DIDEROT'S EDUCATIONAL IDEAS

Thesis presented by Dorothy Enid Thompson for the degree of PhD in the University of London.
ABSTRACT

In his translation of Shaftesbury's *Enquiry Concerning Virtue and Merit*, Diderot proposed that a system of principles based on the equation of virtue and happiness could form a moral instruction to replace the lamentable contemporary education. With the *Lettre sur les aveugles*, he suggested that moral education could be difficult, since man's moral ideas could be relative, dependent on the varying sense-impressions received. Nevertheless, experience being of supreme importance in the acquisition of ideas, the educationalist, who directs experience, is still important. In the *Pensées sur l'interprétation de la nature* Diderot continued his dissection of the intellectual processes, to suggest a balanced reliance on fact and hypothesis. Considering physiology as well as psychology, he concluded in the *Rêve de d'Alembert* that education is linked with innate talent in the production of the genius. In his moral ideas, in *Droit naturel*, while continuing to claim that virtue and happiness are inextricably bound together, Diderot reconsidered the disconcerting case of the evil-doer who is not converted to goodness by rational arguments. His *Réfutation d'Helvétius* concluded that both moral and intellectual education were desirable and, to a certain extent, possible. As a background may be seen the spate of educational treatises in the second half of the eighteenth century, emphasising the teaching of practical skills and patriotic ideas: Diderot was a part of his time in his preoccupations, although he discussed the problems with individuality. His association with educationalists and his part in the publication of the work *De l'éducation publique* show his constant interest in the details of educational reforms. After his trip to Russia, where the need for reform was recognised and a number of schemes had been drawn up, Diderot's own *Plan d'une université* gave practical proof of his knowledge and originality in the field of education.
DEDICATION

I should like to dedicate this thesis to Professor J. S. Spink, my supervisor, whose advice and encouragement have helped me immeasurably.
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INTRODUCTION

Diderot's educational ideas have never been fully studied as such. Numerous books have been produced on the development of his moral theories and his aesthetics, both of which are of course linked to his examination of educational problems, but the topic itself has been left almost untouched. The essential texts have recently been given editorial attention: the Assézat edition of the Plan d'une université has been supplemented from the manuscript of the Fonds Vandeul, which is used in P. Liublinskii's Russian translation of Diderot's works (1) and in R. Lewinters's edition of Diderot's works, (2) Professor R. Mortier in his edition of Diderot's political works (1771-6), to be published by the Comité nationale d'édition des œuvres de Diderot, is preparing a critical edition of the Plan which will use in addition the Moscow manuscript. (3)

The only full-length study of the subject, A. Mesrobian's Conceptions pédagogiques de Diderot, (4) which appeared in 1913, is limited mainly to the Plan d'une université and takes no account of the Russian setting.

What is needed is a consideration of Diderot's theories of education, and the embodiment of these ideas in the Plan d'une université pour le gouvernement de Russie, linked to the progress of his psychology and morals, his study of man or his "anthropology" in the eighteenth-century sense of the word. Although frequently accused of paradoxical and even contradictory statements of opinion, Diderot in his educational ideas shows a steady and consistent concern for the same problem: the absolute necessity of an education which will provide not only the intellectual, but the moral or social formation of the individual. These two

(2) Oeuvres complètes, with introductions by R. Lewinter and others, Paris, 1971.
(3) In a letter to me dated 28 October 1972 Professor Mortier wrote as follows:

"Le ms de Moscou, déposé aux Archives Centrales d'État d'Actes Anciens (Z.G.A.D.A.) à Moscou, n'est pas autographe - il s'agit d'une copie, faite par Roland Girbal, à l'intention de Catherine II, sur un état antérieur du texte (donc la première version, celle que Diderot confia à son ami Grimm quand celui-ci partit pour la Russie)." See below, p. 282, Note 1.
strands of this thought run side by side from his earliest works. The inculcation of virtue, the central aim of the Essai sur le mérite et la vertu, is still Diderot's concern in the article Droit naturel, and in the novel the Neveu de Rameau; in the Réfutation d'Helvétius it comes together with the complementary problem of the transmission of intellectual ideas, which had first found expression in the Lettre sur les aveugles of 1749. The Plan d'une université is Diderot's practical answer to the educational questions which he had been aware of throughout his life.

Also essential is a consideration of the topic in relation to the Russian background. This has been made possible by P. Vernière's edition of Diderot's Mémoires pour Catherine II in 1966, which corrects the imprecisions of M. Tourneux's text (1) and provides information on biographical and other topics. The fact that Diderot actually visited Russia and asked detailed questions on economic, social and educational aspects of Russian society, suggests that he was well aware of the need for educational reform, in Russia as well as in France. His Mémoires for the Empress show the gradual growth of theories on various problems, from the need for a civil service provided by public competition to the usefulness of the Classics to the pupils of the time, which were to find full expression in the Plan d'une université. A study of Russian educational projects in the years preceding Diderot's Plan shows a vast amount of useful and significant comment merely going to waste. Diderot's Plan was just one of many which Catherine commissioned and subsequently discarded as she lost her early enthusiasm for reform.

A third point which is important for the study of Diderot's educational ideas is his part in the publication of the anonymous work De l'éducation publique. The appearance of his letter to Damilaville on the subject (2) has made it necessary to examine afresh E. Dreyfus-Brisac's attribution of a large part of the work to Diderot. (3) Diderot's relation to the author of this work now seems more that of financial adviser and friend, rather than that of active collaborator. His use in the Plan of certain phrases and terms to be found in De l'éducation publique suggests his indebtedness to his anonymous friend for some of his ideas, or at least the expression of them rather than, as had been previously believed, the other way round.

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(2) Roth, IV, p. 234.
(3) in 1892.
These aspects of any study of Diderot's educational ideas must all be considered in relation to his personal reactions to his own education, which after all, as he would himself have agreed, traced out a certain pattern for the subsequent development of his thought. His own connections with the educational world of the time may at first sight seem to have been tenuous, since he never considered taking up the career of a college "regent", and soon ended his early experiments in the traditional trade of tutoring. Yet his early training by the Jesuits, the teachers par excellence of the Classics, (with perhaps a later admixture of the Jansenists' instruction on philosophy at one of the collèges of the university) fixed Diderot firmly in the educational world as a man of letters, a litterateur like Voltaire, who was to make his way as a professional writer. The faculties of Law and Medicine held out no attractions for him as ways of providing a profession, despite his astonishing grasp of the modern trends of thinking in natural law, and of the advances in natural history and chemistry. Although he may have toyed with the idea of a career in the third faculty, theology, this niche in the world was likewise discarded by Diderot as unsuitable for his cast of thinking. From this position then, as a philosophe (in the sense of a graduate of the Arts Faculty as well as with its partisan connotations) Diderot was admirably equipped to survey the pageantry of human ideas and emotions, as expressed both in men's writings and in their lives. One way in which his intense interest in human nature, natural no doubt to Diderot but also fostered by his education, could be manifested was by his discussion of the educability of mankind.
With the translation of Shaftesbury's Enquiry Concerning Virtue and Merit, completed in 1745, we see Diderot's first attempt to discuss the question of morals. His only other works before this time had been translations from the English of historical and scientific matter, which indicate his enthusiasm for English writers, his love for the Classics and his interest in medical matters, but betray nothing of his own philosophic ideas. These were a translation of Stanyan's History of Greece (1742-3) and of James's Medicinal Dictionary (between 1744 and 1748). The Essai sur le mérite et la vertu, as Diderot entitled his translation, reveals the unfolding of his thought in three important ways: firstly, he voices his own ideas in the dedicatory letter and the Discours préliminaire to the Essai, where he complains of the lamentable state of moral education at the time; secondly, Diderot's choice of such a text shows that at this time he is confident that there can be established some set of absolute moral principles, that by appealing to man's power of reason and his natural instinct towards goodness the moralist can persuade him to follow the path of virtue; thirdly, Diderot's notes to the text, where he comments on various statements of Shaftesbury's, expounding and elucidating, are clear evidence of the state of his thoughts on morals in 1745.

Diderot comments on the effect of his plentiful use of these notes in the Discours préliminaire to the Essai. He confesses his especial preoccupation with morals at this time, which has, he suggests, given the Essai more of a moral than a metaphysical bias:

"Les réflexions qui accompagnent cette espèce de texte sont si fréquentes, que l'essai de M... S..., qui n'était proprement qu'une démonstration métaphysique, s'est converti en éléments de morale assez considérables." (1)

(1) A-T, I, p.16.
It is interesting to note Diderot's comments on his method of translation, which we find in the last paragraph of the Discours préliminaire to the Essai. He says that he has treated the text with extreme freedom, producing more of a paraphrase than a strict translation:

"Je l'ai lu et relu; je me suis rempli de son esprit; et j'ai, pour ainsi dire, fermé son livre lorsque j'ai pris la plume. On n'a jamais usé du bien d'autrui avec tant de liberté." (1)

He claims to have abridged, expanded and rectified where he felt the need. In fact, despite what Diderot says, the translation is a fairly faithful one. Even if judged by modern standards of translation, which demand scrupulous attention to the expression and meaning of the original, Diderot's version would still be looked upon as a translation, not as an adaptation; certainly if we take into account the eighteenth century's attitude to translation, where a free adaptation, not only of poetry, but also of prose works, was accepted as normal practice, Diderot's translation is remarkably close to the original.

His only alterations are some minor changes in terminology and style. Shaftesbury's "natural affections", for example, become des affections sociales (2) a justifiable change seeing that Shaftesbury's whole attitude to the question of nature is that "natural" behaviour is in fact sociability. In other places where Diderot has changed the terminology he often justifies his choice of words. In the first paragraph of the Enquiry, for example, where Shaftesbury's "religious and devout" becomes dévot, Diderot takes pains to point out, for fear of offending the religious authorities, that really "fauz dévot" would best convey Shaftesbury's scorn for false piety:

"Partout où ce mot se prend en mauvaise part, il faut entendre, comme dans La Bruyère et La Rochefoucauld, faux dévot; sens auquel une longue et peut-être odieuse prescription l'a déterminé." (3)

Again, in a passage on the intolerance of some religious people, Diderot in a note expands his translation: where Shaftesbury has reproached with "narrowness of spirit": the "devout persons and zealots of almost every

(1) A-T, I, p. 16.
(2) e.g. A-T, I, p. 70, 78.
(3) A-T, I, p. 18 Note 2.
religious persuasion", (1) Diderot explains that, having rendered this as "les zéles de toute religion," he is in fact referring to bigotry and false piety:

"Car la vraie piété, qualité presque essentielle à l'héroïsme, étend le cœur et l'esprit." (2)

By this subtle note he is able to convey his own and Shaftesbury's horror of the excesses of established religion with its fanatics, without exposing himself to the charge of irreligion which any unguarded criticism of any aspect of Christianity was liable to provoke in those times of extreme orthodoxy in France.

The other alterations to the Enquiry are stylistic ones, intended to smooth out Shaftesbury's rather rough, typically English syntax into an elegant French construction. As A. M. Wilson suggests, he loses some of the flavour of the original:

"Diderot was quite successful in wrestling with the convolutions of Lord Shaftesbury's syntax, which still remained seventeenth century even though he wrote in the Age of Addison. Whatever Diderot gained in clarity, however, he probably lost in savor." (3)

Despite these changes, and despite Diderot's own admission that he has translated the Enquiry freely, the Essai sur le mérite et la vertu is a faithful representation of Shaftesbury. At this time Diderot, with characteristic enthusiasm, takes over Shaftesbury's moral code as his own, showing his respect for the English author by following his text, and his own interest in the subject by the copious notes he adds.

Diderot's aim in translating the Enquiry was to set out actual moral principles which men could study and follow. As Shaftesbury claimed in the conclusion, he had established a "scheme of moral arithmetic", (4) a set of absolute laws which explained the workings of human nature and man's place in the order of the universe, thus supplying his readers with a moral code. The very title of Diderot's translation, Principes de la philosophie morale, ou l'Essai sur le mérite et la vertu, or, in the 1751 edition, Philosophie morale

shows his insistence on the importance of moral principles. There are several instances of his treatment of certain passages of the Enquiry in which Diderot stresses even more than Shaftesbury his view that men can and must be guided by a set of absolute principles. In the opening section, for example, Shaftesbury is anxious to demonstrate that a man's virtue is not necessarily to be judged by his outward adherence to Christianity, but must be estimated according to the actual moral standards he observes:

"And in general, we find mere moral principles of such weight, that in our dealings with men we are seldom satisfied by the fullest assurance given us of their zeal in religion, till we hear something further of their character." (1)

Diderot, inverting the order of this passage, as he often does for greater clarity, eliminates the suggestion of "mere" moral principles and has the statement on the influence of moral principles printed in capitals:

"En général, on a beau nous assurer qu'un homme est plein de zèle pour sa religion, si nous avons à traiter avec lui, nous nous informons encore de son caractère. 'M*** a de la religion, dites-vous; mais a-t-il de la probité? Si vous m'eussiez fait entendre d'abord qu'il était honnête homme, je ne me serais jamais avisé de demander s'il était dévot. TANT EST GRANDE SUR NOS ESPRITS L'AUTORITÉ DES PRINCIPES MORAUX." (2)

In a later passage, in Shaftesbury's claim that there is a great difference between deliberate virtuous action and natural, unreflecting goodness,

Diderot inserts the phrase par principes, not betraying Shaftesbury's thought but giving more weight to his opinion that it is by reasoned moral principles that men must act. Shaftesbury has written:

"So that if a creature be generous, kind, constant, compassionate yet if he cannot reflect on what he himself does, or sees others do, so as to take notice of what is worthy and honest, and make that notice or conception of worth and honesty to be an object of his affection, he has not the character of being virtuous." (3)

Diderot, following the original closely, diverges only in the addition of this phrase:

"Qu'une creature soit généreuse, douce, affable, ferme et compatissante; si jamais elle n'a réfléchi sur ce qu'elle pratiqua et voit pratiquer aux autres; si elle ne s'est fait aucune idée nette et precise du bien et du mal; si les charmes de la vertu et de l'honnêteté ne sont point les objets de son affection; son caractère n'est point vertueux par principes." (1)

But, once we have recognised the importance and the possibility of a complete moral code, we must not be content with repeating as principles commonplaces about human nature, and relinquishing all claim of educating man towards virtue. This is the whole point of the Enquiry, to explain and elucidate moral principles. Thus Diderot says in a note, which is apparently a criticism of such writers as La Rochefoucauld, that some writers merely establish a deceptively simple set of moral principles and abandon further analysis:

"Tous les livres de morale sont pleins de déclamations vagues contre l'intérêt. On s'épuise en détails, en divisions et en subdivisions pour en venir à cette conclusion énigmatique, que, quel que soit le désintéressement spécieux, quelle que soit la générosité apparente dont nous nous parions au fond, l'intérêt et l'amour-propre sont les seuls principes de nos actions." (2)

These authors, he continues, should tell us

"ce que c'est que l'intérêt, ce qu'ils entendent par 'l'amour-propre'', as Diderot obviously feels Shaftesbury has done. This complaint at the existing state of writings on morals recalls Diderot's comment in the Discours préliminaire to the Essai, in which he criticises La Bruyère's writings as lacking even in these general principles, as well as in the careful analysis, the attempt to

"anatomiser l'âme"
as he expresses it later. (3)

"Ces recueils de maximes sans liaison et sans ordre", he calls them, "où l'on a pris â tâche de déprimer l'homme, sans s'occuper beaucoup de le corriger." (4)

(1) A-T, I, p. 36.
(2) Ibid. p. 29, Note 1.
(3) Ibid. p. 67.
(4) Ibid. p. 11.
It is Diderot's aim to put this "liaison" and this "ordre" into the study of morals, to explore human nature in order to find the best ways of reforming it.

Diderot's preliminary remarks to the Essai are particularly important, because they show him protesting against the established view of moral education and suggesting confidently that some absolute moral standard valid for all mankind can be evolved by an examination of the nature of man, and (as the title of Shaftesbury's work implies) an enquiry into the nature of virtue and merit.

Dedicatory letter

In the letter to his brother, since his brother was an abbe and, from what we know of Diderot's disputes with him throughout his life, an irascible and intolerant abbe at that, Diderot naturally examines the relationship between religion and this moral code which Shaftesbury has built up. Diderot's point here is that adherence to the dogmas of Christianity is certainly not necessary to the practice of virtue and that the religious life, carried to the extreme of fanaticism as it so often is, may be directly opposed to a life of virtue. Enlightened religious feeling he admits he has no quarrel with:

"Oui, mon frère, la religion bien entendue et pratiquée avec un zele éclairé, ne peut manquer d'éléver les vertus morales." (2)

Such a religion is the ally, not the enemy, of the philosopher, who accepts the necessary dichotomy between the realm of religion and the realm of reason, and as a social duty, respects both:

"En bon citoyen, il a pour eux de l'attachement et du respect." (2)

Here we see Diderot anticipating criticism from the severely religious such as his brother, justifying his position as a "philosopher", a name which he henceforth bore with pride, and parrying a possible attack on his morals most effectively, attack being the best means of defence: he immediately inveighs against the faults of religion carried to excess. In a phrase which sounds like a veiled warning to his brother, he points out the terrible affects of fanaticism: although he says, (with doubtful sincerity) religion is as far from fanaticism as philosophy

(2) Ibid, p. 9
from impiety, fanaticism soon leads to barbarism. His definition of barbarism is significant for its social emphasis. Barbarism dulls a man not only to the beauties of nature and art, but also

"aux douceurs de la société." (1)

Diderot's ethic being a strongly social one, which condemns misanthropy as one of the worst vices, barbarism is obviously by this definition one of the worst crimes possible. He criticises the harshness of a religion, Christianity being implied, which reduces its devotees to barbarism, suppressing the natural cheerfulness of life and evoking only le spectre of religion. He quotes Montaigne to substantiate his claim that religious fanaticism is more injurious to true religion than the excesses of so-called barbarians because

"l'incredulité combat les preuves de la religion; cette inquisition [of religious fanatics who destroyed any books which conflicted with their religious beliefs] tendait à les anéantir."

This complaint against the barbarism of Christian fanatics leads Diderot to the large-scale massacres perpetrated in the name of religion which have dehumanised men, causing them to ignore their natural duties to others

("violé les sentiments de l'humanité,") (2)

Diderot now returns to true religion, in the sense in which he insists both he and the abbe must understand it. As he said at the beginning of the letter, true religion is the ally of philosophy. As he expresses it here,

"La religion et la morale ont des liaisons trop étroites pour qu'on puisse faire contraster leurs principes fondamentaux."

(2)

He goes on to lay down the basic point of the argument of the Essai, the identity of religion, virtue and happiness:

"Point de vertu sans religion; point de bonheur sans vertu." (2)

Having thus attempted to forestall criticism by his brother and other devout critics similarly suspicious of philosophy, Diderot ends the letter with a graceful compliment to his brother, notable more for its hopefulness than its accuracy:

"Ennemi de l'enthousiasme et de la bigoterie, vous n'avez point souffert que l'un se retrécît par des opinions singulières, ni que l'autre s'épuisât par des affections puériles." (2)


(2) Ibid. p. 10.
This letter has shown Diderot's claim that the Essai rests on the liaison between religion, virtue and happiness. We shall see in the Essai that Shaftesbury uses the first of these terms in the widest possible sense, as a vague theism, certainly not in the sense of the Christian dogmas. Both Shaftesbury and, more cautiously, Diderot show up the absurdity of many of the Christian doctrines and the tendency they have to encourage fanaticism. Shaftesbury's essay is concerned not with a religious ethic, except in the wide sense of theism, but with an ethic founded on reason, not revelation, and on man's natural tendency towards virtue.

Discours préliminaire

The Discours préliminaire to the Essai, like the dedicatory letter, illuminates several aspects of Diderot's thinking at this time. He opens with a complaint about the poor state of moral education in France. True, he says, there is a profusion of moral treatises, but these fail to set out any basic principles of moral guidance.

"Nous ne manquons de longs traités de morale; mais on n'a point encore pensé à nous en donner des éléments." (1)

He divides moral works into two groups, and censures them both. Firstly there are those which present for pupils' consumption unquestioned moral dogma, without showing any basic reasoning behind their conclusions:

"Ces conclusions futiles qu'on nous dicte à la hâte dans les écoles, et qu'heureusement on n'a pas le temps d'expliquer." (1)

These he represents by the philosophical works of Edmé Pourchot, the Institutiones philosophicae.(2) Secondly, and slightly more useful,

(1) A-T, I, p. 11.

(2) Edmé Pourchot (1651-1734) was a University teacher and philosopher of Cartesian beliefs. He taught philosophy in the Collège des Grassins, and was then appointed to the Collège des Quatre-Nations, in Paris. In his classes he taught the "new philosophy" of Descartes and his followers, maintaining the importance of mathematics and physics against the traditionally narrow curriculum of the school-men. His Institutiones philosophicae appeared in 1695. Although Pourchot was certainly more forward-looking than many of the teachers of his time, Diderot is here objecting to his dogmatic approach to the teaching of morals without a reasoned set of principles to support them.
there are the seventeenth-century moralists' collections of axioms and moral judgments, usually pointing out the sinfulness of man, which again lack the important requirement of a set of ordered moral principles behind them. Their other fault is that they are merely concerned with showing human nature, not with reforming it. Diderot is here implying his belief that the philosopher can establish some sort of absolute moral code, clearly based on a set of principles, and that Shaftesbury has achieved just such a work. Diderot now goes on to insist on the uselessness of the contemporary system of education, where morals are neglected and subjects with no practical application are taught instead. He complains how ill-equipped for the complexities of society is the young, inexperienced man straight from his so-called philosophy course, who is immediately

"jeté dans un monde d'athées, de déistes, de sociniens, de spinoisistes et d'autres impies; fort instruit des propriétés de la matière subtile et de la formation des tourbillons, connaissances merveilleuses qui lui deviennent parfaitement inutiles; mais à peine sait-il des avantages de la vertu ce qui lui en a dit un précepteur, ou des fondements de la religion ce qu'il en a lu son catéchisme." (2)

It will be Diderot's task, in his translation of Shaftesbury's Enquiry and his later writings on morals (though he will never have the confidence to attempt a full-scale moral treatise) to reveal these "avantages de la vertu," to show man the identity of virtue and happiness and the basic principles on which this identity rests. Diderot next points out the ridiculous state which education is in, where logic, metaphysics, physics and geometry have advanced with man's learning, freeing themselves from the trammels of scholasticism, while the teaching of morals is still so unsatisfactory. He appeals to educationalists to benefit mankind by founding a science of morals, and introduces the Essai by suggesting that it would form a useful part of the curriculum:

"Heureux, si cet essai trouve place dans la multitude des matériaux qu'ils rassembleront!". (2)

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(1) A-T, I, p. 11.

