whole educational structure will necessarily lack its final synthesis. Those who disagree about this will remain content to leave their pupils' education still full of loose ends. This will matter rather less than it might, since by the time that the tools of learning have been forged the student will be able to tackle Theology for himself, and will probably insist upon doing so and making sense of it. Still, it is a well to have this matter also handy and ready for the reason to work upon.

At the grammatical age, therefore, we should become acquainted with story of God and Man in outline—i.e. the Old and New Testament presented as parts of a single narrative of Creation, Rebellion, and Redemption-and also with "the Creed, the Lord's Prayer and the Ten Commandments."

At this stage, it does not matter nearly so much that these things should be fully understood as that they should be known and remembered. Remember, it is material that we are collecting.

It is difficult to say at what age, precisely, we should pass from the first to the second part of the Trivium. Generally speaking, the answer is: so soon as the pupil shows himself disposed to Pertness and interminable argument (or, as a school-master correspondent of mine more elegantly puts it: "When the capacity for abstract thought begins to manifest itself").

For as, in the first part, the master-faculties are Observation and Memory, so in the second, the master-faculty is the Discursive Reason. In the first, the exercise to which the rest of the material was, as it were, keyed, was the Latin Grammar; in the second the key-exercise will be Formal Logic. It is here that our curriculum shows its first sharp divergence from modern standards.

The disrepute into which Formal Logic has fallen is entirely unjustified; and its neglect is the root cause of nearly all those disquieting symptoms which we may note in the modern intellectual constitution. Logic has been discredited, partly because we have fallen into a habit of supposing that we are conditioned almost entirely by the intuitive and the unconscious.

There is no time now to argue whether this is true; I will content myself with observing that to neglect the proper training of the reason is the best possible way to make it true, and to ensure the supremacy of the intuitive, irrational and unconscious elements in our make-up. A secondary cause for the disfavor into which Formal Logic has fallen is the belief that it is entirely based upon universal assumptions that are either unprovable or tautological. This is not true. Not all universal propositions are of this kind. But even if they were, it would make no difference, since every syllogism whose major premiss is in the form "All A is B" can be recast in hypothetical form. Logic is the art of arguing correctly: "If A, then B"; the method is not invalidated by the hypothetical character of A. Indeed, the practical utility of Formal Logic today lies not so much in the establishment of positive conclusions as in the prompt detection and exposure of invalid inference.

Let us now quickly review our material and see how it is to be related to Dialectic. On the Language side, we shall now have our Vocabulary and Morphology at our finger-tips; henceforward we can concentrate more particularly on Syntax and Analysis (i.e. the logical construction of speech) and the history of Language (i.e. how we came to arrange our speech as we do in order to convey our thoughts).

Our Reading will proceed from narrative and lyric to essays, argument and criticism, and the pupil will learn to try his own hand at writing this kind of thing. Many lessons—on whatever subject—will take the form of debates; and the place of individual or choral recitation will be taken by dramatic performances, with special attention to plays in which an argument is stated in dramatic form.

Mathematics-algebra, geometry, and the more advanced kind of arithmetic—will now enter into the syllabus and take its place as what it really is: not a separate "subject" but a sub-department of Logic. It is neither more nor less than the rule of the syllogism in its particular application to number and measurement, and should be taught as such, instead of being, for some, a dark mystery, and for others, a special revelation, neither illuminating, nor illuminated by any other part of knowledge.

History, aided by a simple system of ethics derived from the Grammar of Theology, will provide much suitable material for discussion; was the behavior of this statesman justified? What was the effect of such an enactment? What are the arguments for and against this or that form of government?

We shall thus get an introduction to constitutional History—a subject meaningless to the young child, but of absorbing interest to those who are prepared to argue and debate. Theology itself will furnish material for argument about conduct and morals; and should have its scope extended by a simplified course of dogmatic theology (i.e. the rational structure of Christian thought), clarifying the relations between the dogma and the ethics, and lending itself to that application of ethical principles in particular instances which is properly called casuistry. Geography and the Sciences will all likewise provide material for Dialectic.

But above all, we must not neglect the material which is so abundant in the pupils' own daily life. There is a delightful passage in Leslie Paul's *The Living Hedge* which tells how a number of small boys enjoyed themselves for days arguing about an extraordinary shower of rain which had fallen in their town—a shower so localized that it left one half of the main street wet and the other dry. Could one, they argued, properly say that it had rained that day on or over the town or only in the town? How many drops of water were required to constitute rain? and so on. Argument about this led on to a host of similar problems about rest and motion, sleep and waking, *est* and *non est*, and the infinitesimal division of time.

The whole passage is an admirable example of the spontaneous development of the ratiocinative faculty and the natural and proper thirst of the awakening reason for definition of terms and exactness of statement.