(2) Ibid, p. 12. He probably had in mind such teachers as P. Poliniere (1671-1734), who taught at the Collège d'Harcourt from 1703 or 1704 to 1733. He combined an empirical method with frequent mention of such concepts as tourbillons and matière subtile. (see Blake T., Hanna, 'Polinière and the Teaching of Experimental Physics at Paris', Eighteenth Century Studies Presented to Arthur M. Wilson, ed. P. Gay, New Hampshire, 1972-)
This leads him to preface the *Essai* by some of his own comments on various points which particularly concern him and which, he feels may provoke hostility if not properly explained. He repeats his conception of the core of the *Essai*:

"Point de vertu, sans croire en Dieu; point de bonheur sans vertu: ce sont les deux propositions de l'i'llustre philosophe dont je vais exposer les idées." (1)

This he expands with slight but significant modifications:

"Le but de cet ouvrage est de montrer que la vertu est presque indivisiblement attachée à la connaissance de Dieu." (1)

- the "presque" here perhaps weakening the force of the statement and suggesting that the first proposition is not as important as the second, which is

"que le bonheur temporel de l'homme est inseparable de la vertu." (1)

Again with the addition of a word, in this case "temporel", Diderot is giving the phrase a special emphasis. He is stressing the human, natural side of the *Enquiry*, because Shaftesbury is concerned with man here on earth, not with the Christian doctrines of salvation, although neither he nor, at this stage, Diderot turns against religion so far as to subscribe to atheism. They both profess to abhor atheism and call themselves theists. But despite their belief in a God, the emphasis of Shaftesbury's and Diderot's thinking is on a secular ethic, a set of morals founded on the nature of man as he is known to us, and not on the theologians' conception of him. Neither of them makes any appeal to the tenets of established religion, being only

"près d'admettre la révélation." (2)

Instead they build up a picture of man and society and the temporal gains for both that the practice of virtue will bring.

In these introductory remarks, Diderot goes on to expose as his adversaries two classes of people, both of whom deny his basic precept

"point de vertu sans religion, point de bonheur sans vertu."

These are men who claim that virtue can exist without religion,

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(2) Ibid. p. 13.
"des athées qui se piquent de probité",
and men who claim that happiness can exist without virtue,
"des gens sans probité qui vantent leur bonheur." (1)
As we shall see, Diderot partly withdraws his accusations against the first class of people, by admitting that there can be virtuous atheists who conform to the all-important standard of social usefulness, but the second class are his constant target. Diderot next points out that such an aim, to prove the inextricability of religion, virtue and happiness against these adversaries, is important for two reasons. Firstly, he goes back to his argument in the dedicatory letter, where he maintained with Montaigne's backing that religion is endangered more by its excess, inhuman fanaticism than by the actions of the godless. As he puts it here,
"la corruption des moeurs est plus funeste à la religion que tous les sophismes de l'incredulité." (1)
For the sake of the safety of religion, therefore, Shaftesbury's enquiry into the nature of virtue is a valuable work. Secondly, interrelated with the safety of man's religious order is the safety of his social order. Virtue not only makes the individual happy; it also benefits society as a whole and enables men to act as they should, according to their nature as social beings, as members of a harmonious society:
"Il est essentiel au bon ordre de la société que tous ses membres soient vertueux." (1)
Thus for two reasons, religious and social, Shaftesbury's Enquiry is an important contribution to the good of mankind.

Diderot has now explained the choice of the Enquiry by showing its value. It now remains for him in this preface to anticipate criticism and bring out what is for him the true meaning of the essay. This he does by means of the introductory reflections which follow, and by the notes to the text:
"De crainte que des préventions fondées sur la hardiesse de quelques propositions mal examinées n'étouffent les fruits de cet écrit, j'ai cru devoir en préparer la lecture par un petit nombre de réflexions, qui suffiront, avec les notes que j'ai repandues partout où je les ai jugées nécessaires, pour lever les scrupules de tout lecteur attentif et judicieux." (1)

First reflection

The core of the essay is "la vertu" or, more particularly, "la vertu morale," which Diderot here introduces as a basic human quality not dependent on the doctrines of Christianity. He stresses his contention that virtue has been attained without the help of revelation, drawing on the Church's own pronouncements on the virtuous pagans:

"cette vertu que les saints pères mêmes ont accordée à quelques philosophes paiens." (1)

He repeats his conviction that the cult of Christianity, tending toward fanaticism, has diverged from the practice of virtue, to the detriment of true religion:

"vertu, que le culte qu'ils professaient, soit de coeur, soit en apparence, tendait à détruire de fond en comble, bien loin d'en être inséparable." (1)

Diderot ends this paragraph with another expression of the important maxim stated in the previous paragraph,

"point de bonheur sans vertu":

"vertu, que la Providence n'a pas laissée sans récompense, s'il est vrai, comme on le prouvera dans la suite, que l'intégrité morale fait notre bonheur en ce monde." (2)

This belief in the identity of virtue and happiness, and the consequent misery of the evildoer, was to remain at the centre of Diderot's moral thinking throughout his life, as he himself later testified. (3)

Second reflection

Diderot attempts to define "intègre ou vertueux," words which he uses synonomously to describe an enlightened self-interest, which causes men to recognise that their individual good and the good of society are inextricably connected, that in seeking their own eventual happiness they are in fact promoting that of society. He supports this by quoting Cicero. The important

(2) Ibid. p. 13.
(3) See A-T, Vol. VI, p. 438, where Diderot looks back ruefully on his constant attempts to equate virtue and happiness: "J'étais bien jeune lorsqu'il me vint en tête que la morale entière consistait à prouver aux hommes qu'après tout, pour être heureux, on n'avait rien de mieux à faire que d'être vertueux; tout de suite je me mis à méditer cette question, et je la médite encore." (1769)
question of the value of punishments and rewards as incentives to virtue is mentioned here. Diderot maintains that it is obvious that true virtue will not be inspired by "un motif bas et servile" (1)
such as the hope of a reward or the fear of punishment. On this point he refers the reader to the third section of the first book of the essay, where Shaftesbury discusses the motives man may have for virtuous action and, although rather unconvincingly excluding Christianity from his censure, condemns the system of ultimate rewards and punishments as ignoble.

Third reflection

Diderot reveals how his idea of virtue applies in a specifically religious context, thus illustrating his maxim "point de vertu sans religion." The only religion suitable to Shaftesbury's conception of virtue is, he says, theism, which he sees as a sort of basic religion, free from dogma and loving virtue for its own sake, not for the sake of authority. Diderot refers to Shaftesbury's other writings to clear up the confusion between deism and theism:

"Le déiste, dit-il, est celui qui croit en Dieu, mais qui nie toute révélation: le théiste, au contraire, est celui qui est près d'admettre la révélation, et qui admet déjà l'existence d'un Dieu." (1)

This explanation protects both Diderot and Shaftesbury from any accusation of irreligion. Although in their arguments they always appeal to man's reason and not to revelation, they do not antagonise their Christian readers by refuting the doctrines of the faith; they merely ignore them. Theism, Diderot claims, is a prerequisite for all religious belief including Christianity, which is after all not contrary to reason. He quotes Shaftesbury in the original to prove that theism is the ally, not the enemy, of Christianity, recalling his statement in the opening lines of the dedicatory letter that philosophy and religion are not opposed.

Fourth reflection

Having refuted in advance the possible charges of atheism and deism, Diderot makes his fourth and final reflection, where he repeats his belief that the first step towards a conversion to Christianity is a conversion to

theism, a rational conviction of the advantages of virtue and the disadvantages of vice:

"Voilà donc le lecteur conduit à la porte de nos temples. Le missionnaire n'a qu'à l'attirer maintenant au pied de nos autels: c'est sa tâche. Le philosophe a rempli la sienne." (1)

And he proceeds to his translation of the Enquiry.

Of the two books of the essay, the first attempts to define moral virtue, the second to determine the practical problems of persuading men to be virtuous.

BOOK ONE According to Shaftesbury, the first principle of morals is theism, as he shows in his conclusion to Book One:

"On ne peut donc atteindre à la perfection morale, arriver au suprême degré de la vertu, sans la connaissance du vrai Dieu." (2)

Part I, Section I Book One therefore begins by considering virtue in terms of its relationship with religion.

It is in fact a discussion of the maxim "point de vertu sans religion," which Diderot had stated several times in his Discours préliminaire. Yet the link between virtue and religion is often obscure. We immediately notice Shaftesbury's extreme distrust of the so-called piety of Christians. Diderot, anxious not to draw down the censure of the Church, constantly qualifies Shaftesbury's attacks on religious fanaticism by excluding Christianity from all his accusations. Shaftesbury points out that, although there should be strong links between existing religions and virtue, these are in reality tenuous. He exemplifies this by the case of religious zealots who lead wicked lives, and of people who ignore religion and yet behave virtuously. A sensible, man-of-the-world attitude, he suggests, will be to distrust the common association of virtue and religion:

"M*** a de la religion, dites-vous; mais a-t-il de la probité?" (3)

Here Diderot intervenes with a note to protect the Christian religion, by pointing out that, of all the religions of the world, it is the only one whose principles

(1) A-T, I, p. 16.
(2) Ibid. p. 63.
(3) Ibid. p. 17-18.
are completely in accord with the principles of virtue:

"Si le Christianisme était un culte universellement embrassé, quand on
assurerais d'un homme qu'il est bon chrétien, peut-être serait-il absurde
de demander s'il est honnête homme; parce qu'il n'y a point, dirait-on,
de christianisme réel sans probité." (1)

We should notice here that, despite his apparent orthodoxy, Diderot betrays his
latent hostility to many aspects of Christianity by the unsure tone of the
sentence: by such words as "peut-être" and "dirait-on" he diminishes the force of
his argument.

Shaftesbury points out the difficulty of his task which is, in this first
book, to examine the links between virtue and religion and ascertain if the
two are mutually dependent. The difficulty is due not only to the complexity
of the topic, but to a more practical reason, the quality of his readers. At
one extreme there are the devots who, alarmed by the boldness of modern
writers, refuse to listen even to a moderate theist like Shaftesbury; at the
other, there are the mondains who reject all religion as cant. Diderot
confirms this in a note where he examines still further the position of a
writer of that time trying to write about virtue and merit, and concludes
that it is better to leave the subject alone unless one is a really competent writer
who cannot be diverted by the malicious attacks of his adversaries. No
defence of morals, says Diderot, is better than a bad one. This is the
principle he was to adhere to in later life, where he never had the courage
to write a moral treatise. (2)

Section II The theist, in Shaftesbury's definition, believes in a God,

"L'être tout-puissant dans la nature, et qu'on suppose la gouverner
avec intelligence et bonté", (3)
a being who permits no absolute evil in the universe.

Here Diderot repeats the importance of distinguishing between the deist
and the atheist. (4) The rest of the paragraph is devoted to defining other

(1) A-T, I, p. 18, Note 1.
(2) "J'y ai déjà pensé; mais je n'ai rien encore trouvé qui me satisfasse. Je tremble
lorsqu'il me vient à l'esprit que, si la vertu ne sortait pas triomphante du
parallèle, il en resulterait presqu'une apologie du vice." 9 January 1759, Roth,
(4) Ibid, Note 1.
religious attitudes. The atheist, Shaftesbury continues, recognises no order in the universe, the polytheist recognises several intelligent, benevolent powers, the demonist believes in evil powers. But Shaftesbury mistrusts these water-tight compartments because, as he points out, the opinion of a man is extremely flexible. One may be more atheist than theist, without being decidedly or consistently one or the other. Diderot takes this up in a note expanding the different combinations of religious belief, which indicates his own flexibility and open-mindedness, traits which he was never to lose and which have caused him to be considered changeable and even hypocritical:

"Le théisme avec le démonisme. Le dénomisme avec le polythéisme. Le déisme avec l'athéisme. Le démonisme avec l'athéisme. Le polythéisme avec l'athéisme." etc. (1)

Part II Section I To be virtuous, man must be a worthy part of society.

In this section, Shaftesbury moves from his consideration of specific religious sects to a general philosophical discussion of the nature of man. It is here that the essentially social quality of his ethic emerges. It is true that, looking for the extreme case, he imagines a completely solitary being, with no links with society, who he grudgingly admits may be considered to be good if he really does form no part of a society. But as soon as he is seen as a part of the whole, this creature is bad, because it is denying its sociable nature and shunning its fellows. Diderot agrees to this principle that man is a part of society, but here in a note (2) he softens the austerity of Shaftesbury's demands. He defends the passions, presenting the case of the mondain, the sociable man par excellence who passionately loves his God, his king, his country, his parents, his friends, his mistress and himself.

"J'aime les plaisirs honnêtes",
says Diderot for the mondain - good food, entertainments, the theatre. He has led a virtuous, cheerful life and, by the fulfilment of his honest desires,

(2) Ibid, p. 25, Note 1.
has been just as useful to society as a man who sacrifices his pleasures.

Shaftesbury extends his conception of man as a part of society to cover the whole of nature. Everything must be considered in relation to the universe as a whole. This Diderot agrees with, calling evidence on the conclusions of all the philosophers, that

"Dans l'univers tout est uni." (1)

This belief forms the basis for the optimistic justification for the existence of evil which he presents here. All apparent evils are relative to the great whole which is the universe. What seems to us to be an absolute evil has in fact its own particular use in the scheme of things, a use which we from our limited viewpoint cannot understand:

"Donc l'ordre universel des choses n'en est pas moins réel et parfait." (1)

Arguments against this, which dismiss the order of the universe as a more chimera caused by man's desire for explanations, are scornfully dismissed as

"ignorante témérité." (1)

In a note to Shaftesbury's conclusion that there is no such thing as an absolute evil (2), Diderot rejects the arguments of atheists and Manichaean (who maintain the opposite) as presumptuous, based on imperfect knowledge, and counsels humility and caution in discussions on the existence of evil. He likens the atheist to the ignorant Mexican who, awakening to find himself becalmed in the ocean, treats the anchors, sails, masts and other complicated equipment of the ship as

"poids incommodes et superflus", (2)
in ignorance of their true usefulness. The atheist, he implies, cannot, because of the limits of human knowledge, see the design of the universe any more clearly than anyone else, and should admit that what he considers evils could well have their higher usefulness.

(2) Ibid, p. 27, Note 1.
Section II  The total lack of self-interest is not in accord with the good of society.

Shaftesbury begins this section with a discussion of self-interest. The standard for judging whether a man following his own interests is virtuous or vicious is obviously, man being a part of society, the effect of his actions on society as a whole. Diderot here adds a note on the homme intéressé, complaining that moralists refuse to draw any conclusions from their discussions of self-interest because they merely spend their time re-phrasing the self-evident proposition that man's natural instinct for self-preservation does not preclude virtue:

"Nous sommes tous d'accord que la créature peut s'aimer, peut tendre à ses intérêts, et poursuivre son bonheur temporel, sans cesser d'être vertueuse." (1)

What is needed, Diderot suggests, is an analysis of l'intérêt and l'amour-propre, a consideration of human nature, so that the moralist can proceed in his practical task of educating mankind towards virtue. Shaftesbury further points out that the lack of self-interest is just as much a vice as its excess, because it too harms society. Later in the Essai he elaborates on this point. (2) At this stage, he contents himself with the example of the man who refuses to carry out his social duty of the propagation of his kind. Diderot cautiously modifies this, defending the purity of the motives of Christian celibates who, he says,

"se sont éloignés du sexe par un esprit de continence."

not out of a vicious

"dépravation dans le tempérament." (3)

Diderot here perhaps, beneath the guise of a defence of celibacy, is subtly drawing attention to the possible harm Christianity can do by his very mention of the subject in this context. The study of the notes as a whole, and of the modifications introduced into the text, lead one to the conclusion that

(1) A-T, I, p. 29, Note 1.
(2) Ibid, p. 70-71...
(3) Ibid, p. 29, Note 2.
their motive is sometimes prudence, sometimes irony. Shaftesbury's idea of virtue consists of following in moderation one's own desires, which, according to his hopeful view of mankind, are in general compatible with one's duty to society. To his mention of natural goodness and evil, Diderot adds a note (1) on the three types of goodness, stressing the rational nature of the third, which is virtue. There is a "bonté d'être" (a creature being as it should by nature be), "une bonté animale" (a creature carrying out deliberate actions without deliberate choice) and "une bonté raisonnée" belonging only to man, since he alone possesses reason. This last type of "bonté" is called virtue. In all men rational virtue can overcome faults of the temperament, thus showing the falsity of the claim that some men, born evil, cannot be expected to attain virtue. On the contrary, the more depraved one's temperament is, the more one qualifies for the name of virtuous, if one uses one's understanding to cultivate virtue:

"Nous naissions tous plus ou moins dépravés; les uns timides, ambitieux et colères; les autres avaries, indolent et teméraires; mais cette dépravation involontaire du tempérament ne rend point, par elle-même, la créature vicieuse," (1)

Here we see the rationalistic nature of Diderot's ethic at this time. Virtue is something chosen, an impulse which certainly comes from our instinctive moral sense, but which is guided by the intellect.

Section III The beauty of an action depends on the motive behind it.

In this section Shaftesbury elaborates on his conception of virtue to claim that by our intellect and our natural appreciation of beauty we must all be able to agree on an absolute moral standard. Just as some objects, he says, are without doubt beautiful, so some human actions are indisputably beautiful. This is tantamount to a belief in moral and aesthetic absolutes. Diderot adds a first note to the section upholding the belief that men are naturally attracted by virtue: after all, he argues, the very philosophers who dispute its existence are in fact acting according to the promptings of virtue, for what self-interest could inspire them to take up their unrewarding task

of trying to enlighten mankind? (1) In a second note to Shaftesbury's same sentence, he discusses the question of beauty and ugliness, drawing the same conclusions in the field of art as he has in morals - that there are absolute standards. Even if it is not a question of likeness, as for example in the portrayal of non-existent creatures, there are criteria by which a painting is ugly or beautiful to all its beholders. (2)

Shaftesbury now repeats the conception of virtue sketched out in the previous section. It is an intellectual quality, supported by our "sentiment intérieur", our natural appreciation of the beauty of virtue. Here Diderot is using a new phrase which became popular in France in the eighteenth century, "sentiment intérieur", to elucidate Shaftesbury's text, which has no such definite title for this instinctive appreciation. Shaftesbury merely suggests that the heart cannot help choosing virtue when the passions are still:

"In these vagrant characters or pictures of manners, which the mind of necessity figures to itself and carries still about with it, the heart cannot possibly remain neutral; but constantly takes part one way or other. However false or corrupt it be within itself, it finds the difference, as to beauty and comeliness, between one heart and another, one turn of affection, one behaviour, one sentiment and another; and accordingly, in all disinterested cases, must approve in some measure of what is natural and honest, and disapprove what is dishonest and corrupt." (3)

Instead of merely using the translation for "heart", le coeur, Diderot makes Shaftesbury's suggestion more of a definite theory by his use of a label for such an intuition, the sentiment intérieur:

"Mais le coeur regarde-t-il avec indifférence les esquisses des moeurs que l'esprit est forcé de tracer, et qui lui sont presque toujours présentes? Je m'en rapporte au sentiment intérieur. Il me dit qu'au besoin dans ses jugements que l'esprit dans ses opérations, sa corruption ne va jamais jusqu'à lui dérober totalement la différence du beau et du laid, et qu'il ne manquera pas d'approuver le naturel et l'honnête, et de rejeter le déshonnête et le dépravé, surtout dans les moments désintéressés." (4)

(2) Ibid, Note 2.
(4) A-T, I, p. 34.
Virtue, Shaftesbury continues, as well as being a natural inclination, is the ability to make a deliberate choice of action, based on our understanding of the identity of private and public interests. Merely to produce a good action does not imply that one is virtuous: everything depends on one's motives. As he said earlier,

"quelque avantage que l'on ait procuré à la société, le motif seul fait le mérite," (1)

From this discussion of virtuous acts proceeds Shaftesbury's definition of their opposite, anti-social acts, which may often be prompted by the demands of religion, which both Shaftesbury and Diderot see as unnatural and cruel; the demands of nature, on the other hand, require of man only that they follow the reasonable, beautiful path of virtue. As Diderot says,

"Domptez vos passions, dit la religion; conservez-vous, dit la nature." (2)

Again he inveighs against the excesses of religious zeal, which leads men into superstitious self-immolation. In another note a few lines later, (3) Diderot's veiled criticism of Christian dogma again reveals his belief in an absolute moral standard. An Egyptian, he says, is morally wrong to worship a cat, a crocodile, or an onion, although this is right according to the standards of his society. As a human being, according to Diderot, he must determine what is right and wrong and act accordingly. Besides setting up absolute moral standards, this note obviously implies a similar warning against blind compliance to the demands of Christianity, which may be just as ridiculous as the Egyptian customs. Diderot, anticipating criticism, covers himself by ending on a pious note praising Christianity above all other religions.

Section IV

A man is all the more virtuous if he has a particularly passionate temperament to overcome.

Diderot has already made this point in a note (4) Shaftesbury's discussion

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(2) Ibid. p. 38 Note 1.
(3) Ibid. p. 39, Note 1.
(4) Ibid. p. 30, Note 1.
of virtue has led him to conclude that it exists in some measure in all men, waiting to be drawn out; that even criminals, renegades from society, have their own social code, and that there is no such creature as an absolutely evil man.

Part 3 Section I: Man may be corrupted in various ways, but never completely and irrevocably.

Shaftesbury's discussion of virtue has revealed his great faith in the goodness of mankind. Man being equipped with both reason and the instinct towards virtue, the problem of the evil-doer, which will later preoccupy Diderot, scarcely exists in Shaftesbury's moral thought. Nevertheless, the state of society forces him to admit that all men are not virtuous as they logically should be. The reason for this is, he says, that they have been influenced in various ways and therefore incline more to virtue or vice. In fact, education has great power over men. Shaftesbury proceeds to consider the ways by which men become corrupt. The natural appreciation of virtue can never be completely eliminated:

"Le sentiment d'injustice et d'équité nous étant aussi naturel que nos affections, cette qualité étant un des premiers éléments de notre constitution, il n'y a point de spéculation, de croyance, de persuasion, de culte capable de l'annihiler immédiatement et directement." (1)

Section II: But this quality may be depraved by evil custom and education.