All events are food for such an appetite. An umpire's decision; the degree to which one may transgress the spirit of a regulation without being trapped by the letter; on such questions as these, children are born casuists, and their natural propensity only needs to be developed and trained—and, especially, brought into an intelligible relationship with events in the grown-up world. The newspapers are full of good material for such exercises: legal decisions, on the one hand, in cases where the cause at issue is not too abstruse; on the other, fallacious reasoning and muddle-headed argument, with which the correspondence columns of certain papers one could name are abundantly stocked.

Wherever the matter for Dialectic is found, it is, of course, highly important that attention should be focused upon the beauty and economy of a fine demonstration or a well-turned argument, lest veneration should wholly die. Criticism must not be merely destructive; though at the same time both teacher and pupils must be ready to detect fallacy, slipshod reasoning, ambiguity, irrelevance and redundancy, and to pounce upon them like rats.

This is the moment when precise-writing may be usefully undertaken; together with such exercises as the writing of an essay, and the reduction of it, when written, by 25 or 50 per cent. It will doubtless be objected that to encourage young persons at the Pert Age to browbeat, correct, and argue with their elders will render them perfectly intolerable.

My answer is that children of that age are intolerable anyhow; and that their natural argumentativeness may just as well be channelized to good purpose as allowed to run away into the sands. It may, indeed, be rather less obtrusive at home if it is disciplined in school; and, anyhow, elders who have abandoned the wholesome principle that children should be seen and not heard have no one to blame but themselves. The teachers, to be sure, will have to mind their step, or they may get more than they bargained for. All children sit in judgement on their masters; and if the Chaplain's sermon or the Headmistress's annual Speech-day address should by any chance afford an opening for the point of the critical wedge, that wedge will go home the more forcibly under the weight of the Dialectical hammer, wielded by a practiced hand. That is why I said that the teachers themselves would have to have undergone the discipline of the Trivium before they set out to impose it on their charges.

Once again: the contents of the syllabus at this stage may be anything you like. The "subjects" supply material; but they are all to be regarded as mere grist for the mental mill to work upon. The pupils should be encouraged to go and forage for their own information, and so guided towards the proper use of libraries and books of reference, and shown how to tell which sources are authoritative and which are not.

Towards the close of this stage, the pupils will probably be beginning to discover for themselves that their knowledge and experience are insufficient, and that their trained intelligences need a great deal more material to chew upon. The imagination—usually dormant during the Pert Age—will reawaken, and prompt them to suspect the limitations of logic and reason.

This means that they are passing into the Poetic Age and are ready to embark on the study of Rhetoric. The doors of the storehouse of knowledge should now be thrown open for them

to browse about as they will. The things once learned by rote will now be seen in new contexts; the things once coldly analyzed can now be brought together to form a new synthesis; here and there a sudden insight will bring about that most exciting of all discoveries: the realization that a truism is true.

It is difficult to map out any general syllabus for the study of Rhetoric: a certain freedom is demanded. In literature, appreciation should be again allowed to take the lead over destructive criticism; and self-expression in writing can go forward, with its tools now sharpened to cut clean and observe proportion. Any child that already shows a disposition to specialize should be given his head: for, when the use of the tools has been well and truly learned it is available for any study whatever.

It would be well, I think, that each pupil should learn to do one, or two, subjects really well, while taking a few classes in subsidiary subjects so as to keep his mind open to the inter-relations of all knowledge.

Indeed, at this stage, our difficulty will be to keep "subjects" apart; for as Dialectic will have shown all branches of learning to be inter-related, so Rhetoric will tend to show that all knowledge is one. To show this, and show why it is so, is preeminently the task of the Mistress-science.

But whether Theology is studied or not, we should at least insist that children who seem inclined to specialize on the mathematical and scientific side should be obliged to attend some lessons in the Humanities and vice versa. At this stage also, the Latin Grammar, having done its work, may be dropped for those who prefer to carry on their language studies on the modern side; while those who are likely never to have any great use or aptitude for mathematics might also be allowed to rest, more or less, upon their oars.

Generally speaking: whatsoever is mere apparatus may now be allowed to fall into the background, while the trained mind is gradually prepared for specialization in the "subjects" which, when the Trivium is completed, it should be perfectly well equipped to tackle on its own. The final synthesis of the Trivium—the presentation and public defense of the thesis should be restored in some form; perhaps as a kind of "leaving examination" during the last term at school.

The scope of Rhetoric depends also on whether the pupil is to be turned out into the world at the age of sixteen, or whether he is to proceed to public school and/or university. Since, really, Rhetoric should be taken at about fourteen, the first category of pupil should study Grammar from about nine to eleven, and Dialectic from twelve to fourteen; his last two school years would then be devoted to Rhetoric, which, in his case, would be of a fairly practical career. A pupil of the second category would finish his Dialectical course in his Preparatory School, and take Rhetoric during his first two years at his Public School. At sixteen, he would be ready to start upon those "subjects" which are proposed for his later study at the university; and this part of his education will correspond to the medieval Quadrivium.