This Diderot supports in a note in which he quotes two examples of foreign societies which condone evil customs. Since Diderot at this stage is so firm in his belief in an absolute moral standard, he sees such examples as proof of the power of education and habit to obscure this standard; later, in the Lettre sur les aveugles, his view-point will shift, and the possible existence of a society of blind people with different morals to our own will suggest something quite different - that morals may well be merely arbitrary and fluctuate among different societies. At this early stage, however, he still believes with Shaftesbury that men are naturally able to perceive virtue, whatever their upbringing, as the pursuit of one's own and society's good, and that there can be no question about what is right and wrong:

(1) A-T, I, p. 43-44.
"Si le bien public est notre boussole, il est impossible que nous errions jamais dans les jugements que nous porterons de la droiture et de l'injustice." (1)

Section III: The system of rewards and punishments can, like bad education and habit, be an explanation for the corruption of some men.

Shaftesbury begins by moving far away from the rigidity of his original proposition, "point de vertu sans religion," showing that his adherence to this maxim was probably prompted more by his reluctance to antagonise his readers by breaking completely with Christianity and thereby bringing his whole philosophical system into disrepute, than to any deep-seated conviction of its truth. Here, with Diderot's agreement, he suggests in very moderate terms that a love of virtue can be completely independent of any notion of God's existence. Diderot supports this by a double argument. (2) Firstly, experience tells us that this has actually happened:

"Qu'une société d'hommes n'ait eu ni dieux, ni autels, ni même de nom dans la langue pour désigner un être suprême; qu'un peuple entier ait croupi dans l'athéisme longtemps après avoir été policé; c'est ce qui est arrivé."

Secondly, there is no reason why a notion of God's existence should suggest itself to man. It may not occur to himself to attribute the order of the universe to the handiwork of a creator. He may have other, more practical concerns, before he can take the time to speculate on metaphysics. Meanwhile, his natural understanding of virtue will have led him to notions of right and wrong.

Shaftesbury now turns to the effect which religion may have on men once they begin to have some notion of the existence of a God. If based on a system of rewards and punishments, it may have a corrupting effect; if based on Shaftesbury's principle of the identity of public and private good, it will on the other hand be compatible with a virtuous life. Although Shaftesbury believes that virtue is rewarded by temporal happiness, the satisfaction of a peaceful conscience, he objects strongly to the traditional Christian belief in eventual rewards and punishments in the here-after according to a man's actions on earth. To him, this is a degrading system of bribery and threats, implying

(1) A-T, I, p. 49.

(2) Ibid. p. 49, Note 1.
the existence of a cruel God.

"As long as the reward of virtue comes here and now, he accepts it as part of the beautiful order of things; remove it beyond this life, and he rejects it with disdain." (1)

The belief in eventual rewards and punishments Shaftesbury shows to be in direct opposition to his own moral system, which is of course applicable to polite society, honourable men, and not to the common people, for whom it may be acceptable. If man acts not out of virtue but out of a servile self-interest, he loses all concern for the good of society and all virtue, becoming a narrow-minded zealot. He degrades himself by abandoning virtue and making a bargain with God:

"Je résigne à Dieu ma vie et mes plaisirs présents, à condition d'en recevoir en échange une vie et des plaisirs futurs qui valent infiniment mieux." (2)

A few pages later, he repeats his disapproval of such a system, with Diderot adding his comment in a note which warns that excessive dependence on the promise of future happiness endangers the whole moral structure which Shaftesbury had built up, because it eliminates the love of virtue:

"On a tant exalté les récompenses qui l'attendaient, que les hommes ont été exposés à n'avoir pas d'autres raisons d'être vertueux. Toutefois, si ce sentiment vient à exclure les motifs plus relevés, tout mérite semble s'anéantir dans la créature qu'il dirige." (3)

Nevertheless, despite Shaftesbury's harsh words against the system of rewards and punishments, he admits that the system may not be wholly vicious. A few pages later, with Diderot's support, he excludes Christianity from his condemnation. Meanwhile, he discusses temporal rewards and punishments, of which he approves whole-heartedly. As a means of government, Shaftesbury sees this system as completely above criticism. True, it is inferior to government by example, where those in command inspire the populace to virtue by their own worthy behaviour. But it is a satisfactory means of controlling the populace. Because the rewards and punishments are granted in this life, as a clear and

(1) Basil Willey, Eighteenth Century Background, London, 1940, p. 74.
(2) A-T, I, p. 53.
(3) Ibid, p. 58, Note 1.
direct result of one's actions, it is no longer an insidious moral bribery, as in the case of eventual rewards and punishments, but as a practical way of ensuring the smooth running of the state. Not only does it teach the people that their own interest is inextricably connected with that of society, but it holds up virtue as estimable and vice as abhorrent. This, we should note, is a method of moral education which Shaftesbury finds necessary only for the common people in default of their managing to follow his rational defence of virtue; his more enlightened reader he obviously expects to have no need of such crude sanctions.

Private education should too, like government, depend on a moderate system of rewards and punishments. Shaftesbury warns against excessive severity, advising a judicious choice of threats and caresses as a means of drawing the child to a more intelligent appreciation of the advantages of virtue. The system is here used as a temporary measure, until the child has learned to appreciate rational argument and acknowledge that duty as well as pleasure urges him to live virtuously.

Returning to the system of ultimate rewards and punishments, we now see Shaftesbury toning down his denunciation to exclude Christianity from his condemnation. Christianity is exempt from criticism at this point, he says, because of the spiritual nature of the ultimate reward. Diderot elucidates this with apparent sincerity:

"On peut conclure de cette réflexion, que le christianisme a peut-être été le seul culte établi dans le monde, qui ait proposé aux hommes des récompenses à venir dignes d'eux. Le juif, content du bonheur temporel, ne connaissait guère d'autres espérances. L'Égyptien se promettait, à force de bien vivre, de devenir un jour éléphant blanc. Le païen comptait se promener dans les Champs-Élysées, boire le nectar, et se repaître d'ambroisie. Le mahométan, privé de vin par sa loi, et voluptueux par tempérament, espère s'enivrer éternellement, entre des houris grises, rouges, vertes et blanches. Mais le chrétien jouira de son Dieu." (1)

But the doubtfulness of the "peut-être" of the first line, and the mock-serious accumulation of detail in the last, suggest that Diderot had his doubts about the superiority of Christianity over other religions. The very fact that he puts Christianity on the same level as other religions by discussing them all as various religious cults shows that he is far from having the traditional respectful attitude

to Christianity as completely different from the religions of other societies.

If virtue is not dependent on a belief in the pleasures and pains in the hereafter, then surely atheism is not incompatible with a virtuous life?

Shaftesbury and Diderot both seem in two minds on the question of atheism. On the one hand, they find it a depressing creed, which denies the beauty of the order of the universe and leads to despair:

"Ces idées sombres et mélancoliques doivent influer sur le caractère, affecter les inclinations sociales, mettre de l'aigreur dans le tempérament, affaiblir l'amour de la justice, et saper à la longue les principes de la vertu."

(1)

On the other hand, although it may endanger morals, atheism does not in itself preclude an appreciation of virtue. As we have seen, the principles of virtue may precede man's belief in God. (2) Diderot cites as an example of a virtuous atheist Hobbes, who

"était bon citoyen, bon parent, bon ami, et ne croyait point en Dieu." (3)

Mention of atheism leads Shaftesbury to end Book One with a passage praising theism as the only completely satisfactory religion. The theist believes in the order of the universe, and in the just distribution of rewards and punishments in this life as a consequence of one's actions. This leads the theist to deny, as Shaftesbury had already done,(4) the existence of any absolute evil:

"Quelque effet que l'ordre qui règne dans l'univers ait produit, il ne peut être que bon." (5)

The theist is impelled to admire the beauty of the universe, which is the strongest argument for the existence of a creator. In a note (6) as he has before, Diderot tries to justify the Christian belief in the hereafter. He insists that the existence of temporal rewards for virtue is in fact for the theist a promise

(2) Ibid, p. 49-51.
(3) Ibid. p. 59, Note 1.
(4) Ibid. P. 27.
(5) Ibid. p. 62.
(6) Ibid. p. 60, Note 1.
of rewards to come in the afterlife. To deny, as the atheist does, the necessary happiness of the virtuous man, is to encourage vice and undermine man's belief in the goodness of the universe. Theism, therefore, a belief in a beneficent God, is essential to true virtue:

"On peut donc atteindre à la perfection morale, arriver au suprême degré de la vertu, sans la connaissance du vrai Dieu." (1)

**BOOK TWO**

After his analysis in Book One of virtue as a natural tendency of man, dependent on his appreciation of its beauty as well as on his rational understanding of its advantages, Shaftesbury in Book Two attempts to encourage men to follow virtue:

"Il nous reste à chercher quels motifs et quel intérêt nous avons à mériter ce titre." (2)

**Part I Section I:** Men must merely follow the promptings of their nature, and their "public affections" naturally follow.

Here Shaftesbury stresses the central point of his ethic, its social quality. As Diderot expresses it, society is like a watch, which can function properly only if all its parts are working:

"La mesure du temps est la propriété essentielle d'une montre; le bonheur des particuliers est la fin principale de la société. Ces effets, ou ne se produiront pas, ou ne se produiront qu'imparfaitement, sans une conspiration mutuelle des parties dans la montre et des membres dans la société. Si quelque roue se dérange, la mesure du temps sera suspendue ou troublée; si quelque particulier occupe une place qui n'était point fait pour lui, le bien général en souffrira, ou même s'anéantira; et la société ne sera plus que l'image d'une montre détraquée." (3)

Shaftesbury is determined to refute the suggestion that private interests conflict with those of society, and that to be virtuous men have to suppress their natural desire for happiness. On the contrary, his is an easy path to virtue. All things being perfectly ordered in the universe, (4) it is absurd to suppose that man's interests could be opposed to those of the society of which they form an intrinsic part.

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(2) Ibid. p. 64
(3) Ibid. p. 65, Note 1.
(4) See Ibid. p. 62.
Section II: The moralist should learn to

"anatomiser l'âme", (1)

to examine all kinds of human actions in order to prove the essential point of Shaftesbury's morals, that virtue is rewarded by happiness and vice punished by remorse.

Shaftesbury complains of the lack of curiosity and the inadequacy of our knowledge of the human mind. We recognise easily enough the extremes of guilt and misery, but in ordinary cases our ideas are confused.

To this Diderot adds two notes on the inadequacy of our study of morals, recalling his complaint in the Discours préliminaire to the Essai. Firstly, he shows the expert knowledge a man may have on the subject of an animal, its qualities, defects and relationship to its fellows, while remaining perfectly ignorant of his own species(2) Secondly, he draws the analogy of the surgeon, who practises his anatomy on dead bodies. Thus, Diderot says, we should examine minds in repose, normal reactions, to teach us to understand more extreme states of mind, when the passions are raging. (3)

Section III: The motives of man's actions are the "affections", which are founded either on self-interest or on a concern for the good of the species.

Although Shaftesbury refers to animals, not to men, a point which Diderot notes

("Remarquez qu'il ne s'agit que de l'animal") (4)

what he says can obviously be taken to refer to men in society. He counsels a moderate balance of our motives, a proper

"économie des affections" (5)

excessive natural affections ("affections sociales", as Diderot translates them) or inadequate self-interest are faults just as much as their opposites. But how do we judge when the affections are excessive? Taking his examples from

(2) Ibid. p. 67, Note 1.
(3) Ibid. p. 68, Note 1.
(4) Ibid. p. 70, Note 1.
(5) Ibid. p. 73
animals, Shaftesbury establishes his criterion on the nature of the animal—like the horse, the bull, the bee and the gnat, man must act according to his nature. Some animals are naturally predatory, others flee from their enemies; man, with his power of choice to adapt himself, developing his natural temperament (as we have seen is possible)\(^{(1)}\) may do either as he wishes. Shaftesbury's example of the brave man developing his violence to destroy the tyrants for the good of the republic provokes a note in which Diderot, seeing the political implications of such an example, reminds the reader that he, as a loyal Frenchman, holds no such opinion, that

"Si ce tyran est roi par sa naissance, ou par le choix libre des peuples, il est de principe parmi nous, que, se portât-il aux plus étranges excès, c'est toujours un crime horrible que d'attenter à sa vie." \(^{(2)}\)

Diderot was to retain this caution in political matters; the article *Autorité politique*, for example, despite its claims that the prince belongs to the state and must observe his duty towards his people, \(^{(3)}\) ends by a volte-face in which Diderot condemns any rebellion against a ruler, however unjust he may be. \(^{(4)}\)

Shaftesbury sees the human mind as composed of different "affections", which must be in harmony with one another like the strings of a musical instrument. It is all a matter of balance and moderation. Diderot extends this image to explain how the impulse of one affection reverberates both on the other affections and on other men, just as

"si quand un instrument est d'accord, vous en pincez une corde, le son qu'elle rend occasionne des frémissements, et dans les instruments voisines, si leurs cordes ont une tension proportionnellement harmonique avec la corde pincée; et dans ses voisins, sur le même instrument, si elles gardent avec elle la même proportion." \(^{(5)}\)

When the affections are badly balanced, when the instrument is out of tune,

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\(^{(1)}\) A-T, I, p. 30, Note 1.  
\(^{(2)}\) Ibid. p. 74, Note 1.  
\(^{(3)}\) A-T, XIII, p. 394.  
\(^{(4)}\) Ibid. p. 399  
\(^{(5)}\) A-T, I, p. 75. Note 1.
society is affected and, unlike the societies of the bees or the ants, men act against their own interests and those of their fellows. Here, Diderot adds a note which, although he does not state this in so many words, implies a criticism of the ability Christianity has had to create dissent among societies:

"Les Arabes, pour décider plus souverainement que dans les écoles si les attributs de Dieu étaient ou réellement ou virtuellement distingués, se sont livré des batailles sanglantes (D'Herbelot, Bibliothèque orientale). Celles dont l'Angleterre a été quelquefois déchirée n'avaient guère de fondement plus solide." (1)

In fact, most of men's societies are imperfect and sanction cruelty and superstition. As with his previous mention of savage societies,(2) Diderot produces examples of different cults to demonstrate, not that moral standards differ according to the society, but that men are liable to error, and must be taught that the only way to virtue and happiness is to recognise the identity of their own and society's interests.

To show the validity of this statement, Shaftesbury proceeds to consider, firstly, man's concern for society, his "natural" or "public affections", to prove that they are necessary for his happiness (Part II, Section I); secondly, self-interest, "the affections privées", which if too strong will cause their owner misery (Section II); and thirdly the lack of concern for society and one's own interests, which produces the deepest misery (Section III). The length of the first section, 23 pages, as compared with 12 for the second and five for the third, is significant because it indicates Shaftesbury's interest in man as a social being, who cannot be happy without fulfilling his nature by contact with others.

Part II Section II: The pleasures of the mind are superior to those of the senses.

Shaftesbury first determines what happiness is. He divides it into physical and spiritual happiness. First he shows how superior the pleasure of the mind are to those of the senses; any human beings, barbarians, evil-doers

"et quelquefois les derniers humains" (3) will put the claims of their conscience above those of their bodies, because

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(1) A-t, I, p. 76, Note 1.
(2) Ibid. p. 45, Note 1.
(3) Ibid. p. 79.
physical pleasure is ephemeral and unsatisfying, destroyed by

"le moindre nuage de l'esprit, le plus léger chagrin."

Thus it is not gross physical pleasure which constitutes man's true happiness, but the spiritual satisfaction of acting virtuously, which is obtainable only if one's affections sociales are fully developed. Shaftesbury examines the pleasures of heroism, of friendship, of the communication of one's pleasures, all sources of man's highest happiness and all directly linked to the affections sociales.

All men need friends in order to be happy:

"Quel homme au monde est insensible aux caresses et à la louange de ses connaissances intimes?" (1)

Man's public affections must not be arrested, but developed to the full. If they are faulty, concentrating on the good of some of our fellows only instead of the good of society as a whole, they are unnatural and will bring their possessor only unhappiness:

"Si l'affection partielle ruine la jouissance des plaisirs de sympathie et de participation, ce n'est pas tout; elle tarit encore la troisième source des satisfactions intellectuelles, je veux dire le témoignage qu'on se rend à soi-même de bien mériter de tous ses semblables."
(2)

Shaftesbury's conception of religious satisfaction is likewise indissolubly linked with man's public affections. Religion is healthy and natural only if it is cheerful:

"Si sa nature est consolante et bénigne; si la dévotion qu'elle inspire est douce, tranquille et gaië." (3)

A harsh religion merely oppresses man, damaging his capacity for public affections:

"Le tempérament ne peut qu'emprîner, et ses aigreurs fermenter et s'accroître par la noircor de ces réflexions." (3)

Diderot confirms this in a rather ironical note,(4) where he praises the churchmen of the time, "nos directeurs éclairés", for realising this and using the threat of a vengeful God only for the intimidation of bold sinners; the more

(2) Ibid. p. 85.
(3) Ibid. p. 87.
(4) Ibid. p. 87, Note 1.
timid, he says, are quite rightly reassured by a more gentle religion.

Having shown that the possession of public affections gives man the highest kind of happiness, spiritual joy, and a cheerful faith in a merciful God, Shaftesbury now goes on to show the misery caused by their lack. No man is evil enough completely to lack conscience:

"Plus on aura de faux principes d'honneur et de religion, plus on sera mécontent de soi-même, et plus, par conséquent, on sera misérable." (1)

If any evil-doer is so completely corrupt as to be entirely indifferent to the pangs of conscience, this rare case will be such an unnatural monster that he will be incapable of enjoying any of the intellectual pleasures available to man.

Shaftesbury returns to the physical pleasures, which he had discussed briefly before, (2) to show their inferiority to the pleasures of the mind. Here he shows that, just as spiritual pleasures are dependent on our public affections, so too physical pleasures are unsatisfying if they are separated from the joys of companionship. Debauchery, physical pleasure taken to excess, depends on the sharing of pleasures. Shaftesbury does not present an ascetic ethic which condemns all physical pleasures; on the contrary, if enjoyed in moderation and combined with public affections, they are a permissible source of happiness:

"Les hommes sobres goûtent les plaisirs des sens dans toute leur excellence; et ils sont tous d'accord que, sans une forte teinture d'affection sociale, ils ne donnent aucune satisfaction réelle." (3)

But he does take pains to convince his readers of the limitations of physical pleasures; that, firstly, they are always far inferior to spiritual pleasures, and, secondly, that they soon pall if they are not shared. Solitary pleasures, because they are quite contrary to man's nature, bring only disappointment:

"Quel est le plaisir des sens capable de tenir contre les ennuis de la solitude? Quelques exquis qu'on le suppose, y a-t-il homme qui ne se dégoûte, s'il ne peut s'en rendre la possession agréable en le communiquant à un autre?" (4)

(2) Ibid. p. 79–82.
(3) Ibid. p. 95.
(4) Ibid. p. 94.
Shaftesbury turns again to the animal world to illustrate how men who suppress their public affections are denying their human nature. Animals, he points out, which are tamed and deprived of the need to fend for themselves, lose their bonté naturelle, which we have met under the name of bonté d'être, and become something less than animals. By analogy, rich men who live their lives in idleness and refuse to benefit society by promoting literature, science, art, agriculture, domestic economy or public affairs, lose their vertu, the human equivalent of bonté d'être. They become monsters, not men. Any man who refuses to consider himself a part of society, who denies his public affections, loses not only his virtue but necessarily his happiness:

"L'homme insociable, ou celui qui s'exile volontairement du monde, et qui, rompant tout commerce avec la société, en abjure entièrement les devoirs, doit être sombre, triste, chagrin, et mal constitué." (2)

Although this accords with Diderot's beliefs, he qualifies this according to his usual practice by explaining that this cannot be taken as a condemnation of Christian practices. Christian hermits follow a higher law, "la loi de grâce", which gives them special authority to isolate themselves. As in his other notes on celibates and priests, we can detect an underlying hostility to Christianity in the very fact that he draws the reader's attention to such cases, even if he ostensibly defends them. Shaftesbury takes as a particularly good example of this need of man to confide, the instance of men in high places, such as kings and potentates. Diderot produces the case of Eastern rulers:

"Plongé dans les voluptés, à qui livrent-ils leur confiance? à un eunuque, ministre de leurs plaisirs; à un flatter, à un vil officier." (4)

Section II: The excess of self-interest or the private affections also excludes happiness.

Shaftesbury systematically divides the passions stemming from self-interest into six main categories, the love of life, the resentment of injuries, the desire

(2) Ibid. p. 99.
(3) Ibid. p. 99, Note 1.
(4) Ibid. p. 100, Note 1.
for physical pleasures, the love of material goods, of peace, and of repose. In
harmony with Shaftesbury's consistent principle of moderation, "une économie des
affections," these passions become vices only when taken to their extremes. Firstly
the excessive desire for self-preservation, which in moderation is necessary for
man to survive, may not only damage others, which is self-evident, but also be
against its owner's interests. Such a passion may make him panic and cause his
own destruction:

"le lâche, sans jugement et sans défense, se hâte vers le précipice que
son trouble lui dérobe, et se jette tête baisée dans un malheur qui peut-être
ne venait point à lui." (1)

Besides these practical dangers, there is the psychological point that the coward
suffers agonies of apprehension which the brave man ignores:

"rien n'est plus triste que d'être agité par ces spectres et ces horreurs
qui suivent partout ceux qui redoutent la mort." (1)

Resentment of injuries, which in moderation inspires courage, also becomes a
torment to its owner when taken to excess. Resentment does not bring with it the
satisfaction it seeks, but a continual thirst for yet more vengeance:

"Cette perversité, ce raffinement d'inhumanité, ces cruautés capricieuses, qu'on
remarque dans certaines vengeance, ne sont autre chose que les efforts
continuels d'un malheureux qui tente de se détacher de la roue: c'est un
assouvissement de rage, perpétuellement renouvelé." (2)

According to Shaftesbury, however, there is no need to continue this discussion
because this matter of the miseries of the vengeful man has been done to death
by the preachers. This remark Diderot hastens to assure us applies only to the
inferior Anglican preachers, not to the priests of the French church. (3)

A third aspect of self-interest, which again brings its possessor only misery,
is the love of pleasure. Shaftesbury repeats his assurance that the pleasures of
the senses are limited. If physical pleasures were more enduring than those of
the mind, a point which Shaftesbury has already refuted, their satisfaction would
of course be the source of all happiness. But the over-indulgence of the senses
is clearly shown to be detrimental to man's well-being, ruining his constitution
and multiplying his demands without ever satisfying his real needs. Shaftesbury

(1) A-T, I, p. 103.
(2) Ibid. p. 105.
(3) Ibid, p. 105, Note 1.
criticises the hedonism of the Epicureans, who put all their efforts into the elaborate gratification of their appetities, whereas, if any pleasure is to be obtained by the senses, it will be best, though still inferior to intellectual pleasure, in the healthy appreciation of plain, wholesome food:

"quelques mets communs et grossiers pour ces palais friands, mais assaisonnés par la diète et par l'exercice." (1)

Shaftesbury examines as a special case of physical pleasure the question of sexual instinct. It is not, in fact, strictly speaking, a part of self-interest:

"Animée par l'amour et par la tendresse, ainsi que toute autre affection sociale; aux plaisirs d'esprit, qu'elle est en état de procurer comme elle, elle réunit encore l'enchantement des sens." (2)

Taken to extremes, however, the sexual impulse damages its possessor physically and mentally in much the same way as the other passions caused by the private affections. Man becomes a slave to his desires:

"Sans s'arrêter aux coups que cette frénésie porte à la vigueur des membres et à la santé du corps, le tort qu'elle fait à l'esprit est plus grand encore, quoique moins redouté. Une indifférence pour tout avancement, une consommation misérable du temps; l'indolence, la mollesse, la fainéantise et la révolte d'une multitude d'autres passions que l'esprit énervé, stupide, abrutit, n'a ni la force, ni le courage de maitriser; voilà les effets palpables de cet excès." (3)

Avarice and ambition are examined more briefly, being yet more examples of self-interest which carried to extremes causes only misery:

"Etre dévoré de la soif d'acquérir, soit honneurs, soit richesses, c'est avarice, c'est ambition; ce n'est point en jouir." (4)

Indolence, finally, the excessive love of repose, is demonstrated to be destructive to happiness. The senses are deadened and the indolent man loses all capacity for physical pleasure. Furthermore, indolence destroys one's peace of mind:

"l'indolence afflige l'âme tout en l'occupant; elle s'en empare avec les anxiétés, l'accablement, les ennuis, les aigreurs, les dégoûts et la mauvaise humeur." (5)

(1) A-T, I, p. 106.
(2) Ibid. p. 108.
(3) Ibid. p. 109.
(4) Ibid. p. 110.
(5) Ibid. p. 112.
Shaftesbury has illustrated the misery caused by all passions based on self-interest when they are taken to excess. A moderate, enlightened self-interest accords with the good of society, but such extremes as the lust for vengeance or the excessive love of pleasure harm their possessor as well as society as a whole.

Section III: The unnatural vices are equally unable to bring happiness to their possessor.

As well as the public and private affections, there is a third class of passions, which are completely unnatural because they lead neither to the good of society nor to the gratification of the individual. Shaftesbury divides these into the love of cruelty (what we would now call sadism), gratuitous envy, misanthropy and the vices inspired by superstition. Other vices which do have some foundation in self-interest, but are almost as horrifying as these completely unnatural passions, are tyranny, superstition and treason.

The first of the completely unnatural vices, the gratuitous love of cruelty, is the extreme of a common vice, violence, which as we have seen, has some foundation in nature because it is caused by our natural love of self. This passion becomes completely depraved, however, when it is no longer motivated by any self-interest:

"La malice, la malignité ou la mauvaise volonté seront des passions dénaturées, si le désir de mal faire, qu'elles inspirent, n'est excité ni par la colère, ni par la jalousie, ni par aucun motif d'intérêt." (2)

Similar to this is envy, when not inspired by any personal grievance:

"L'envie qui naît de la prospérité d'une autre créature, dont les intérêts ne croisent point les nôtres, est une passion de l'espèce des précédentes." (2)

Misanthropy, too, is classed as one of these supremely unnatural vices by which man loses all claim to be considered as human. Obviously, because of the sociable nature of Shaftesbury's view of man, it will be one of the worst crimes possible. He has mentioned various forms of it twice already, once in a passage where he denies the name of virtue to any man who isolates himself from society; and again in the section on the lack of public affections, where Shaftesbury has

(2) Ibid., p. 114.
(3) Ibid., p. 24-5.
shown how miserable such a creature must be. (1) He here shows how, taken to its extreme, the desire for isolation becomes an obsession. An unfortunately gloomy temperament, unenlightened by any teaching of tolerance, causes a man to hate his fellows:


Shared among many, it becomes one of the distinguishing marks of barbarism. Diderot was always to share Shaftesbury's low opinion of the morals of the misanthropist, both because of his view of man as an intrinsic part of society and because of his own sociable temperament. His open mistrust of the man who lives alone, cut off from his fellows, was to be one of the factors of his break with Rousseau.

Shaftesbury ends this exposition of the most unnatural crimes by a brief mention of the passions caused by superstition. He turns now to vices which, although they have some tenuous connection with man's love of self, are nearly as bad because they monstrously exaggerate the private affections. Tyrannical cruelty is an example:

"cette sombre fureur, qui s'immolerait volontiers la nature entière; cette noirceur, qui se repaît de sang et de cruautés raffinées; cette humeur fâcheuse qui ne cherche qu'à s'exercer, et qui saisit avec acharnement la moindre occasion pour écraser des objets quelquefois dignes de pitié." (3)

Diderot illustrates this vice by examples from the life of Caligula, who thirsted for glory at the expense of his subjects' lives:

"Jalous d'immortaliser sa mémoire par de vastes calamités, il enviait à Auguste le bonheur d'une armée entière massacrée sous son règne; et à Tibère, la chute de l'amphithéâtre sous lequel cinquante mille âmes périrent." (4)

These violent passions raise a problem which Shaftesbury recognises, because they can be seen as bringing pleasure, even though a vile and inhuman pleasure.

(2) Ibid. p. 115.
(3) Ibid. p. 115-6.
(4) Ibid. p. 115, Note 1.
to their possessors. Shaftesbury refutes this objection, however, by explaining that the pleasure such tyrants gain is in fact illusory, a mere cessation from the torments of animosity, hate and malignity, whereas real pleasure, with no preceding pain to highlight it, is to be gained only through the exercise of virtue. He vividly describes the torments which the evil-doer endures, the ultimate punishment being loneliness, which as far as Shaftesbury's ethic is concerned is the worst possible state for man because it is contrary to his sociable nature:

"que ne souffrira point celui qui porte dans son coeur la solitude la plus triste, et qui trouve, au centre de la société, le plus affreux désert!" (1)

Diderot confirms this by copious examples from the history of the Roman emperors, all of whom were depraved and consequently miserable. Nero, the most evil of them all, was also necessarily the most unhappy:

"Aussi n'y rencontre-t-on pas un moment de bonheur; on le voit dans d'éternelles horreurs: ses transes vont quelquefois jusqu'à l'aliénation d'esprit; alors il aperçoit le Ténare entr'ouvert, il se croit poursuivi des furies; il ne sait où ni comment échapper à leurs flambeaux vengeurs; et toutes ces fêtes monstrueusement somptueuses qu'il ordonne, sont moins des amusements qu'il se procure, que des distractions qu'il cherche." (2)

Shaftesbury closes the discussion of the evil-doer, feeling that he has proved conclusively that evil brings only unhappiness to those who practise it.

**Conclusion:** Shaftesbury here makes his claim that he established an absolute set of morals, an "arithmétique morale," which has been proved by

"Toute l'évidence des choses géométriques." (3)

He has shown every kind of vice, whether caused by the lack of public affections, the excess of self-interest or the presence of unnatural affections, to be the cause of unhappiness; he has set against these the temporal advantages of virtue, in bringing a clear conscience to the virtuous man. And virtue has been shown, logically, to be more profitable to the individual as well as to society than vice. In this conclusion he goes into a digression on scepticism to deny the validity of the sceptics' arguments and maintain the certainty of his own conclusions

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(1) A-T, I, p. 117.
(2) Ibid. p. 118, Note 1.
(3) Ibid. p. 119.
on virtue. Even if we share the idealists' doubts on the existence of things round us, he says, the one thing we are sure of is the process of our mind:

"On n'en viendra jamais jusqu'à balancer sur ce qui se passe au dedans de soi-même." (1)

Shaftesbury supports the Cartesian theory that our existence is proved by our thoughts:

"Nos affections et nos penchants nous sont intimement connus; nous les sentons; ils existent, quels que soient les objets qui les exercent, imaginaires ou réels." (1)

And even if life were merely a dream, we should still act according to the principles of virtue in order to make the dream a pleasant one:

"Nous voilà dans la même obligation d'être vertueux, pour rêver à notre aise." (1)

Diderot here notes the objections of the extreme sceptic, the Pyrrhonist, to this confident, rationalistic approach to the world. We cannot prove the self to be constant:

"Je pense; donc je suis. Cela est vrai. J'ai pensé; donc j'étais. C'est supposer ce qui est en question." (2)

We may imagine that we remember what we have thought and be mistaken – we may have dreamt it. We have no proof that we have thought:

"Vous étiez, sans doute, si vous avez pensé; mais quelle démonstration avez-vous que vous avez pensé? Aucune, il faut en convenir." (2)

Although aware of this objection, which would make it useless to lay down any moral system, any "règles de conduite," Diderot nevertheless decides that what one does in the present will influence what one is in the future.

Shaftesbury ends the Enquiry with a eulogy of virtue:

"la plus attrayante de toutes les beautés, la beauté par excellence, l'ornement et la base des affaires humaines, le soutien des communautés, le lien du commerce et des amitiés, la félicité des familles, l'honneur des contrées." (3)

And in his final paragraph, he resumes his whole argument of the necessary link between virtue and happiness:

(1) A-T, I, p. 120.
(2) Ibid, p. 119, Note 1.
(3) Ibid, p. 121.
"L'homme ne peut donc être heureux que par la vertu, et que malheureux sans elle. La vertu est donc le bien; le vice est donc le mal de la société et de chaque membre qui la compose." (1)

We have followed Diderot's translation of the Enquiry Concerning Virtue and Merit, noting especially his own comments on various points which Shaftesbury raises. Despite his representation of the Pyrrhonist's belief which suggests that all Shaftesbury's work could be in vain, he nevertheless at this stage, 1745, is fully in accord with Shaftesbury's ambition to establish a moral code based on definite principles, principles which he establishes by the **a priori** method of assuming the existence of such rules and producing examples to substantiate them drawn from an examination of human nature.

In the Enquiry, Shaftesbury has two main aims: firstly, to define virtue, and secondly, to show men its advantages. His first aim he accomplishes in Book One, where he reaches the conclusion that virtue is a rational quality, quite distinct from any bonté naturelle, but chosen by man deliberately. The motive determines the moral quality of the act. However, this intellectual conception of virtue is bolstered by a belief in man's moral sense, in his instinctive appreciation of what virtue is, his good taste which enables him to recognise quite intuitively, if his mind is not clouded by excessive passion, the beauties of a virtuous action. His second aim he accomplishes in Book Two, where he sets out to prove that the virtuous man is necessarily happy, and the evil man miserable. By examining the public and private affections, he shows how, if badly balanced, they bring unhappiness both to society and to the individual.

Although Diderot was later to discard Shaftesbury's theism with its faith in the order of the universe and in a benevolent creator as a basis for morality, although with the Lettre sur les aveugles of 1749 doubts were beginning to arise in his mind on the possibility of any absolute moral standards, he retained throughout his life some of Shaftesbury's preoccupations, notably his love of

(1) **A-T**, I, p. 121.
virtue (1) and his conviction that men can be educated to practise virtue by being shown that it is in their own interests to do so. Despite the remark of Tourneux in the introduction to the Essai sur le mérite et la vertu, that "Nous n'avons (...) pas, dans cet écrit, le vrai Diderot",(2) the translation is valuable as evidence of Diderot's search for a systematic morals in this stage of optimistic rationalism before he encounters the ideas of Locke and Condillac and turns to a more scientific, empirical study of man in the Lettre sur les aveugles.

(1) For example, he wrote in a letter in 1760,

"Si le spectacle de l'injustice me transport quelquefois d'une telle indignation que j'en perds le jugement, et que, dans ce délire, je tuerais, j'anéantirais; aussi celui de l'équité me remplit d'une douceur, m'enflamme d'une chaleur et d'un enthousiasme où la vie, s'il fallait la perdre, ne me tiendrait à rien. Alors il me semble que mon cœur s'étend au dedans de moi, qu'il nage; je ne sais quelle sensation délicieuse et subtile me parcourt partout; j'ai peine à respirer; il s'excite à toute la surface de mon corps comme un frémissement; c'est surtout au haut du front, à l'origine des cheveux qu'il se fait sentir; et puis les symptômes de l'admiration et du plaisir viennent se mêler sur mon visage avec ceux de la joie, et mes yeux se remplissent de pleurs."

Correspondance, Roth, Vol. III, p. 156; 18 October 1760.

Chapter II

THE LETTRE SUR LES AVEUGLES

1. DIDEROT'S KNOWLEDGE OF THE MOLYNEUX PROBLEM

Diderot was particularly well-informed on contemporary controversies. One of the most important of these was the discussion over the Molyneux problem. One could enquire where Diderot got his information on this topic, basic information which came from Cheselden's report in the Philosophical Transactions of the Royal Society and was popularised by Voltaire in his Éléments de la philosophie de Newton. In two cases, the original exchange between Molyneux and Locke, and Cheselden's operation, there are several works which Diderot could have consulted. Did he use only the reports of Condillac and that great populariser of philosophical and scientific matters, Voltaire, or did he go back to original sources? He obviously knew Locke's account of the first problem, but was he acquainted with the original of the Essay Concerning Human Understanding as well as Coste's French translation?

One of Diderot's notes to Shaftesbury's Enquiry Concerning Virtue andMerit shows that as early as 1745 he was acquainted with Locke, although probably only indirectly through Coste's translation, which had appeared in 1700. In Part III of Section II, Diderot adds a note to Shaftesbury's exposition of the way evil custom and education may corrupt men. (1) He draws from Locke's Essay examples of savage tribes which condone cannibalism and other atrocities. This, Diderot's first recorded reference to Locke, although unrecorded in the Index to the Œuvres complètes (Assezat-Tourneux), is important. It indicates that Diderot had read at least the early part of the Essay, and found Locke's information useful, without as yet adopting his empiricism in favour of the a priori method of investigation of his present model, Shaftesbury. The note is not a mere paraphrase of Locke which Diderot might have picked up without consulting the Essay; although, with

typical eighteenth-century disregard of such niceties, he omits quotation marks, the note is an almost perfect copy from Coste's translation, Diderot gives the reference as "Book One, Chapter Two, Section Nine", of the Essai philosophique sur l'entendement humain (the title of Coste's version being almost identical, Essai philosophique concernant l'entendement humain), and proceeds:

"Les Topinambous ne connaissent pas de meilleurs moyens pour aller en paradis, que de se venger cruellement de leurs ennemis, et d'en manger le plus qu'ils peuvent, ceux que les Turcs connaissent et mettent au nombre de leurs saints, mènent une vie qu'on ne peut rapporter sans blesser la pudeur. Il y a, sur ce sujet, un endroit fort remarquable dans le voyage de Baumgarten. Comme ce livre est assez rare, je transcrirai ici le passage au long, dans la même langue qu'il a été publié."

Like Locke, he transcribes a long quotation in Latin from Baumgarten. He concludes the note:

"On peut voir encore, au sujet de cette espèce de saints, si fort respectés par les Turcs, ce qu'en a dit Pietro della Valle, dans une lettre du 25 janvier, 1616."

If we compare this note with Coste's text, we notice only four differences, all of them trivial. Three of these are insignificant changes of tense, "connaissent" for Coste's "connaissaient", (which translated a past tense of Locke's, "they believed they merited Paradise") ; "peuvent" for "pourraient"; and "peut" for "saurait". The fourth is the replacement of the phrase "meilleur chemin" by its synonym "meilleurs moyens". Diderot's text is so close to Coste's that it is incontestable that he was using the French translation. Whether he was also at this stage acquainted with the original is another matter. Certainly, despite his knowledge of English, he does not seem to have here referred to it. This is shown by his perpetuation of two mistakes of Coste's which a comparison with the original would have eliminated. Firstly, he follows the chapter numbers of the French translation by referring the reader to Chapter Two of Book One, which is actually Chapter Three of the original: Coste had entitled Locke's introductory first chapter "Avant-propos", and proceeded in this first book to transpose Locke's second chapter as "Chapter One", his third chapter as "Chapter Two" and

(1) J. Locke, Essai philosophique concernant l'entendement humain, transl. P. Coste, Amsterdam, 1700.
so on. Secondly, a small but significant point, he adopts Coste's inaccuracy of spelling of Locke's "Tououpinambos", which has under the translator's pen lost a syllable and changed its ending to become "Toupinambous". There is also in this short passage one omission by Coste. Diderot follows this, leaving out

"They have not so much as a name for God, and have no religion, no worship." (1)

Surely, granting even a carelessness in spelling, if Diderot had consulted the original as well as the French translation he would have noticed the difference in chapter number, and the omission.

Although it is of course impossible to prove by such negative evidence that Diderot relied solely on the French translation for his knowledge of Locke, the implication is possible. This note on Shaftesbury is significant also because it shows that for once Diderot was not using one of his most respected sources of information, Voltaire's Éléments de la philosophie de Newton. As we shall see, this is a work he may well have consulted for his Lettre sur les aveugles. Here, however, he seems to be working separately from Voltaire, who referred to the very same page of the Essay, with quite a different reaction from Diderot's, in his chapter on Natural Religion. Unlike Diderot, he gives no specific reference:

"J'ai toujours été étonné que le sage Locke, dans le commencement de son Traité de l'entendement humain, en rřfutant si bien les idées innées, ait pretendu qu'il n'y a aucune notion du bien et du mal qui soit commune à tous les hommes. Je crains qu'il est tombé là dans une erreur. Il se fonde sur des relations de voyageurs, qui disent que dans certains pays la coutume est de manger les enfants, et de manger aussi leurs mères, quand elles ne peuvent plus enfanter; que dans d'autres on honore du nom de saints certains enthousiastes qui se servent d'ânesses au lieu de femmes; mais un homme comme le sage Locke ne devait-il pas tenir ces voyageurs pour suspects?" (2)

Voltaire obviously had in mind the very passage that Diderot had drawn his examples from, taking his example of cannibalism from the sentence which directly precedes the description of the Tououpinambos:

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"And Garcilasso de la Vega tells us of a people in Peru, which were wont to fat and eat the children they got on their female captives, whom they kept as concubines for that purpose; and when they were past breeding, the mothers themselves were killed too and eaten." (1)

Perhaps this mention of Locke's travellers' tales may have prompted Diderot to have recourse to Locke, or rather Coste, but he adopts neither Voltaire's choice of example nor his sharp criticism of Locke for swallowing such tales so uncritically. It appears, therefore, that Diderot, whether he had come across this passage of the *Eléments de la philosophie de Newton* or not, had read at least the first part of Coste's translation of Locke.

Despite this proof that as early as 1745 Diderot had been consulting Coste, he seems as yet little affected by Locke's philosophy. His interpretation of the very passage under discussion indicates that he sees the examples in a different way from Locke. Locke uses the example of the Tououpinambos to show that there are no innate apprehensions of good and evil, that

"They lie not open as natural characters engraven on the mind; which if any such were, they must needs be visible by themselves, and by their own light be certain and known to everybody." (2)

The whole point of Shaftesbury's *Enquiry*, on the other hand, is to establish the reverse; that man does have a natural, innate moral understanding which is perfectly able, except when depraved by such customs as those of the Tououpinambos, to discern the truths of good and evil. Diderot, although acquainted with Locke's beliefs, was not to indicate that he had come under his influence until 1748, when he praises the experimental method of scientific enquiry in the *Bijoux indiscrets*.(3) In the *Lettre sur les aveugles* we shall finally see him imbued with Lockean principles, and not merely drawing on Locke for an example, as he did in the notes to Shaftesbury's *Enquiry*.

Turning now to the *Lettre sur les aveugles*, we shall examine Diderot's actual references to the relevant parts of Locke, Voltaire and Condillac in order to establish the sources of his information on the blind. Firstly, where did he derive his acquaintance with Molyneux's hypothesis of the blind man who,

newly gaining his sight, would be unable to distinguish between a sphere and a cube? His account of the problem is again, like the note to the *Enquiry*, an almost verbatim copy of Coste's version of Locke. He begins by stating the problem, although without any quotation marks, in almost exactly the same terms as Coste's, with only trivial stylistic alterations:

"On suppose un aveugle de naissance qui soit devenu homme fait, et à qui on ait appris à distinguer, par l'attouchement, un cube et un globe de même métal et à peu près de même grandeur, en sorte que, quand il touche l'un et l'autre, il puisse dire quel est le cube et quel est le globe. On suppose que, le cube et le globe étant posés sur une table, cet aveugle vienne à jouir de la vue, et on demande si en les voyant sans les toucher, il pourra les discerner et dire quel est le cube et quel est le globe". (1)

Where Diderot has "on suppose", Coste had, like Locke, the imperative. His "devenu" replaces Coste's "Présentement", "et à qui" replaces "auquel", "de même métal et à peu près de même grandeur" replaces "du même métal et (...) de la même grosseur", "quand" replaces "Lors qu'", and "pourra" replaces "pourrait". All these are changes not towards the original, but towards Diderot's own improvements of style. He now presents as a quotation from Locke the rest of the problem, and it is again Coste's translation which he uses:

"Ce fut M. Molinoux qui proposa le premier cette question, et qui tenta de la résoudre: il prononça que l'aveugle ne distinguerait point le globe de cube; 'car, dit-il, quoiqu'il ait appris par expérience de quelle manière le globe et le cube affectent son attouchement, il ne sait pourtant pas encore que ce qui affecte son attouchement de telle ou de telle manière doit frapper ses yeux de telle ou telle façon, ni que l'angle avancé du cube qui presse sa main d'une manière inégale, doive paraître à ses yeux tel qu'il paraît dans le cube.'

Locke, consulté sur cette question, dit: 'Je suis tout à fait du sentiment de M. Molinoux; je crois que l'aveugle ne serait pas capable à la première vue d'assurer avec quelque confiance quel serait le cube, et quel serait le globe, s'il se contentait de les regarder, quoiqu'en les touchant il pût les nommer et les distinguer sûrement par la différence de leurs figures, que l'attouchement lui ferait reconnaître.' " (2)

Again, therefore, there is nothing to suggest that Diderot went back beyond Coste's translation to the original, although of course his added interest in Lockean empiricism may have prompted him to examine the original. Both

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(2) Ibid. p. 314-5.
Voltaire and Condillac merely make brief mentions of Molyneux's part in initiating the discussion,(1) before going on, as Diderot does, to their own solution of the problem. R. Niklaus states that, although Diderot has no need to go back beyond Condillac,

"Il semble probable que Diderot a lu Locke (dans l'original anglais ou dans la traduction de Coste) et Voltaire." (2)

Indeed, we have shown that Diderot was definitely using Coste's translation, with no evidence of any recourse to either the original of the Essay or to Voltaire's Éléments de la philosophie de Newton.