What this amounts to is that the ordinary pupil, whose formal education ends at sixteen, will take the Trivium only; whereas scholars will take both Trivium and Quadrivium.

Is the Trivium, then, a sufficient education for life? Properly taught, I believe that it should be. At the end of Dialectic, the children will probably seem to be far behind their coevals brought up on old-fashioned "modern" methods, so far as detailed knowledge of specific subjects is concerned. But after the age of fourteen they should be able to overhaul the others hand over fist. Indeed, I am not at all sure that a pupil thoroughly proficient in the Trivium would not be fit to proceed immediately to the university at the age of sixteen, thus proving himself the equal of his medieval counterpart, whose precocity often appears to us so astonishing and unaccountable. This, to be sure, would make hay of the public-school system, and disconcert the universities very much—it would, for example, make quite a different thing of the Oxford and Cambridge boat-race. But I am not now considering the feelings of academic bodies: I am concerned only with the proper training of the mind to encounter and deal with the formidable mass of undigested problems presented to it by the modern world.

> *For the tools of learning are the same, in any and every subject.*

For the tools of learning are the same, in any and every subject; and the person who knows how to use them will, at any age, get the mastery of a new subject in half the time and with a quarter of the effort expended by the person who has not the tools at his command. To learn six subjects without remembering how they were learnt does nothing to ease the approach to a seventh; to have learnt and remembered the art of learning makes the approach to every subject an open door.

It is clear that the successful teaching of this neo-medieval curriculum will depend even more than usual upon the working together of the whole teaching staff towards a common purpose. Since no subject is considered as an end in itself, any kind of rivalry in the staff-room will be sadly out of place. The fact that a pupil is unfortunately obliged, for some reason, to miss the History period on Fridays, or the Shakespeare class on Tuesdays, or even to omit a whole subject in favor of some other subject, must not be allowed to cause any heart-burnings —the essential is that he should acquire the method of learning in whatever medium suits him best.

If human nature suffers under this blow to one's professional pride in one's own subject, there is comfort in the thought that the end-of-term examination results will not be affected; for the papers will be so arranged as to be an examination in method, by whatever means.

I will add that it is highly important that every teacher should, for his or her own sake, be qualified and required to teach in all three parts of the Trivium; otherwise the Masters of Dialectic, especially, might find their minds hardening into a permanent adolescence. For this reason, teachers in Preparatory Schools should also take Rhetoric classes in the Public Schools to which they are attached; or, if they are not so attached, then by arrangement in other schools in the same neighborhood. Alternatively, a few preliminary classes in Rhetoric might be taken in Preparatory Schools from the age of thirteen onwards.

Before concluding these necessarily very sketchy suggestions, I ought to say why I think it necessary, in these days, to go back to a discipline which we had discarded. The truth is that for the last 300 years or so we have been living upon our educational capital. The post-Renaissance world, bewildered and excited by the profusion of new "subjects" offered to it, broke away from the old discipline (which had, indeed, become sadly dull and stereotyped in its practical application) and imagined that henceforward it could, as it were, disport itself happily in its new and extended Quadrivium without passing through the Trivium.

But the scholastic tradition, though broken and maimed, still lingered in the public schools and universities: Milton, however much he protested against it, was formed by it—the debate of the Fallen Angels, and the disputation of Abdiel with Satan have the tool-marks of the Schools upon them, and might, incidentally, profitably figure as a set passage for our Dialectical studies.

Right down to the nineteenth century, our public affairs were mostly managed, and our books and journals were for the most part written, by people brought up in homes, and trained in places, where that tradition was still alive in the memory and almost in the blood. Just so, many people today who are atheist or agnostic in religion, are governed in their conduct by a code of Christian ethics which is so rooted in their unconscious assumptions that it never occurs to them to question it.

But one cannot live on capital forever. A tradition, however firmly rooted, if it is never watered, though it dies hard, yet in the end it dies. And today a great number—perhaps the majority—of the men and women who handle our affairs, write our books and our newspapers, carry out research, present our plays and our films, speak from our platforms and pulpits—yes, and who educate our young people, have never, even in a lingering traditional memory, undergone the scholastic discipline. Less and less do the children who come to be educated bring any of that tradition with them.

We have lost the tools of learning—the axe and the wedge, the hammer and the saw, the chisel and the plane—that were so adaptable to all tasks. Instead of them, we have merely a set of complicated jigs, each of which will do but one task and no more, and in using which eye and hand receive no training, so that no man ever sees the work as a whole or "looks to the end of the work." What use is it to pile task on task and prolong the days of labor, if at the close the chief object is left unattained? It is not the fault of the teachers—they work only too hard already. The combined folly of a civilization that has forgotten its own roots is forcing them to

shore up the tottering weight of an educational structure that is built upon sand. They are doing for their pupils the work which the pupils themselves ought to do.

For the sole true end of education is simply this: to teach men how to learn for themselves; and whatever instruction fails to do this is effort spent in vain.





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