The second case to consider is the source of Diderot's information on Cheselden's operation. Again, his reliance on Condillac is plain, his use of Voltaire is likely but not essential and his acquaintance with the original, in this case Cheselden's report, is doubtful. Condillac himself was content with Voltaire's account. Diderot apparently expects us to take his source as being Voltaire, whom he acknowledges in a note;

"Voyez les Éléments de la philosophie de Newton par M. de Voltaire". (3)

In fact, Diderot's account of Cheselden's subject is almost word-for-word with Voltaire's,(4) although as usual Diderot omits quotation marks. He may, however, have been spared the trouble of consulting Voltaire, despite his graceful acknowledgement to him as the source of his information, because Condillac, whom he has obviously been reading closely and whose opinions he goes on to discuss in this section, had reproduced that same passage in his Essai sur l'origine des connaissances humaines.(5) It seems certain, then, that Diderot's main source for Cheselden's operation is Condillac; whether he used Voltaire or not is impossible to say, since all the relevant passages are quoted by Condillac, and Diderot does not draw on any of Voltaire's comments which are not transcribed by Condillac.

That he consulted the original report on the operation by the surgeon himself

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(2) Lettre sur les aveugles, Geneva, 1951, p. 100, Note 42.
Cheselden(1) who was Voltaire's source, is even more unlikely. Again, we have only negative proof; everything which Voltaire has omitted from Cheselden's account, Diderot omits also. Things recorded by Cheselden, which one would expect to interest Diderot enough for him to bring them into the *Lettre*, which is after all more discursive than the *Eléments* and would not suffer from the addition of personal details, do not appear. Cheselden, for example, opens his report with the explanation that his subject was not entirely blind, but had some faint idea of light and colours:

"wherefore the shape of an object in such a case, cannot be at all discerned, though the colour may: And thus it was with this young gentleman, who though he knew these colours asunder in a good light; yet when he saw them after he was couched, the faint ideas he had of them beforehand, were not sufficient for him to know them by afterwards." (2)

One would expect Diderot, if he were acquainted with these preliminary personal facts about the subject, to record them. But, following Voltaire, he makes no mention of them. An amusing anecdote of Cheselden's, which again one would expect Diderot to seize upon because of his interest in the individual quirks of his subjects, is likewise omitted:

"One particular only (though it may appear trifling) I will relate; Having once forgot which was the cat, and which the dog, he was ashamed to ask; but catching the cat (which he knew by feeling) he was observed to look at her steadfastly, and then setting her down, said. So Puss! I shall know you another time." (3)

As for the passages which Voltaire alters slightly from Cheselden, Diderot adds nothing to the phraseology to suggest that he might have known the original, but changes it, if at all, to suit his own personal style. For example,

"When he first saw, he was so far from making any judgement about distances, that he thought all objects whatever touched his eyes, (as he expressed it) as what he felt, did his skin." (3)

Voltaire transmits this as:

"Tout ce qu'il voyait lui semblait d'abord être sur ses yeux, et les toucher comme les objets du tact touchent la peau." (4)

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(2) Ibid. p. 447–8.
(3) Ibid. p. 448.
And Diderot:

"Il avait tous les objets sur les yeux, et ils lui semblaient appliqués à cet organe, comme les objets du tact le sont à la peau." (1)

Besides this negative proof, the closeness of Diderot's version to that of Voltaire suggests that Diderot was entirely satisfied and did not feel the need to go back to Cheselden. Whether his ideas were stimulated by Condillac's transcription of Voltaire alone, or by an examination of the *Éléments* as well, is difficult to say. Certainly it is on the ideas of Condillac, not on those of Voltaire, that he bases his discussion of the Molyneux problem.

It seems, therefore, that as early as 1745 Diderot was acquainted with Locke's *Essay* through Coste's translation. There is no evidence that even at the time of the *Lettre sur les aveugles* he went back to the original, despite his aroused interest in Locke through his reading of and association with Condillac; in fact the near certainty that he was content with secondary sources for his study of Cheselden's operation suggests he may have felt the same about Locke. Certainly, as shall be seen when we examine the *Lettre* in detail, it is Condillac's view of Lockean sensationalism rather than the original *Essay Concerning Human Understanding* which Diderot discusses in his enquiry into the psychology of the blind.

2. THOUGHTS ON MORALS IN THE *LETTRE SUR LES AVEUGLES*

In the *Lettre sur les aveugles* (1749) Diderot calls into question the traditional views on metaphysical, moral and aesthetic matters. Although an important part of Diderot's general thought, his aesthetic ideas do not here concern us except as a proof of the way his mind is moving at this stage: he is realising that all the standards which society accepts as unquestionable may be merely relative. The development of his philosophical views, his suggestion that it is doubtful whether we can lay down absolute moral principles, is particularly relevant to our consideration of his educational ideas. If morals mean nothing, then any suggestion of a general theory of moral education will be impossible. In the *Essai sur le mérite et la vertu*, as in traditional philosophical writings from Plato and Aristotle onwards, "justice","virtue" and other moral

qualities were still seen as absolutes which, although elusive and perhaps even impossible to define fully, were there for men to seek after and to speculate on. Diderot in his translation of Shaftesbury's Essay wrote confidently of "vertu" as something which all men could apprehend if only they would use their reasoning capacity honestly and suppress their immediate self-interest when it conflicted with the good of society as a whole. But under the influence of Locke and Condillac, with their investigations into the derivation of knowledge through the senses, Diderot was in 1749 beginning to see man in an entirely different light. In his early writings, man, at first seen as an abstract of humanity, an animal endowed with reason, now began to be considered as a complex part of a complex environment, a creature often overwhelming and unconsciously influenced by the impressions his senses produce; although man may rationalise his moral code and claim that it rests on some basic undeniable sense of "good", he may in fact be falsifying his position by ignoring his helplessness to resist the influences of his senses. From an extreme sensationalist point of view, morals may become meaningless, and behaviour may be derived wholly from the circumstances, the milieu and the sense-equipment of the individual.

The Lettre sur les aveugles marks a particularly important stage in the development of Diderot's philosophical and religious thinking. In the Essai, he had accepted whole-heartedly Shaftesbury's doctrines, his rationalistic concept of virtue and his theistic belief in the order of the universe as a convincing proof for the existence of a creator. In the Promenade du sceptique (1747) doubts had become evident. There, Diderot voiced the opinions of both the deist, to whom the beauty and arrangement of the stars proved the existence of God, and the atheist, who pointed out that the order we think to discern in nature may be purely of our own invention. (1) In the Lettre, using his scientific method of careful observation, Diderot examines this metaphysical point in quite a different way: the matter has moved from being part of an intellectual debate to being dependent on Diderot's actual study of the psychology of the blind.

If we examine Diderot's presentation of this metaphysical topic in the *Lettre sur les aveugles*, we shall see how far he has moved from his view of the universe as stable and his consequent belief in absolute moral standards. He introduces his discussion of the "merveilles de la nature" as a possible proof of the existence of God with a few cautious words on the dangers of denying the traditional Christian and deistic belief, hinting that there is more philosophy of this radical nature going on in his mind than he dares to expound:

"Je pourrais entrer là-dessus dans un détail qui vous amuserait, mais que de certaines gens, qui croient du crime à tout, ne manqueraient pas d'accuser d'irreligion." (1)

At this stage in the *Lettre*, therefore, he prudently contents himself with making the comment that blind people are generally unimpressed by the conclusions which we draw from our observations of nature, because they lack the sight necessary to marvel at objects through a microscope or observe the arrangement of the stars and the regularity of the sun. Something with which they are in direct contact, such as the fire which they can control for their comfort, seems to them far more marvellous. Later in the *Lettre*, forgetting the need for caution, Diderot expands these suggestions to build up a vision of the universe with no purpose and no creator; Saunderson, in his famous death-bed speech, puts forward the theory that matter constantly forms new animals, new species, perhaps even new worlds, which change and pass away as arbitrarily as they appeared. Our belief in the order of the universe, he continues, is derived from our limited viewpoint, causing the fallacy that our universe is eternal, whereas we may be observing it only for a brief moment compared with the complete duration of time. The world is:

"Un composé sujet à des révolutions, qui toutes indiquent une tendance continue à la destruction; une succession rapide d'êtres qui s'entrent-suivent, se poussent et disparaissent; une symétrie passagère; un ordre momentané." (2)

What seems eternal to us may in fact be ephemeral, just as what seems eternal to the short-lived insect is to us only a moment:

"Le temps, la matière et l'espace ne sont peut-être qu'un point." (2)

(2) Ibid. p. 311.
This attack on our confidence in the immutability of the laws of the universe led to an exchange of letters with Voltaire. Saunderson, Voltaire objected, unable to perceive the order of the universe by sight, should nevertheless perceive "par la pensée" the "rapports infinis dans toutes les choses". Anyway, he claims, drawing on the stock argument of eighteenth-century optimism, he should recognise that all is for the best, that his blindness is not an absolute evil, because it has shown the marvellous way in which a man can supplement his defects by developing his other senses:

"J'aurais à sa place reconnu un être très intelligent qui m'aurait donné tant de suppléments de la vue." (1)

Diderot's reply to this is important, because it shows how far he had moved towards a materialistic view of the universe. He introduces his reflections by explaining that they do not appear in the Lettre sur les aveugles because of his fear of oppression by those whom Voltaire had mentioned, the

"barbares stupides qui condamment ce qu'ils n'entendent point, et les méchants qui se joignent aux imbéciles pour proscrire ce qui les éclaire," (2)

He then sketches out a pantheistic view of the universe, where the mind, "l'être spirituel", and matter, "l'être corporel", are so closely connected that they together form the universe, which is in fact God. This he substantiates by Locke's opinion, that

"la pensée pourrait bien être une modification de la matière." (3)

Despite Diderot's claim that he does not subscribe to this materialistic view and that he does believe, unlike Saunderson, in the order of the universe, he is obviously in this period exploring for the first time the implications of a godless world, where matter and mind are inextricably connected and the old concepts of the absolute rules of the universe, and the eternal laws of nature, are broken down. For the rationalists of Diderot's generation, disciples of Malebranche, these laws of the universe provided the basis of morals, the love of order

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(1) Voltaire, Correspondence, ed. T. Besterman, Geneva, 1953- Vol, XVII, p. 87; Roth, I, p. 74, (9 June 1749).

(2) Roth, I, p. 74.

(3) Ibid. p. 77 (11 June 1749).
being the supreme virtue.

The incipient materialism which we have seen in Diderot's discussion on metaphysics is closely connected to the new ideas he is examining in the sphere of moral thought. The rather summary way in which he expounds these ideas in the *Lettre sur les aveugles* should not blind us to their importance. The form of the *Lettre* is significant. It is not a compact moral treatise; on the contrary, it is discursive and conversational, dealing with various problems which occur to Diderot as he investigates the psychology of his blind subjects. He spends more time examining the derivation of intellectual ideas, the blind man of Puiseaux's notion of a mirror, for example, than in specifically dealing with the relativity of morals. The digressive nature of the letter is intentional. Diderot apologises several times for wandering from the topic, urging that the work should be seen as an "entretien" (1), and later reminding the recipient of the letter that the condition of their agreement is that there should be

"toujours des écarts." (2)

We cannot look, therefore, for any full and reasoned exposition of Diderot's moral position at that time. He contents himself with throwing our brief hints and making elliptic comments on the morals of the blind and their possible wider relevance. Even where he claims to have proved the dependence of morals on the senses, the reasoning which has led up to such a conclusion has been patchy. Another point about the *Lettre* which we should also notice here is that Diderot may be seen at his characteristic game of throwing out extremely suggestive ideas and leaving in the reader's mind questions rather than developed theories. As Jean Pommier says,

"À partir de cette date" (1749) "ce sera sa tâche particulière, moins de résoudre les questions, que d'apprendre à les poser; moins d'écrire un bon livre, que d'en dresser le plan ou la méthode. Diderot ou le méthodologue universel." (3)

Diderot's aim in the *Lettre* is to examine the psychology of the blind in order to discover how they acquire intellectual ideas and moral notions of right and wrong; the underlying assumption in this is that he

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(1) A-T, I, p. 305.

(2) Ibid. p. 324.

investigates these abnormal people not merely out of curiosity for their own plight, but also out of a desire to draw conclusions on the general relationship in normal men between ideas and the senses. Diderot is here illustrating the dictum which Gassendi and Locke had shared with the schoolmen:

"nihil est in intellectu, quod non prius fuerit in sensu":

that there are no innate ideas, that man's mind at birth is a tabula rasa, on which sense-impressions will be recorded. Diderot's method in the Lettre sur les aveugles is fully in accord with his principles of scientific investigation to be laid down in the Penseés sur l'interprétation de la nature, which demand a close examination of individual cases, honest, unprejudiced observation of concrete examples, before a conclusion may be reached by induction. His method, therefore, is not to produce an abstract dissertation on the mind of man, but to choose deliberately the critical cases of two blind men and by personal interview (with the blind man of Puiseaux) or by attentive study (of Saunderson's mathematical writings) to delve into their thought-processes.

If he can show that the intellectual and moral ideas of these men are due to their lack of sight, and not to incidental causes such as inferior intelligence, he will certainly have proved that there is a strong connection between the derivation of knowledge and the action of the senses, even if he cannot establish sensationalism completely. Diderot invents much: all Saunderson's speeches, for instance, are composed by Diderot.

Diderot's original impulse to write the Lettre, besides being affected by the general interest in such matters at the time, (1) was no doubt triggered off by his desire to probe the question of the nature and derivation of knowledge, and the extent of its dependence on experience. Disappointed in his hopes of testing his theories by attending the experiment arranged by Réaumur, Diderot nevertheless persisted in his plan of using the example of people deprived of one sense, the blind, to examine the link between knowledge and the senses. By studying such abnormal people, "des productions monstrueuses" as Saunderson calls them, (2) he reaches disquieting conclusions on the way normal people acquire their moral notions. His subjects are similar enough to the rest

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(2) A-T, I, p. 310.
of mankind, and yet different in some ways, to be valuable in a discussion of morals: similar, because they share many human ideas and emotions and can communicate with others, yet different, because they have acquired many of their ideas by a different process from the normal, and in some cases have reached different moral conclusions.

Diderot constantly maintains, in his discussion of the psychology of the blind (which is highly speculative, although he did go and see the blind man of Puiseaux) that the blind possess general human qualities, that despite Saunderson's despairing description of their state they are not monsters but men, indeed standing above the normal run of humanity in intelligence and ingenuity. They are the most satisfactory subjects possible for the investigation, aveugles philosophes, who having acquired their knowledge more painfully than the rest of mankind by the development of their other senses, furnish us with living examples of the way in which men gain their ideas through their senses. Thus, Diderot shows us the way in which the blind man of Puiseaux has taught himself to recognise others, by developing his ability to distinguish and remember voices:

"Il a la mémoire des sons à un degré surprenant, et les visages ne nous offrent pas une diversité plus grande que celle qu'il observe dans la voix." (1)

Further on, we again see him imitating the accomplishments of normal men, even surpassing the normal by cultivating his sensitivity:

"Il estime avec beaucoup plus de précision que nous la durée du temps, par la succession des actions et des pensées." (2)

Both the blind man of Puiseaux and Saunderson have developed the sensitivity of their skin to such a stage that in many situations they are at no disadvantage compared to those who can see:

"L'aveugle de Puiseaux estime la proximité du feu aux degrés de la chaleur; la plénitude des vaisseaux, au bruit que font en tombant les liqueurs qu'il transverse; et le voisinage des corps, à l'action de l'air sur son visage (...) il s'est fait de ses bras des balances si justes, et de ses doigts des compas si expérimentés, que dans les occasions où cette espèce de statique a lieu, je gagerai toujours pour notre aveugle, contre vingt personnes qui voient." (3)

(2) Ibid, p. 287.
(3) Ibid, p. 286.
As for Saunderson, he says, drawing on information from a biography of him, (1)

"Saunderson avait du commun avec l'aveugle de Puiseaux d'être affecté de la moindre vicissitude qui survenait dans l'atmosphère, et de s'apercevoir, surtout dans les temps calmes, de la présence des objets dont il n'était éloigné que de quelques pas". (2)

He could even, Diderot assures us, discern the passage of clouds across the sun by the slight alteration in the heat which he could feel on his face. Constantly throughout the Lettre with such examples as these Diderot stresses the intelligence and human quality of his subjects, who have not lost their ability to learn or to communicate with others. This ability to communicate is what proves that they are similar to normal human beings. If, instead of lacking only one sense, they were deaf, blind and mute, Diderot points out that they would be imbeciles, scarcely human, since the only knowledge which such creatures could gain would be through their sense of touch, which is extremely limited. Such unfortunate beings would be useless to his examination, except to prove the basic point that ideas are not innate but are derived through the senses:

"Ils croissent, mais ils restent dans un état d'imbécillité." (3)

The blind, therefore, are a suitable choice as subjects for Diderot's investigation of the derivation of knowledge, because we can watch them using their remaining senses to teach themselves new ways of gaining knowledge. But they are suitable also from another point of view, because they differ enough from normal men to suggest to Diderot (who is always interested in the problem of morals and man's duties to others) that there may be more than one moral system possible, that Shaftesbury's intellectual notion of one virtuous rule for all mankind may not be the final solution.

Just as Diderot used Saunderson as his mouth-piece to voice his doubts on the validity of the metaphysical argument that the order of nature proves the

(1) Elements of Algebra, by Nicholas Saunderson, (1740) to which is prefixed an account of the author's life and character collected from his oldest and most intimate friends, Cambridge, 1740.


(3) Ibid, p. 294.
existence of God, so in the field of morals he proceeds from the case of the blind man of Puiseaux to suggest some interesting conclusions on the relativity of morals. He has discussed the blind man's facility to teach himself to resemble the rest of mankind; now he goes on to examine the ways in which he differs from ordinary men. He produces five moral points on which, he claims, as a direct result of their deprivation of the sense of sight, the blind have an unconventional outlook. He is in fact taking to its extreme Lockean empiricism, the doctrine that the senses are an indispensable prerequisite for our acquisition of knowledge. He maintains that our moral notions may well vary according to the action of our senses. The five points he raises to demonstrate this theory are: the inefficacy of the threat of punishment to deter the blind from evildoing; the possible difference between their sexual code and the accepted standard; their practical objections to theft; their lack of modesty; and their lack of sensitivity to the suffering of those they cannot hear. The first four points are directly based on his discussion with the blind man of Puiseaux, the fifth on a general observation of the blind. Early in the discussion he gives succinct expression to the theory he is trying to prove:

"Comme je n'ai jamais douté que l'état de nos organes et de nos sens n'ait beaucoup d'influence (...) sur notre morale." (1)

Firstly, the threat of punishment, which was seen in the Essai sur le mérite et la vertu as an effective deterrent to evildoing for the populace, when reason failed to persuade a man of his duty, (2) is quite unsuccessful when applied to a blind man; prison is for him no different from the lonely darkness in which he is already condemned to spend his life, and death is a relief, not something to be feared. At the suggestion that he will be thrown into a dungeon, the blind man of Puiseaux replies,

"Eh, monsieur, il y a vingt-cinq ans que j'y suis." (3)

Diderot adds his own comment, contrasting the blind man's attitude to death

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(2) Ibid. p. 56.
(3) Ibid. p. 286.
with your own reluctance to die:

"Nous sortons de la vie comme d'un spectacle enchanteur; l'aveugle en sort ainsi d'un cachot; si nous avons à vivre plus de plaisir que lui, convenez qu'il a bien moins de regret à mourir." (1)

The blind man's morals, therefore, Diderot suggests, will not be influenced by any fear of punishment.

Secondly, Diderot throws out a brief hint about the relativity of sexual morals, a topic he was to develop at much greater length, over thirty years later, in the Supplément au voyage de Bougainville. In the Lettre, Diderot merely suggests that, in a society where the members lack one sense, a society of the blind, the attitude to marriage would go either to one extreme or the other:

"que les femmes seraient communes chez un peuple d'aveugles, ou que leurs lois contre l'adultère seraient bien rigoureuses." (2)

Again, without developing his argument at any length, Diderot is implicitly maintaining that sexual standards of what is right and wrong depend purely on the circumstances, that there is no absolute standard of behaviour, and that what is good for a particular society as a whole dictates the moral beliefs of its members. Whether or not we extend this to sanction differences in morals not only between societies, but also between individuals within the society, this is obviously far from any absolute, rationally discernible notion of virtue such as was presented in the Essai sur le mérite et la vertu.

Thirdly, Diderot interviews the blind man of Puiseaux on his feelings about theft. His answers confirm Diderot's suspicions that morals are closely connected to man's physical structure. He displays "une aversion prodigieuse pour le vol" for two purely practical reasons which have no connection with any transcendent notion of virtue: he would be an easy victim for a thief, and would himself be an unsuccessful practitioner of the art because of the ease with which he would be detected.(3) Thus, although the blind man's conclusions are

(2) Ibid. pp 286-7.
(3) Ibid. p. 288.
the same as those of the traditional moralist, that stealing must not be allowed, these conclusions are based on a purely utilitarian and individualistic set of reasons, entirely different from Shaftesbury's identification of the public and private good.

Fourthly, the blind man's ideas on modesty differ radically from those of the normal civilised man of the eighteenth century. Diderot quotes with some amusement his assertion that, from a practical point of view, clothes may often be necessary to protect the body from the atmosphere, but that modesty has no part in his scheme of values because he lacks the sight to be offended by nakedness:

"Il avoue franchement qu'il ne devine pas pourquoi l'on couvre plutôt une partie du corps qu'une autre." (1)

Fifthly, Diderot enters into the debatable question of the inhumanity of the blind, their lack of pity. He was later, in the Additions à la lettre sur les aveugles (1782) to record the protest of Mélanie de Salignac, who was herself blind, against this theory, and her claim that her extreme sensitivity would in fact enable her to discern suffering where normal people could not. At this stage, however, Diderot considers no objections to his thesis. He is in this part of his argument on much less solid ground than in his handling of the other four moral points, mainly because he has departed from his usual method of proof, which he normally considered so important, and is no longer using his specific observations to lead him towards the truth. Whereas in his presentation of the blind man's attitude to punishment, sexual morality, theft and modesty, he reached his conclusions from the interview with the blind man of Puiseaux, in this last section he works from unsubstantiated generalisations and seems to weave a rather circuitous path. He begins by assuming the very point which he is in fact trying to prove, that the blind differ from normal people in their moral reactions. He makes a general statement accusing them of cruelty:

"Comme de toutes les démonstrations extérieures qui réveillent en nous la commisération et les idées de la douleur, les aveugles ne sont affectés que par la plainte, je les soupçonne, en général, d'inhumanité." (1)

He proceeds to claim that there is, for the blind, no difference

"entre un homme qui urine et un homme qui, sans se plaindre, verse son sang." (1)

This does not follow, when he has already been to such pains to demonstrate that the blind develop their remaining senses to replace their sense of sight. He now makes a point about the moral reactions of normal people, that we do not place the same moral evaluation on an action that occurs at a distance from us, as on one that affects us closely, and proceeds to equate this situation with the blind man's supposed lack of pity, which he has still not proved and which he is still assuming:

"Nous-mêmes, ne cessons-nous pas de compatir, lorsque la distance ou la petitesse des objets produit le même effet sur nous que la privation de la vue des aveugles?" (1)

He then concludes, although his discussion of the lack of pity of the blind has not, strictly speaking, proved his point, that our morals are closely connected to our senses, and that the whole moral system which we regard as absolute may well be merely relative to our situation:

"Tant nos vertus dépendent de notre manière de sentir! (...) que la morale des aveugles est différente de la nôtre! que celle d'un sourd différerait encore de celle d'un aveugle, et qu'un être qui aurait un sens de plus que nous trouverait notre morale imparfaite, pour ne rien dire de pis!" (1)

Although Diderot may be begging the question in this discussion of the blind man's lack of pity, the conclusions he reaches on the nature of moral standards are extremely important. He has established to his own satisfaction that the lack of the sense of sight may lead the blind to behave differently from normal people; they may defy the threat of punishment, live according to a different sexual code, shun theft for purely practical reasons, despise modesty and remain indifferent to the mute sufferings of those they cannot see. This suggests that morality may be completely relative, that

Shaftesbury's examination of virtue and moral standards for man in general was far too rigid and did not take into account the importance of the action of our senses on our moral decisions.

This does not mean, however, that the power of education is reduced. The senses may be trained and experience controlled. Diderot was to insist on this point throughout his writings, persevering with the Encyclopédie, whose avowed aim was to instruct mankind; professing a sober belief in education in the Réfutation d'Helvétius; and on a more practical level writing the Plan d'une université for Catherine the Great.

3. DIDEROT AND CONDILLAC

The Lettre sur les aveugles is important in showing us the unfolding of Diderot's ideas in two spheres, morality and epistemology. These both have a direct bearing on his educational ideas because education, seen by eighteenth-century writers in its widest meaning, embraced both moral education, the formation of the citizen to be a worthy member of society, and "education" in its modern sense of the training of the intellect. We have seen that in the field of morality Diderot's investigations of the psychology of the blind led him to an important conclusion, which shows how far he had moved from his early rationalism: he suggested that there may be no absolute moral values, our moral judgments being derived from our sense-impressions. The ideas which he puts forward on epistemology, on the origin of our ideas, are also important to show how Diderot's thinking has moved from rationalism to a new empiricism: following Locke, Voltaire and Condillac he rejects the traditional theory of innate ideas and holds that all our ideas are derived from our sense-impressions, which experience teaches us to form into a coherent pattern.

The crucial problem in the epistemological section of the Lettre sur les aveugles is the judgment of distances, one of the essential discussion-points of eighteenth-century psychology. Cheselden's operation in 1728, in which he gave sight to a near-blind youth of 14, was supposed to be the practical example to settle the argument and establish whether the eye can, without previous
experience, immediately distinguish shapes and distances. However, although Cheselden reported the operation and its results carefully and clearly, (1) the problem was not solved because the blind subject's reactions could be interpreted in various different ways. Voltaire, Condillac and Diderot, while all agreed as disciples of Locke that the idea of distance is acquired, not innate, explained the results in their own ways to illustrate their own theories.

It was in 1728 that the famous English surgeon Cheselden removed the "ripe cataracts" from one eye of a youth who had very little sight, being able to distinguish night and day, and strong colours such as scarlet, but quite incapable of distinguishing shapes:

"Wherefore the shape of an object in such a case, cannot be at all discerned, though the colour may: And thus it was with this young gentleman, who though he knew these colours asunder in a good light; yet when he saw them again after he was couched, the faint ideas he had of them beforehand, were not sufficient to know them by afterwards." (2)

The removal of the cataracts established that certainly, in this case, the subject could not immediately estimate distances:

"When he first saw, he was so far from making any judgment about distances, that he thought all objects whatever touched his eyes, (as he expressed it) as what he felt, did his skin." (3)

Being so accustomed to using his sense of touch as a guide, the subject continued 'to do so when he could not interpret the information which his eyes received:

"One particular only (though it may appear trifling) I will relate; Having forgot which was the cat and which the dog, he was ashamed to ask; but catching the cat (which he knew by feeling) he was observed to look at her steadfastly, and then setting her down, said, So Puss! I shall know you another time." (3)

It was only after two months that the youth began to judge distance from what he saw. He discovered that paintings represented solid bodies and was surprised that his touch seemed to contradict his sense of sight:

"And asked which was the lying sense, Feeling, or Seeing?" (4)

(2) Ibid. p. 447-8
(3) Ibid. p. 448.
(4) Ibid. p. 449.
Voltaire, in his *Éléments de la philosophie de Newton*, used this report of Cheselden's to support his theory that the structure of the eye alone is not enough to give us an idea of distance, but that experience and the other senses must help the eye to learn to interpret what it sees. He begins in his chapter on distance by laying down as his basic tenet to be proved that distance cannot be judged by the eye immediately, without any intermediary idea:

"Il est clair qu'elle ne peut être aperçue immédiatement par elle-même, car la distance n'est qu'une ligne de l'objet à nous. Cette ligne se termine à un point; nous ne sentons donc que ce point, et soit que l'objet existe à mille lieues, ou qu'il soit à un pied, ce point est toujours le même." (1)

Distance, therefore, must be interpreted from the data which the eye receives. Voltaire points out that in this way sight is quite different from the senses of taste, touch and hearing, which bring us sensations that enable us to judge directly of the quality of the object perceived:

"Nous n'avons donc aucun moyen immédiat pour apercevoir tout d'un coup la distance, comme nous en avons pour sentir par l'attouchement si un corps est dur ou mou; par le goût, s'il est doux ou amer; par l'ouïe, si de deux sons l'un est grave et l'autre aigu." (1)

Distance, on the other hand, not being immediately and infallibly perceptible, must be conveyed to us by some intermediary idea. But, says Voltaire, this intermediary idea must be something we are aware of, because otherwise it could not form the basis for another idea:

"Il faut au moins que j'aperçoive cette intermédiaire: car une idée que je n'aurai point ne servira certainement pas à m'en faire avoir une autre." (1)

The suggestion which Descartes and, after him, Malebranche, had put forward to explain our idea of distance was that the eye carries out an automatic calculation, a "géométrie inconsciente", which judges the angle formed by the eyes and in this way deduces the distance between the eye and the object perceived. Voltaire, by a misunderstanding, reverses this triangle formed by the eyes and the object: Malebranche's isosceles triangle had its base at the eyes and its apex at the object, while Voltaire inverts it to form an isosceles triangle with the object as its base and the eye as its apex. This misunderstanding

does not destroy the value of his argument, however, which he now goes on to expound. He dismisses as impossible Malebranche's "géométrie inconsciente" as the cause of our perception of distance, because, he points out with common-sense reasoning, most of us are quite unconscious of any such process taking place in our eyes; and according to his precept laid down above, an idea of which we are unaware cannot form the basis for another idea:

"Mais la plupart des hommes ne savent pas même si ces angles existent: donc il est évident que ces angles ne peuvent être la cause immédiate de ce que vous connaissez les distances."

The intermediary cause which Voltaire, refuting Malebranche, suggests as an interpreter between the data and our ideas is judgement born of experience. Here he varies his choice of examples by drawing one from our judgement of distance by sound, not sight: only by experience can the ear learn to tell how far off a sound is:

"Celui qui, pour la première fois de sa vie, entendrait le bruit du canon, ou le son d'un concert, ne pourrait juger si on tire ce canon, ou si on execute ce concert à une lieue ou à trente pas. Il n'y a que l'expérience qui puisse l'accoutumer à juger de la distance." (1)

Similarly, says Voltaire, with the eye's perception of distance, size and even shape. An object we see in the distance may appear entirely different at close range. All our senses perceive different aspects of the one object, and it is by experience that we learn to combine our impressions instead of becoming confused and believing that what we see, hear and touch are unrelated:

"Autre chose donc est l'objet mesurable et tangible, autre chose est l'objet visible. J'entends de ma chambre le bruit d'un carrosse: j'ouvre la fenêtre et je le vois; je descends et j'entre dedans. Or, ce carrosse que j'ai entendu, ce carrosse que j'ai vu, ce carrosse que j'ai touché, sont trois objets absolument divers de trois de mes sens, qui n'ont aucun rapport immédiat les uns avec les autres." (1)

Voltaire now comes back to the angles in the eye, according to his interpretation of Malebranche, to insist again that the geometry of the process of sight alone cannot be responsible for our correct judgement of distance. According to his calculations, we should see a man eight paces away as only half the size of a man at four paces: yet we see them as the same size. Voltaire again stresses the fact that there is something more than mere geometry

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involved:

"Ces lignes et ces angles géométriques ne sont pas plus réellement la cause de ce que nous voyons les objets à leur place, que de ce que nous les voyons de telle grandeur et de telle distance." (1)

But how can this be proved? This is where Voltaire introduces Cheselden's blind boy as incontrovertible evidence. It seems quite clear and incontestable to Voltaire that, if we find a blind man who has been given his sight and who cannot immediately judge distance (although his eyes form the same angles with objects as ours) then we have proved that Malebranche's faith in the "géométrie inconsciente" as the cause of our judgement of distance is misplaced. The hypothesis of the blind man with his sight restored has already been discussed by Locke and Molyneux (2) (whom Condillac (3) and Diderot (4) quote) and by Berkeley, whom Voltaire here quotes as saying that

"ni situation, ni grandeur, ni distance, ni figure ne serait aucunement discernée par cet aveugle dont les yeux recevraient tout d'un coup la lumière." (5)

But after Cheselden there was a test case available and the question was no longer mere hypothesis. Voltaire uses Cheselden's report, which as we have seen shows that the subject needed two months' experience before he could have any idea of distance and size. This for Voltaire is proof enough to support Berkeley and refute Malebranche:

"Ce fut donc une décision irrevocable que la manière dont nous voyons les choses n'est point du tout la suite immédiate des angles formés dans nos yeux: car ces angles mathématiques étaient dans les yeux de cet homme comme dans les nôtres, et ne lui servaient de rien sans le secours de l'expérience et des autres sens." (6)

We see that Voltaire's explanation of the derivation of our ideas of distance

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(3) Condillac, Essai sur l'origine des connaissances humaines, Book I, Part VI, Section I.
(6) Ibid. p. 470.
rests on experience and the co-operation of the other senses. Cheselden's operation provides crucial evidence for Voltaire's argument. Armed with such positive proof, he goes on to give a series of examples in which he shows the mind, equipped by experience, rationalising the data which the eyes present. He shows a man learning by experience that objects appear smaller the further away they are:

"Ainsi tout homme qui, à dix pas, aura vu son cheval haut de cinq pieds, s'il voit, quelques minutes après, ce cheval gros comme un mouton, son âme, par un jugement involontaire, conclut à l'instant que ce cheval est très loin." (1)

Condillac was to object not to the importance of experience, with which he fully concurred, but with this faculty of "jugement involontaire" which seemed to attribute to the mind some mysterious power of reflection which his strict sensationalism could not accept. Voltaire concedes that Malebranche's mathematical explanation of vision, the angle formed by the eyes with the object, does indeed accompany our perception, but it is by no means the cause of the way we see things. When we see the same object from different distances we should, according to Malebranche, see it as having different sizes, but Voltaire points out that, knowing it is the same object, we learn to see it as being the same size:

"Loin que cet angle soit la cause immédiate de ce que je juge qu'un grand cheval est très loin quand je vois ce cheval fort petit, il arrive au contraire, à tous les moments, que je vois ce cheval également grand à dix pas, à vingt, à trente pas." (2)

Similarly, if we catch a glimpse of a man at a distance we may take him for a tiny statue, but as soon as he moves he seems to be of ordinary human size. Experience is what causes us to see things as we do:

"Nous apprenons à voir précisément comme nous apprenons à parler et à lire." (2)

We are also helped by the action of the other senses:

"Il y faut le secours des autres sens." (3)

Voltaire even goes so far as to exaggerate his supposition to the point where he


(2) Ibid. p. 471.

(3) Ibid. p. 472.
claims that the sense of sight alone could not give any idea of space. Voltaire in this examination of our ideas of distance comes down firmly on the side of Locke, to whom the senses are

"les seules sources de toutes nos idées!" (1)

and against Malebranche, who distrusts the evidence of the senses as inferior to the knowledge acquired by pure reason. Voltaire, like Locke, counsels a guarded reliance on the evidence of the senses as our only means of acquiring ideas. This evidence must be tested and investigated carefully; no one sense can be expected to provide us with all our knowledge of one object, but must be consulted in conjunction with the other senses:

"nous avons donc très grand tort quand nous disons que nos sens nous trompent. Chacun de nos sens fait la fonction à laquelle la nature l'a destiné. Ils s'aident mutuellement pour envoyer à notre âme, par les mains de l'expérience, la mesure des connaissances que notre être comporte. Nous demandons à nos sens ce qu'ils ne sont point faits pour nous donner."

Voltaire, using Cheselden's results as conclusive proof, has expounded his theory of the ability to judge distances: without experience and the help of the other senses, even though the eye may form the necessary angle with the object, it is unable to judge immediately how far away it is. All our knowledge is thus derived ultimately from our sense-impressions and built up into complex ideas by our experience. Primary qualities such as situation, shape and bulk are part of the object perceived, not part of the perceiver, and so we have to learn to discern them. Voltaire does not consider that there may be any other explanation but his own for Cheselden's subject's inability to judge distance immediately: all he needed was experience and the chance to confirm his impressions with his sense of touch.

Condillac, in the Essai sur l'origine des connaissances humaines, carries on this discussion of our means of judging distance. He takes his information on Cheselden's case straight from Voltaire, whom he quotes verbatim. Diderot in his discussion of the same problem makes special reference to Condillac's treatment of the topic. It is not surprising that the two should have been preoccupied by the same problems about the same time. They were contemporaries,

Diderot being a year older than Condillac, and at this time close friends.

Rousseau in the Confessions describes their meeting in 1746:

"Je parlai à Diderot de Condillac et de son ouvrage; je leur fis faire connaissance. Ils étaient faits pour se convenir, ils se convinrent (…) Comme nous demeurions dans des quartiers fort éloignés les uns des autres, nous nous rassemblions tous trois une fois la semaine au Palais-royal, et nous allions dîner ensemble à l'hôtel du panier fleuri. Il fallait que ces petits dîners hebdomadaires pussent extrêmement à Diderot; car lui qui manquait presque à tous ses rendez-vous, ne manqua jamais aucun de ceux-là." (1)

By this time Condillac had published his Essai and Diderot, losing his implicit faith in Shaftesbury's rationalistic philosophy, would have been impressed by Condillac's efforts to take Locke's empiricism even further than Locke did, to examine more closely the origin of knowledge and to abolish the belief in the faculty of "reflection" which, according to Locke, existed in the mind to enable the mind to combine the ideas gained by the sense-impressions.

Condillac's aim in the Essai is to examine the workings of the mind, of the 'entendement' as opposed to "la volonté". As he explains towards the beginning,

"On peut distinguer les opérations de l'âme en deux espèces, selon qu'on les rapporte plus particulièrement à l'entendement ou à la volonté. L'objet de cet essai indique que je me propose de ne les considérer que par le rapport qu'elles ont à l'entendement." (2)

He is here discarding the scholastic notion of the "volonté" and the "entendement" as two entirely separate faculties, the "volonté" the blind workings of the affective ideas and the "entendement" the clear faculty of reason: he sees them as two aspects of the same faculty, as the "opérations de l'âme". Nevertheless he does, as he says, consider only one of these aspects, the "entendement", omitting discussion of the affective ideas or passions such as pain. The Essai is concerned with discerning the origin of our intellectual ideas, in order to establish the limits of human knowledge:

"Notre premier objet, celui que nous ne devons jamais perdre de vue, c'est l'étude de l'esprit humain, non pour en découvrir la nature, mais pour en connaître les opérations, observer avec quel art elles se combinent, et comment nous devons les conduire, afin d'acquérir toute l'intelligence dont nous sommes capables." (1)

To Condillac the traditional Cartesian metaphysics are completely useless for this investigation of the mind, because they build up systems and try to explain the meaning of the universe. This is the metaphysics which,

"ambitieuse, veut percer tous les mystères; la nature, l'essence des êtres, les causes les plus cachées, voilà ce qui la flatte, et ce qu'elle se promet de découvrir." (2)

Condillac turns instead to Locke's method of investigation, a moderate and painstaking investigation of facts, without prejudice and with a constant acceptance of the inadequacy of our knowledge, a metaphysics which

"plus retenue, proportionne ses recherches à la faiblesse de l'esprit humain, et aussi peu inquiète de ce qui doit lui échapper, qu'avidie de ce qu'elle peut saisir, elle sait se contenter dans les bornes qui lui sont marquées." (2)

Locke's efforts, however, despite his admirable aims, seem to Condillac to be too piecemeal and even too modest in their conclusions:

"il a passé trop légèrement sur l'origine de nos connaissances." (3)

Condillac's ambition is to achieve in metaphysics what Newton had done in physics, to reduce the actions of the mind to one guiding principle. This was in fact the aim of the very Cartesian systematists whom he criticises so severely, but Condillac's method was to be quite different, a new inductive reasoning based on facts:

"On voit que mon dessein est de rappeler à un seul principe tout ce qui concerne l'entendement humain, et que ce principe ne sera ni une proposition vague, ni une maxime abstraite, ni une supposition gratuite; mais une expérience constante, dont toutes les conséquences seront confirmées par de nouvelles expériences." (4)

With these principles in mind he turns, in Section VI of Part One, to the

(2) Ibid. p. 3.
(3) Ibid. p. 5.
(4) Ibid. p. 4.
problem of our judgement of distances. He argues against Voltaire's theory that an intermediary cause, an ability to judge born of experience, is what arranges the data that the eye receives so that we estimate the distance from the object correctly. To Condillac, bent on reducing the origin of all human knowledge to the sense-impressions, this is incorrect because it brings into play some mysterious, innate faculty of the mind, of which we are unaware. Even Locke, whom Condillac so much admires, believes in this faculty, which he calls reflection:

"Cet...opinion est si généralement reçue, que Locke, le plus circonspect de tous, l'a adoptée: voici comment il s'explique," (1)

And he quotes Locke's discussion of the Molyneux problem. Locke maintains that, if we have a sphere before us, the eye actually sees it in two dimensions only, while our judgement, which has been trained by experience, causes us to think we see it in the three dimensions which it does in fact possess:

"Nous nous formons l'idée d'une figure convexe et d'une couleur uniforme, quoique dans le fond nos yeux ne nous représentent qu'un plan ombragé, et coloré diversement," (2)

Locke here introduces Molyneux's famous problem of the blind man, with his sight newly restored, confronted by a sphere and a cube and asked to distinguish them using only his sight. Locke and Molyneux both posit that the blind man, without the help of experience or the sense of touch, will be unable to distinguish the shapes. Condillac disagrees. He claims that, confronted with a coloured sphere, the eye does not in fact see it as a flat circle:

"Pour moi, quand je regarde un globe, je vois autre chose qu'un cercle plat." (2)

Joined to this practical evidence is his argument, akin to Voltaire's, in his refutation of Malebranche's "géométrie inconsciente", that we cannot build up ideas on an idea we are unaware of. Unless we have studied them we are not aware of the rules of optics and cannot therefore base our judgements on them:

(2) Ibid. p. 54.
A second objection he makes to Locke's theory is that, if we did make these judgements, we would be fully aware of the process in our minds and realise that the judgements were different from the way we actually erroneously see objects:

"Nous verrions d'une façon et nous jugerions d'une autre." (1)

But in fact our judgement may delude us, and prevent us from seeing things as they really are, as opposed to what they seem. Condillac uses the example of a bas-relief, which he judges to be in three dimensions even though he knows by his sense of touch that it is flat.

Condillac continues to refute Locke's argument by carrying it to its logical conclusion and showing that it is false. Let us follow Locke, he says, and suppose that we judge of a landscape, which after all consists of distance, situation, size and space, as we do of isolated shapes such as the cube and the sphere. This would cause us to see our surroundings as a formless block of colour,

"un plan ombragé et coloré diversement", (2)

to which we must apply our judgement in order to see the scene in its three dimensions, as it really is:

"Nous mettons aussitôt, à la place de ce qui nous paraît, la cause même des images que nous voyons, et cela en vertu d'un jugement que la coutume nous a rendu habituel." (2)

But, Condillac points out, Locke would not agree to this conclusion. He has, on the contrary, implicitly acknowledged the falsity of his theory by stipulating that the sphere and the cube should be of equal size, thus admitting that there is no need of this faculty of reflection for our ideas of size:

"C'est pourtant une contradiction: car on ne conçoit comment on aurait des idées de grandeurs sans en avoir des figures." (2)
Having eliminated the need for Locke’s faculty of reflection, Condillac goes on to examine in detail Voltaire’s line of reasoning in his chapter on distance in the *Éléments de la philosophie de Newton*. The end of Part One of Condillac’s *Essai* develops into a sort of dialogue between Condillac and Voltaire, Condillac interspersing quotations from the *Éléments* with his own comments. He begins by disputing Voltaire’s conclusions on our sight of a man who, in the distance, looks like a small statue, but immediately appears to be of normal height when we realise by his movement that he is a man. (1) This is indeed what happens, says Condillac, but the cause is not an unconscious act of judgement as Voltaire suggests. On the contrary,

"C’est là un cas particulier, et le jugement qu’il fait faire est tel qu’on ne peut nier d’en avoir conscience." (2)

Similarly, he refutes Voltaire’s conclusions on the man whom we see at four paces seeming the same size as the man at eight paces,(3) Taking this to its logical conclusion, we would be forced to claim that, whatever the distance, we see a man (if we know he is a man) as being of constant size. Instead of diminishing, as in actual fact, he seems to do, the man would have to disappear suddenly:

"Si la perception de la vue est l’effet d’un jugement par lequel j’ai lié l’idée d’un homme à celle de la hauteur de cinq à six pieds, cet homme devrait tout-à-coup disparaître à mes yeux, ou je devrais, à quelque distance qu’il s’éloigne de moi, continuer à le voir de la même grandeur." (4)

Voltaire’s example of the man who, hearing a cannon for the first time, is unable to judge how far away it is,(5) also seems unconvincing to Condillac. Firstly, he objects that an analogy between the senses of sound and sight is here misleading. The judgement of distance is not the function of the sense of sound, as it is of sight:

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"L'ouïe par elle-même n'est pas faite pour nous donner l'idée de la distance." (1)

He is here recalling Voltaire's own appeal for a proper understanding of the function of each sense:

"Chacun de nos sens fait la fonction à laquelle la nature l'a destinée." (2)

Even if we admit that our sight can be corrected by the results of our experience, Condillac continues, not only is our judgement a conscious process, but it is not infallible and often leads to faulty conclusions. The immediate, unconscious faculty of judgement which Locke and Voltaire use to explain our ideas of distance is, Condillac insists, non-existent.

"J'ouvre ma fenêtre et j'aperçois un homme à l'extrémité de la rue: je vois qu'il est loin de moi, avant que j'aie encore formé aucun jugement (...). Il est naturel que la vue de ces objets [qui sont entre l'homme et moi] me donne quelque idée de la distance où je suis de cet homme; il est même impossible que je n'aie pas cette idée, toutes les fois que je les aperçois." (3)

Condillac also attacks Voltaire's exaggeration of the mutual dependence of the senses, which led him to the extravagant claim that the sense of sight alone is not enough to give us any idea of space,(4) Condillac imagines the sense of sight confronted by objects, and, perceiving light and colour, which must indicate some idea of distance and space:

"Je regarde devant moi, en haut, en bas, à droite, à gauche; je vois une lumière répandue en tous sens, et plusieurs couleurs, qui ne sont pas certainement concentrées dans un point: je n'en veux pas davantage. Je trouve là, indépendamment de tout jugement, sans le secours des autres sens, l'idée de l'étendue avec toutes ses dimensions." (5)

This sense of sight by itself, he continues, this "oeil animé" without a body, is, according to Berkeley and Voltaire, incapable of judging distance. They even go so far as to claim that, if it were now joined with the other senses,

it would still deny the existence of the primary qualities of space, size, distance and shape. Condillac here makes brief mention—perhaps remembering that after all he is an Abbé—of the interest there would be in discerning the laws which God follows in enriching us with different sensations of sight, which are an essential part of our self-preservation and also bear witness to the order of the universe. He quickly leaves this metaphysical topic, however, to return to his absorbing preoccupation, the psychological examination of the origin of knowledge. Like Locke, he speculates on the hypothesis of the blind man who gains his sight. This man's ideas, according to Condillac's sensationalism, have all been formed from his sensations, especially those of touch. The mind forms ideas by reflecting on these sensations: it is simply its operations which compose the mind.

"Cet aveugle s'est formé des idées de l'étendue, des grandeurs etc, en réfléchissant sur les différentes sensations qu'il éprouve, quand il touche des corps," (1)

With his sight restored, Condillac says, he will need the help of "la réflexion", not in Voltaire's sense of an immediate, unconscious judgement, but a deliberate working of the intellect to understand what he is seeing:

"Il aperçoit donc une étendue en longueur, largeur et profondeur. Qu'il analyse cette étendue, il se fera les idées de surface, de ligne, de point, et de toutes sortes de figures."

These ideas will accord with the ideas he has already gained through his sense of touch and so, Condillac concludes, in opposition to Voltaire, he will be able to distinguish primary qualities:

"Cet aveugle-né distinguera donc à la vue le globe du cube, puisqu'il y reconnaitra les mêmes idées qu'il s'en était faites par le toucher." (1)

Of course he cannot be absolutely certain that the evidence of his sight should accord with the evidence of his touch. It is only experience that can confirm this assumption. Cheselden's operation now appears in Condillac's Essai, not as a useful proof as it was for Voltaire, but as an apparent obstacle to his conclusions on the nature of sight. He quotes Voltaire's account of the operation. He is not surprised that the blind boy

was unable to judge distance at once, but explains this in quite a different way from Voltaire. Condillac goes to a purely physical cause, the shape of the cornea, which distorts the vision if it has not the right degree of convexity. He traces as best he can the workings of the eye, though admitting that the present knowledge of optics is deficient:

"Quoique nous soyons encore bien éloignés de connaître tout le mécanisme de l'œil", (1)

and referring to

"l'insuffisance des règles de l'optique," (2)

Cheselden's blind subject took time to be able to judge distance because his cornea was

"trop ou trop peu convexe." (2)

"Ses yeux, depuis quatorze ans, accrus et nourris, sans qu'il en eût fait usage, résistaient à l'action des objets." (2)

His eye needed time to soften and become supple. It was not, Condillac maintains, that he needed experience to interpret the evidence and learn to use his faculty of reflection and his sense of touch, as Voltaire suggested. Condillac here accuses Voltaire of interpreting the results of Cheselden's operation in the light of his own prejudices. He and his supporters

"espéraient de voir confirmer un sentiment pour lequel ils étaient prévenus." (2)

The same problems, the judgement of distances and the interpretation of Cheselden's results are discussed by Diderot in the Lettre sur les aveugles. Diderot reports Condillac's opinions faithfully, although suggesting with a graceful compliment to his friend that the reader would be advised to go back to the Essai sur l'origine de nos connaissances for the best discussion of the matter:

"il est inutile de vous rapporter les raisons sur lesquelles il s'appuie; ce serait vous envier le plaisir de relire un ouvrage où elles sont exposées d'une manière si agréable et philosophique, que de mon côté je risquerais trop à les déplacer." (3)

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(2) Ibid. p. 59.
Despite this humble protestation, however, Diderot gives an accurate summary of Condillac's theories. He does not confine his role to that of the populariser, but uses Condillac's work as a starting-point for a presentation of his own views of the problem, and of Condillac's whole philosophy.

It was in fact owing to Diderot's intelligent comments on the philosophy behind the Essai that Condillac felt obliged, in the Traité des sensations (1754) to justify his position. Already in 1747, in the Promenade de sceptique, Diderot had held up to ridicule the idealists, whom he referred to as the "égotistes"(1). He set forth their beliefs. They are, says Diderot (misrepresenting of course Berkeley's position)

"gens dont chacun soutient qu'il est seul au monde. Ils admettent l'existence d'un seul être; mais cet être pensant, c'est eux-mêmes; comme tout ce qui se passe en nous n'est qu'impression, ils nient qu'il y ait autre chose qu'eux et ces impressions." (2)

Diderot made no attempt to reason with them, merely satirising them by presenting the arguments of an extreme idealist, who claimed to have been at the same time Virgil and Augustus, Augustus and Cinna. He is everything:

"Soit que je m'élève jusque dans les nues, soit que je descende dans les abîmes, je ne sors point de moi-même, et ce n'est jamais que ma propre pensée que j'aperçois, me disait-il avec emphase." (3)

This sentence is a paraphrase of the first sentence of Condillac's Essai, which Diderot was to quote again in the Lettre sur les aveugles. In the Lettre, he again contents himself with reproducing the creed of the idealists and expressing his disapproval, this time suggesting that Condillac is better equipped to refute them:

"système extravagant, qui ne pouvait, ce me semble, devoir sa naissance qu'à des aveugles; système qui, à la honte de l'esprit humain et de la philosophie, est le plus difficile à combattre, quoique le plus absurde de tous. Il est exposé avec autant de franchise que de clarté dans trois dialogues du docteur Berkeley, évêque de Cloyne; il faudrait inviter l'auteur de l'Essai sur nos connaissances à examiner cet ouvrage; il

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Diderot's next remarks, however, reveal that he suggests that Condillac should examine the problem less out of respect for his friend's philosophical ability than out of a suspicion that Condillac has himself come dangerously close to Berkeley's idealism:

"cette hypothèse a de quoi le piquer, moins encore par sa singularité, que par la difficulté de la refuter dans ses principes; car ce sont précisément les mêmes que ceux de Berkeley." (1)

Berkeley denies the existence of primary qualities, maintaining that there are only secondary qualities:

"les termes essence, matière, substance, suppôt etc., ne portent guère par eux-mêmes de lumière dans notre esprit." (1)

Similarly, says Diderot, Condillac brings all our knowledge back to our perceptions:

"soit que nous nous élevions jusqu'aux cieux, soit que nous descendions jusque dans les abîmes, nous ne sortons jamais de nous-mêmes; et ce n'est que notre propre pensée que nous apercevons." (2)

We see therefore that Diderot, although respectful of Condillac, is aware of possible errors and contradictions in his Essai. In the Lettre sur les aveugles he returns to Condillac's opinions in his discussion of the Molyneux problem and its implications. Diderot contributes to the discussion by his insistence on the care and practical measures needed in such an experiment as Molyneux envisaged. The problem is not some abstract hypothesis, but a delicate experiment on a human being which must be carried out according to Diderot's method of unprejudiced observation and intelligent interpretation of the facts. But Diderot shows that he is not blindly in favour of the empirical method, a mere collection of facts, without the guidance of the reason:

"Pour moi, j'écouterais avec plus de satisfaction sur la théorie des sens un métaphysicien à qui les principes de la physique, les éléments des mathématiques et la conformation des parties seraient familiers, qu'un homme sans éducation et sans connaissances, à qui l'on a restitué la vue par l'opération de la cataracte. J'aurais moins de confiance dans

What is needed is a suitable subject, an aveugle philosophe who is aware of his own reactions. What is more, the experimenter must know the right questions to ask in order to extract the truth:

"Préparer et interroger un aveugle-né, n'eût point été une occupation indigne des talents réunis de Newton, Descartes, Locke et Leibnitz." (2)

The experiments and questions should begin only after the eye had had a chance to recover from the operation.

Diderot presents the Molyneux problem, quoting Coste's translation of Locke, a passage in which Locke and Molyneux agree that the blind man would not be immediately able to distinguish shapes by sight alone. To this Diderot opposes Condillac's claim that either the eye will be unfit to see, because of the state of the cornea, or that, if he can see, he will distinguish them. Diderot gives an accurate précis of both Locke's and Condillac's analyses of the problem. Then he leaves the role of reporter of other men's ideas and proceeds to use his own methods to examine the validity of both sides of the argument, beginning with a statement which shows his usual unwillingness to come down firmly on one side or the other:

"Vous allez voir, par l'examen que j'en ferai, combien ceux qui ont prononcé que l'aveugle-né verrait les figures et discernerait les corps, étaient loin de s'apercevoir qu'ils avaient raison; et combien ceux qui le niaient avaient de raisons de penser qu'ils n'avaient point tort." (3)

Diderot sees the problem as presenting two questions. Firstly, will the blind subject be physically capable of sight immediately after the operation? Secondly, if he is, will he be able to discern shapes and be sure of his conclusions?

To the first question Diderot suggests that, just as we have to learn by experience to judge distances, we may also have to learn to see, to accept the existence of the outside world:

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(1) A-T, I, p.313.
(2) Ibid. p. 314.
(3) Ibid. p. 317.
"Sans l'expérience, celui qui aperçoit des objets pour la première fois, devrait s'imaginer, lorsqu'ils s'éloignent de lui, ou lui d'eux, au-delà de la portée de sa vue, qu'ils ont cessé d'exister; car il n'y a que l'expérience que nous faisons sur les objets permanents, et que nous retrouvons à la même place où nous les avons laissés, qui nous constate leur existence continuée dans l'éloignement.

... il faut peut-être que l'œil apprenne à voir, comme la langue à parler." (1)

Perhaps, he says, differing from Condillac, we also need the evidence of the other senses to confirm us in the impressions our vision gives us:

"il ne serait pas étonnant que le secours d'un des sens fut nécessaire à l'autre." (1)

Here, using the report on Cheselden's operation which Voltaire produced and which Condillac quoted, Diderot introduces this case, which was expected to clinch the matter at the time. Diderot shows his uncertainty as to the conclusions we may draw. He acknowledges the possible accuracy of Condillac's theory, which attributes the subject's inability to distinguish shape and distance to physical causes:

"Les effets de la lumière sur un œil qui en est affecté pour la première fois et les conditions requises dans les humeurs de cet organe, la cornée, le cristallin, etc,..." (2)

Experience is, according to Diderot, the only thing which enables us to see. We learn by experience to recognise objects:

"c'est l'expérience seule qui nous apprend à comparer les sensations avec ce qui les occasionne." (3)

Diderot is here supporting Locke's emphasis on experience, on the non-existence of innate ideas such as the Cartesians believed in. All our ideas are derived from the evidence of our sense-impressions which teach us to apprehend reality. He believes

"que les sensations n'ayant rien qui ressemble essentiellement aux objets, c'est à l'expérience à nous instruire sur des analogies qui semblent être de pure institution." (3)
On the question of the interdependence of the senses, Diderot tends to Condillac's belief rather than that of Voltaire, who had gone so far as to maintain that the sense of sight alone, without the aid of touch, could never give an idea of distance. Although Diderot recognises the mutual aid which the senses exchange, he thinks, like Condillac, that an "œil animé" could, without the help of touch, learn to recognise distance:

"Pour s'assurer, par le toucher, de l'existence et de la figure des objets, il n'est pas nécessaire de voir: pourquoi faudrait-il toucher pour s'assurer des mêmes choses par la vue?" (1)

He does not deny the value of the sense of touch, as he showed by his recognition of the way Saunderson and the blind man of Puiseaux used it, but he refuses to believe that there is any "dépendance essentielle" between touch and sight. The "œil animé" would eventually, although not without difficulty, learn that objects have size and shape, and would see them

"assez distinctement pour en discerner au moins les limites grossières." (2)

Again Diderot admits that a blind man with his sight newly restored will need, as Condillac suggested, to have his cornea gain the proper convexity and the eye become physically healthy, but perhaps, Diderot says, the adjustment may take place faster than we thought:

"c'est peut-être l'ouvrage d'un moment; et il ne serait pas difficile, en appliquant le raisonnement qu'on vient de m'objecter à une machine un peu composée, à une montre par exemple, de démontrer par les détails de tous les mouvements qui se passent dans le tambour, la fusée, les roues, les palette, le balancier, etc., qu'il faudrait quinze jours à l'aiguille pour parcourir l'espace d'une seconde." (3)

Condillac may in this case be right in supposing that the blind man could distinguish shapes immediately; certainly he would not need the help of his touch to teach him to see:

"Quoi qu'il en soit de ces conditions qu'on exige dans l'œil pour être propre à la vision, il faut convenir que ce n'est point le toucher qui les lui donne, que cet organe les acquiert de lui-même." (3)

(2) Ibid. p. 321.
(3) Ibid. p. 322.
Diderot's belief is that experience is probably necessary for us to see and distinguish shapes, but that touch is not at all essential. He repeats his strictures on the conduct of such experiments as Cheselden's, the need to allow the eye time to heal, the danger of sudden exposure to bright light, and the desirability of an educated and self-aware subject. Cheselden's subject, he points out, was particularly unsuitable, because he did not even have the intelligence to recognise the enormous advantages of sight. Diderot's opinion of Cheselden's subject seems to be an indication that he did not go back to Cheselden's own report: Cheselden, after pointing out that the boy was not eager to gain his sight, described how, after he recovered from the discomfort of the operation, the boy realised the advantages and was extremely and touchingly grateful to his benefactor; Voltaire omits this last part and merely reports the boy's attitude before the operation, drawing a general moral which Diderot seizes on:

"qu'il est impossible d'être malheureux par la privation des biens dont on n'a pas d'idée." (1)

Diderot, unacquainted with Cheselden's report, is left with an unfavourable impression of the boy as "insensible à sa disgrâce",(2) and unable to imagine the importance of the sense of sight. This supposed trait of Cheselden's subject leads Diderot to digress into another disagreement with Condillac, this time in reference to his suggestion in the Traité des systèmes that happiness and misery are direct opposites, and that if we had never known happiness we would not be aware of our misery. Diderot argues against this:

"Il n'en est pas du bonheur et du malheur ainsi que des ténèbres et de la lumière: l'un ne consiste pas dans une privation pure et simple de l'autre." (3)

Having shown that he thinks that Condillac, by trying to reduce everything to experience, is oversimplifying matters, Diderot returns to the Molyneux problem and summarises his conclusions. As we have seen, he maintains

(2) A-T, I, p. 323.
(3) Ibid. p. 324.
that the blind man will at first see nothing at all, and experience, and not the help of the other senses, is essential for him to learn to see. This may take place in a few moments, as Condillac believes, or after a slow convalescence such as Voltaire suggests. But, whatever the time involved, there is a second question to be examined, whether the blind man will be able to identify shapes:

"Voyons, dis-je, s'il reconnaîtrait à la vue les corps qu'il aurait touchés, et s'il serait en état de leur donner les noms qui leur conviennent. C'est la dernière question qui me reste à résoudre," (1)

Diderot chooses the two-dimensional square and circle instead of the three-dimensional cube and sphere, for reasons he will later explain. (2)

For these speculations Diderot divides his subjects into four main categories: the uneducated, "des personnes grossières, sans connaissances, et non préparées (...) n'étant habituées à aucune sorte de raisonnement, ne sachant ce que c'est que sensation, idée; n'étant point en état de comparer les représentations qu'elles ont reçues par le toucher, avec celles qui leur viennent par les yeux"; (3) the slightly better equipped, who at least have some idea of concepts; the metaphysician, such as Locke, who is accustomed to using his reason and evaluating ideas - "je ne doute nullement que celui-ci ne raisonnât dès l'instant où il commencerait à apercevoir distinctement les objets, comme s'il les avait vus toute sa vie"; (4) and the mathematician, such as Saunderson, who uses his knowledge of geometry to examine the effect his new-found visual perceptions have on his ideas.

The first two classes Diderot discusses briefly. They are unlikely to furnish any useful results. The completely ignorant, among whom by implication he places Cheselden's subject, will be able to see once the eye is healed, but either will judge confidently that a shape is round or square without any reasoned examination of the matter, or will say that they cannot

(1) A-T, I, p. 325.
(2) Ibid, p. 327.
(3) Ibid, p. 325.
reconcile the evidence of touch and sight. Subjects of slightly higher intelligence will compare the evidence of touch and sight and decide that they think a shape is round or square, but with uncertainty.

Diderot is more interested by the other two types of subject. His metaphysician expresses philosophical doubts on the nature of reality. He points out the impossibility of proving that the evidence of sight and touch is in complete accord. The objects he sees may not be susceptible to the touch:

"Qui m'a révélé que si j'en approchais ils ne disparaîtraient pas sous mes mains? Que sais-je si les objets de ma vue sont destinés à être aussi les objets de mon attachement? J'ignore si ce qui m'est visible est palpable."

(1)

Even if he takes this point on trust, being as yet too inexperienced to have established it for himself, he cannot prove beyond all doubt that objects may not appear completely different to his eyes and his touch:

"Ces objets pourraient fort bien se transformer dans mes mains" he says

"et me renvoyer, par le tact, des sensations toutes contraires à celles que j'en éprouve par la vue."

(1)

The mathematician's reasoning will stem from a different outlook but will express the same doubts. He uses his mathematical experience to distinguish the two shapes:

"car je m'aperçois, ajouterait-il qu'il n'y a que la première où je puisse arranger les fils et placer les épines à grosse tête, qui marquaient les points angulaires du carré; et qu'il n'y a que la seconde à laquelle je puisse inscrire ou circoncrire les fils qui m'étaient nécessaires pour démontrer les propriétés du cercle. Voilà donc un cercle! voilà donc un carré!"

(1)

Nevertheless he will be possessed of the same doubts as the metaphysician.

"Peut-être que, quand j'appliquerai mes mains sur ces figures, elles se transformeront l'une en l'autre."

(1)

But a mathematician such as Saunderson will be able to go a step further than Locke, because he has given lessons to people who could see and the concepts which he had built up from his sense of touch have always been in complete accord with those of his pupils. He has proof, therefore, that

sight and touch do not contradict each other, and that he can be sure of
distinguishing a square and a circle.

Diderot now draws a distinction which Voltaire and Condillac did not, between
our perceptions of distance and space. Voltaire believed that the
knowledge of both had to be acquired by experience and the help of the
sense of touch; Condillac, that they could both be immediately perceived
by a healthy "œil animé"; Diderot reaches a different conclusion and,
having suggested that shape may be immediately perceptible, proceeds
to insist that distance is not:

"il y a toute apparence que nous ne jugeons des distances que par
l'expérience." (1)

For Diderot, Condillac's extension of Locke's theory of the perception
of shape to cover the perception of a whole landscape (2) is invalid. The
blind man, whether he can recognise abstract shapes or not, will be
quite incapable of immediately seeing his surroundings as they really
are:

"je tiens pour certain, qu'à moins d'une révélation, il ne lui a pas
été possible de reconnaître ses gants, sa robe de chambre et son
soulier. Ces objets sont chargés d'un si grand nombre de
modifications; il y a si peu de rapport entre leur forme totale et
celle des membres, qu'ils sont destinés à orner ou à couvrir, que
c'eût été un problème cent fois plus embarrassant pour Saunderson
de déterminer l'usage de son bonnet carré, que pour M. d'Alembert
ou Clairaut, celui de retrouver l'usage de ses tables." (3)

Diderot substantiates this by appealing to his female reader to imagine
herself seeing a head-dress for the first time and being obliged to
deduce its function:

"cependant croyez-vous, Madame, que si l'on vous montrait
aujourd'hui par la première fois une garniture, vous parvinsiez
jamais à deviner que c'est un ajustement, et que c'est un ajustement
de tête?" (4)

Diderot even goes so far as to suggest that for the blind man with his

(2) Essai sur l'origine des connaissances humaines, Part I, Section VI,
paragraph 5.
(3) A-T, I, p. 327.
(4) Ibid., p. 328.
sight newly restored sight alone without the aid of experience would not enable him to tell the difference between animate and inanimate matter:

"qui l'empêcherait de prendre un observateur tout habillé et immobile dans un fauteuil placé devant lui, pour un meuble ou pour une machine, et un arbre dont l'air agiterait les feuilles et les branches, pour un être se mouvant, animé et pensant? Madame, combien nos sens nous suggèrent de choses; et que nous aurions de peine, sans nos yeux, à supposer qu'un bloc de marbre ne pense ni ne sent!" (1)

Diderot's inquisitive interest in the whole topic of the importance which the sense-impressions have for our ideas leads him to imagine two bizarre cases, the man who can see but is deprived of the sense of touch, and the man whose senses of sight and touch constantly contradict each other. Would the former, blindfolded and gifted with the sense of touch, be able to distinguish shapes? As with the example of the blind men with his sight restored, Diderot concludes that a mathematician would reason his way to a solution, but that an ignorant subject would be at a loss to say whether he was holding a cube or a sphere. As for the latter, the man whose sight and touch give him opposite impressions, he would be inclined to trust his eyes rather than his touch. But Diderot has introduced him more as a pretext to underline our own uncertainty as to the nature of reality, than as any probable case. We are ourselves, he suggests, in just as uncertain a state. We cannot be sure either that our senses give us the correct information, or that they do not. Like Voltaire, Diderot can counsel only a wary acceptance of the evidence of our senses, not a thorough-going empiricism:

"Qui nous a dit que nous n'avons point affaire à de faux témoins?
Nous jugeons pourtant." (2)

Man's knowledge on all subjects is limited, and the only way to extend it is to be aware of these limitations - physics, psychology, mathematics are all imperfect sciences. Thus Diderot ends the Lettre sur les aveugles

(2) Ibid, p. 329.
on a cautious note, shunning excessive belief in the evidence of the senses, one of the dangers implicit in the new empiricism of Condillac, just as much as he is distrustful of the Cartesians' extreme dependence on the power of the intellect to solve all philosophical problems. This cautious conclusion of Diderot's recalls Locke's principles as he set them out in the Introduction to the Essay Concerning Human Understanding, where he insisted with humility on the importance of knowing the limits of man's capacities:

"If by this enquiry into the nature of understanding, I can discover the powers thereof: how far they reach; to what things they are in any degree proportionate; and where they fail us, I suppose it may be of use to prevail with the busy mind of man to be more cautious in meddling with things exceeding his comprehension; to stop when it is at the utmost extent of its tether; and to sit down in quiet ignorance of those things which upon examination are found to be beyond the reach of our capacities." (1)

Despite Diderot's extremely active and inquisitive mind, and his love of following all sides of a problem to their limit, he had learnt this lesson from Locke, and was to be throughout his writings fully aware of the uncertainty of human knowledge and the dangers of any over-confident dogmatism. As he says at the end of the Lettre:

"Car, que savons-nous? ce que c'est que la matière? nullement; ce que c'est que l'esprit et la pensée? encore moins; ce que c'est que le mouvement, l'espace et la durée? point du tout; des vérités géométriques? interrogez des mathématiciens de bonne foi, et ils avoueront que leurs propositions sont toutes identiques, et que tant de volumes sur le cercle, par exemple, se réduisent à nous répéter en cent mille façons différentes, que c'est une figure où toutes les lignes tirées du centre à la circonférence sont égales. Nous ne savons donc presque rien." (2)

Chapter III
DIDEROT AND BACON: THE PENSEES SUR L'INTERPRETATION DE LA NATURE

In the Pensees sur l'interpretation de la nature of 1753, Diderot expounds his belief in the inductive method of scientific investigation as the best means of reaching the truth about the workings of nature. His development of a scientific method in this work is directly relevant to his ideas on education because, for him, as for other eighteenth-century thinkers, education meant both the inculcation of intellectual learning and the moral formation of the citizen. In this work he concentrates on intellectual problems, ignoring for the moment the moral issues which he had raised in the Suite de l'apologie de l'abbé de Prades and was to consider again in the article Droit naturel in 1755.

With this stage of his thinking, Diderot is starting with his Lockean view of knowledge, which he had presented in the Lettre sur les aveugles as based on our sense-impressions, to examine the use we can make of this knowledge to explore the mysteries of nature, to effect the "interpretation de la nature" of the title. The method he suggests in the Pensees is a Baconian use of honest and rigorous experimentation, combined with a judicious use of the intellect and a quite un-Baconian trust in the power of intuition. Unlike Bacon, who has been seen by most critics as Diderot's model for his reliance on facts rather than a priori theories, Diderot applies his method to problems of natural science, zoology and botany.

Another writer with whom Diderot has must in common is his contemporary Condillac, who had published his attack on the systematists, the Traite des systemes, four years earlier, in 1749. As with Bacon, there are points of resemblance and divergence: Condillac was interested, like Diderot, in the educational possibilities of his method, as he showed by the publication of the Cours d'étude (1775) for the Duke of Parma, his pupil since 1757; but Condillac differs greatly from Diderot in ignoring the importance of the imagination and
insisting that the collection of facts is enough in scientific enquiry. In a characteristic passage he warned of the danger of any great dependence on the imagination, which produces what he calls "suppositions":

"Quant aux suppositions, elles sont d'une si grande ressource pour l'ignorance, si commodes; l'imagination les fait avec tant de plaisir, avec si peu de peine: c'est de son lit qu'on crée, qu'on gouverne l'univers (...) Il n'est pas aussi facile de bien consulter l'expérience, de recueillir des faits avec discernement." (1)

It is evident from several passages of the *Pensées* that Diderot had an educational aim in mind: his method was to be used for the instruction of the enquiring mind. His opening words for example,

"Aux jeunes gens qui se disposent à l'étude de la philosophie naturelle. Jeune homme, prends et lis",

have a didactic note which shows that the educational value of the work was uppermost in Diderot's thoughts. He is writing, he adds, not a text-book full of dogmatically presented rules, but an experimental sketch of a method which could be extended to the field of education:

"Comme je me suis moins proposé de t'instruire que de t'exercer, il m'importe peu que tu adoptes mes idées ou que tu les rejettes, pourvu qu'elles emploient toute ton attention."

In the body of the work he returns to this theme in three specific references to the method required for education. First, he points out the value of practical experience as opposed to book-learning:

"Il y aurait peut-être plus de physique expérimentale à apprendre en étudiant les animaux, qu'en suivant les cours d'un professeur."

Furthermore, he continues, the sort of instruction which urges the pupil to marvel at the wonders of nature without seeking to explain phenomena is defective:

"L'étonnement est le premier effet d'un grand phénomène: c'est à la philosophie à le dissiper. Ce dont il s'agit dans un cours de philosophie expérimentale, c'est de renvoyer son auditeur plus instruit, et non plus stupéfait." (1)

This attitude is that of Fonteneille in his Entretiens sur la pluralité des mondes, in which he sought to explain to the Marquise everything he could about the planets and the fixed stars, and is quite opposite to that of eighteenth century writers such as the Abbé Pluche and Nieuwentit, who rejected the search for the simplest explanation to suit the facts, and encouraged admiration. With Nieuwentit particularly, a religious intention was concealed. Diderot next makes specific mention of the value of his method for education in the first of his "First conjectures", where after tracing the best procedure for the investigation of conception - the open-minded possession of several fruitful hypotheses, followed by careful experimentation on the material available - he points out that this combination of guess-work and practical verification is what is needed by the young mind ripe for learning:

"Voilà l'espèce de divination qu'il faut apprendre aux élèves, si toutefois cela s'apprend." (2)

Again, in his complaints on the insufficiency of public lectures, Diderot shows that he feels that his method is applicable to education. Here he is referring to such famous teachers as the Abbé Nollet, whose chemistry courses were followed by Rousseau. Pupils must be encouraged, Diderot suggests, to learn by having their curiosity aroused, so that they will be eager to carry out their own experiments:

"Il faudrait donc s'attacher principalement à irriter l'appétit, afin que plusieurs, emportés par le désir de le satisfaire, passassent de la condition de disciples à celle d'amateurs, et de celle-ci à la profession de philosophes." (3)

Such speculation on education is outside the scope of the collèges. This method which Diderot takes such pains to evolve in the Pensées sur l'interprétation de la nature is thus to be suitable for the great task of educating mankind, a task

(1) Pensées sur l'interprétation de la nature, X.
(2) Ibid. XXXII.
(3) Pensées sur l'interprétation de la nature, XXXIX.
which was always present in Diderot's mind, and at no time more than during the early 1750s, as the publication of the Encyclopédie got under way. His broad aim of the enlightenment of society, and not merely of the budding natural scientists referred to in the dedication, is best expressed in these lines:

"Hâtons-nous de rendre la philosophie populaire. Si nous voulons que les philosophes marchent en avant, approchons le peuple du point où en sont les philosophes. Diront-ils qu'il est des ouvrages qu'on ne mettra jamais à la portée du commun des esprits ? S'ils le disent, ils montreront seulement qu'ils ignorent ce que peuvent la bonne méthode et la longue habitude." (1)

The markedly Baconian tone of much of the methodological section of the Pensées sur l'interprétation de la nature, especially of Diderot's insistence on the importance of experimentation and his scorn for the systematists, led the work to be considered immediately as a direct result of Diderot's reading of Bacon. He himself, in his article Art, claimed that he was an enthusiastic reader of Bacon,

"un philosophe que je ne me lasse point de louer, parce que je ne me suis jamais lassé de le lire."

Such remarks as these, combined with the general tone of the Pensées sur l'interprétation de la nature, caused Deleyre to claim a similarity between the attitudes of Bacon and Diderot:

"Son but n'a été que de donner un nouveau jour aux idées vastes du fameux chancelier Bacon, et de les rapprocher des expériences qui ont été faites depuis ce restaurateur des sciences." (2)

The use of an adapted version of Bacon's tree of sciences in the first volume of the Encyclopédie was another indication of Diderot's interest in Bacon. Accused by the Reverend Père Berthier of plagiarism, Diderot, in 1751, in the Prospectus to the Encyclopédie, made definite acknowledgement of his debt to Bacon:

(1) Pensées sur l'interprétation de la nature, XL.
"On trouvera, à la fin de ce projet, cet arbre de la connaissance humaine, avec l'enchaînement des idées qui nous ont dirigés dans cette vaste opération. Si nous en sommes sortis avec succès, nous en aurons principalement obligation au chancelier Bacon, qui jetait le plan d'un dictionnaire universel des sciences et des arts dans un temps où il n'y avait, pour ainsi dire, ni sciences ni arts." (1)

In the Suite de l'apologie de l'abbé de Prades of 1752, Diderot shows a definite acquaintance with Bacon's work, quoting from the De Augmentis Scientiarum to support his own opinions. In Section VII, Diderot enlists his aid in condemning the false path which scientific enquiry had taken in investigating final causes instead of concentrating on the real material of facts:

"Ce renversement d'ordre, dit le chancelier Bacon (...) n'a dû jà que trop retardé le progrès des sciences, Effecitque ut homines in istiusmodi speciosis et umbratilibus causis acquiescerent, nec inquisitionem causarum realium et vere physicarum urgerent, ingenti scientiarum detrimento." (2)

And in the same section Diderot continues this argument with another reference to Bacon, where he shows his preference for the philosophy of Democritus and his followers, who explained phenomena by physical causes instead of searching for a religious meaning; such an attitude, according to Bacon, has achieved more progress in the interpretation of nature than any other. (3)

However, Herbert Dieckmann (4) and, more recently, Aram Vartanian (5) have pointed out that Diderot's references to Bacon, and his contemporaries' view of the Pensées sur l'interprétation de la nature as "Baconian" are no proof that he had thoroughly immersed himself in Bacon's writings, or even that he drew on him for much of the work. It seems possible, as Dieckmann suggests, that Diderot was far from being a faithful disciple of Bacon's, having

"apparently contented himself with a rather cursory reading of Bacon," (6),

(4)'The Influence of Francis Bacon on Diderot's "Interprétation de la nature" ', Romanic Review XXXIV, No.4, 1943, p.303-330.
(5) Diderot and Descartes, Princeton 1953.
(6) H. Dieckmann, "The Influence of Francis Bacon on Diderot's "Interprétation de la nature" ', Romanic Review, XXXIV, No. 4, 1943, p.327.
but, because of affinities of temperament, and general agreement on the
important point of the value of experimentation, Diderot reaches similar
conclusions to those of Bacon in the formation of a scientific method.

Bacon being a reputable source at this time when the English philosophers
had been firmly established by Voltaire's partisanship, Diderot was
apparently not averse to recalling Bacon to his readers; his title echoes the
titles or subtitles of three of Bacon's works, *Cogitata et Visa de Interpretatione
naturae*, *Novum Organum*, sive *Indicia Vera de Interpretatione naturae*, and
the subtitle to the *Valerius Terminus*. Whether Bacon's influence on the
Penseés sur l'interprétation de la nature is as great as early critics believed,
or whether much of the "Baconian" thought is common to all empirical
philosophers (as Dieckmann, perhaps underestimating Bacon's influence,
maintains) there certainly are affinities between the thought of the two
philosophers. Diderot calls attention to Bacon and draws on his writings much
more than Condillac in the *Traité des systèmes*. Diderot's exposition of a
scientific method has much in common with Bacon's *Novum Organum*, in which
he proclaimed a turning away from scholasticism and a new emphasis on
experimentation. As we shall see in our discussion of his method, however,
Diderot diverges from Baconian method in his insistence on a balanced use of
hypothesis and his faith in the importance of intuition. In effect, he agrees
with Bacon on the prime importance of concrete data in the discovery of any
truth about the workings of Nature, but Bacon, overreacting to the rigid
scholasticism of early seventeenth-century philosophy, went to the extreme of
empiricism by rejecting the validity of all pre-formed opinions. Diderot, on
the other hand, like Condillac, felt that he could afford to acknowledge the
usefulness of carefully controlled hypotheses, living as he was in the enlightened
eighteenth century. His colleague D'Alembert expressed the common view that
there was little now to fear from the systematists, when he congratulated
Condillac on being the most effective opponent of the "goût de systèmes",
writing that
"un de nos meilleurs philosophes semble lui avoir porté les derniers coups." (1)

The first ten Pensées show Diderot at his most Baconian, insisting on the importance of experimentation and warning against the over-reliance on the use of pure reason; such an attitude causes him to be extremely doubtful of the value of mathematics for solving the mysteries of Nature. He makes a distinction between the two types of philosophe or scientist, the experimentalist and the rationalist:

"Les uns ont, ce me semble, beaucoup d'instruments et peu d'idées; les autres ont beaucoup d'idées et n'ont point d'instruments."

He counsels a co-operation between the two, suggesting that they pool the results of their investigations to explore the workings of the physical world, neither relying blindly on the results of experimentation nor following solely a system of abstract reasoning:

"L'intérêt de la vérité demanderait que ceux qui réfléchissent daignassent enfin s'associer à ceux qui se remuent, afin que le spéculatif fût dispensé de se donner du mouvement; que le manoeuvre eût un but dans tous les mouvements ininis qu'il se donne; que tous nos efforts se trouvassent réunis et dirigés en même temps contre la résistance de la nature; et que, dans cette espèce de ligue philosophique, chacun fît le rôle qui lui convient." (2)

This outlook is a part of the spirit of the Encyclopédie, in which Diderot and D'Alembert sought to combine the fruits of patient research with the intelligent choice of material and the comment, often oblique, on the significance of certain facts. Such an appeal could perhaps be derived from a passage in the Novum Organum, in which Bacon divides scientists into two groups, "Empirics" and "Dogmatical."

"The former", he says, "like ants only heap up and use their store, the latter like spiders spin out their own webs. The bee, a mean between both, extracts matter from the flowers of the garden and the field, but works and fashions it by its own efforts. The true labour of philosophy resembles hers, for it neither relies entirely or principally on the powers of the mind, nor yet lays up in the Memory the matter afforded

(2) Pensées sur l'interprétation de la nature, I.
by the Experiments of Natural History or Mechanics in its raw state, but changes and works it in the Understanding. We have good reason therefore to derive hope from a closer and purer alliance of these faculties (the Experimental and Rational) than has yet been attempted. (1)

Diderot uses the bee in a similar image in a later paragraph. (2) But a desire for the recognition of the importance of experimentation, without the entire rejection of abstract reasoning, was not of course exclusive to Bacon.

D'Alembert, for example, in his Discours préliminaire to the Encyclopédie, considering not only scientists but the whole of mankind, follows the Baconian division of the faculties of the mind into three: memory, reason and imagination. He likewise divides men into three, depending on which faculty is predominant. Érudits, philosophes and beaux-esprits are all valuable to the progress of society and should recognise one another's qualities:

"La société doit sans doute aux beaux esprits ses principaux agréments, et ses lumières aux philosophes; mais ni les uns ni les autres ne sentent combien ils sont redevables à la mémoire; elle renferme la matière première de toutes nos connaissances, et les travaux de l'érudit ont souvent fourni au philosophe et au poète les sujets sur lesquels ils s'exercent." (3)

Pensées II, III, IV and V furnish an attack against the use of mathematics in the solution of scientific problems, because Diderot sees mathematics as being too abstract, too far removed from actual experience, to be of any use in man's "interpretation of Nature". Instead of dealing with concrete data, mathematics conceives of "unreal" objects:

"La chose du mathématicien n'a pas plus d'existence dans la nature que celle du joueur." (4)

He advises a complete rejection of mathematics: more moderate counsels of co-operation between mathematics and experimentation are, he maintains, a waste of time:

(1) Novum Organum, London, 1893, Book 1, paragraph XCV.
(2) Pensees sur l'interprétation de la nature, IX.
(4) Pensées sur l'interprétation de la nature, III.
"A quoi bon corriger le calcul géométrique par l'expérience? N'est-il pas plus court de s'en tenir au résultat de celle-ci? d'où l'on voit que les mathématiques, transcendantes surtout, ne conduisent à rien de précis sans l'expérience." (1)

This attack recalls Condillac's rejection of mathematics in the Essai sur l'origine de nos connaissances and, more particularly, an earlier discussion of the problem by Diderot himself, in the Suite de l'apologie de l'abbé de Prades of 1752. Here he was supporting the abbé against the Bishop of Auxerre, who expressed the view that mathematics attains some higher reality, independent of the senses. Diderot disagrees. Mathematics are a creation of the human mind, and as such can give us no knowledge of exterior "reality", which can be discovered only by examining the facts of nature. He insists

"que les vérités mathématiques ne sont que des abstractions de l'esprit, qui n'ont rien de réel". (2)

As Diderot himself indicates, he was drawing on a similar argument which Buffon had expressed in his Histoire naturelle of 1749. He had maintained:

"Nous avons fait les suppositions, nous les avons combinées de toutes les façons, ce corps de combinaisons est la science mathématique; il n'y a donc rien dans cette science que ce que nous y avons mis (...). Ce qu'on appelle vérités mathématiques se réduit donc à des identités d'idées et n'a aucune réalité; nous supposons, nous raisonnons sur nos suppositions, nous en tirons des conséquences, nous concluons, la conclusion ou dernière conséquence est une proposition vraie relativement à notre supposition, mais cette vérité n'est pas plus réelle que la supposition elle-même." (3)

Returning to Diderot's Pensees sur l'interprétation de la nature, we see that although he has already in the first few paragraphs begun to formulate an inductive method of investigation, rejecting the usefulness of mathematics, he is far from confident in man's power ever to succeed in interpreting nature completely. The vast diversity of physical phenomena makes him pause and reflect:

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(1) Pensées sur l'interprétation de la nature, II.

(2) Suite de l'apologie de l'abbé de Prades, Section VI.

"Combien ne faudrait-il de volumes pour renfermer les termes seuls par lesquels nous désignerions les collections distinctes de phénomènes, si les phénomènes étaient connus? Quand la langue philosophique sera-t-elle complète? Quand elle sera complète qui, d'entre les hommes, pourrait la savoir?" (1) The only way man can set limits on the exploration of Nature is gradually to learn what is useful and concentrate his attention only on this:

"D'ailleurs, l'utile circonscrit tout. Ce sera l'utile qui, dans quelques siècles, donnera les bornes à la physique expérimentale, comme il est sur le point d'en donner à la géométrie." (1) The seventh, eighth and ninth pensées set out Diderot's belief in thorough experimentation combined with a judicious use of the reason. The scientist must depend not on his own opinions and hypotheses, which are after all only part of his own mind, but on outside evidence:

"On peut comparer les notions, qui n'ont aucun fondement dans la nature, à ces forêts du Nord dont les arbres n'ont pas de racines. Il ne faut qu'un coup de vent, qu'un fait léger, pour renverser toute une forêt d'arbres et d'idées." (2) Diderot is here rejecting idealism, as he did more explicitly in the Lettre sur les aveugles, and maintaining a belief in some "objective" reality. Man must rely, in Lockeian terms, upon the work of his reflection on his sense-impressions:

"Tout se réduit à revenir des sens à la réflexion, et de la réflexion aux sens: rentrer en soi et en sortir sans cesse." (3) In this paragraph appears the image of the bee, perhaps borrowed from Bacon, in which both the collection of evidence and the formation of a scientific theory are shown to be the necessary work of the scientist:

"C'est le travail de l'abeille. On a battu bien du terrain en vain, si on ne rentre pas dans la ruche chargé de cire. On a fait bien des amas de cire inutile, si on ne sait pas en former des rayons." (3)

(1) Pensées sur l'interprétation de la nature, VI.
(2) Ibid. VII.
(3) Ibid. IX.
Unfortunately, however, men tend to adhere to their preconceived opinions rather than exploring nature:

"Il est plus facile et plus court de se consulter soi que la nature." (1)

Careful observation, Diderot insists, is more valuable than all the abstract reasoning in the world:

"Il y aurait peut-être plus de physique expérimentale à apprendre en étudiant les animaux, qu'en suivant les cours d'un professeur." (2)

Condillac had already launched a general attack on the systematists in his Traité des systèmes of 1749, and Diderot's colleague D'Alembert made similar condemnation of hypotheses in the Discours préliminaire to the Encyclopédie, where, however, being a mathematician, he sought to give far more prominence to calculation than Diderot's anti-mathematical outlook would permit. Like Diderot, D'Alembert stresses the great importance of experimentation and the limited reliability of reason:

"L'esprit de système est dans la physique ce que la métaphysique est dans la géométrie. S'il est quelquefois nécessaire pour nous mettre sur le chemin de la vérité, il est presque toujours incapable de nous y conduire par lui-même. Éclairé par l'observation de la nature, il peut entrevoir les causes des phénomènes mais c'est au calcul pour assurer pour ainsi dire l'existence de ces causes, en déterminant exactement les effets qu'elles peuvent produire, et en comparant ces effets avec ceux que l'expérience nous découvre.

Toute hypothèse déduite d'un tel secours acquiert rarement ce degré de certitude, qu'on doit toujours chercher dans les sciences naturelles, et qui néanmoins se trouve si peu dans ces conjectures frivoles qu'on honore du nom de systèmes." (3)

Diderot himself had already shown signs of the way his thoughts were moving in his Rêve de Mangogul in the Bijoux indiscrets of 1748, where he praised the spirit of experimentation as opposed to the ridiculous old "esprit de systèmes".

This chapter, as its subtitle Voyage dans la région des hypothèses indicates, deals with the rationalist philosophers. In accord with the light tone of the whole book, Diderot produces a lively caricature of the systematists; despite the similarity of subject-matter, the tone is very different from the earnestness

(1) Pensées sur l'interprétation de la nature, X.
(2) Ibid.
of the *Penseés sur l'interprétation de la nature*. The systematists are shown in the novel as old men, deformed and feeble, although at first sight, like their systems, they seem interesting and attractive. They occupy themselves with blowing bubbles to a crowd of spectators. These bubbles the spectators carry aloft - Diderot's comment on the history of the systems before the enlightenment of his own times. Like soap bubbles, the systems are fragile, and yet they are perpetuated by loyal disciples. The dwelling the systematists occupy is, symbolically enough, without foundations:

"Je ne dirai pas qu'il péchât par les fondements, car il ne portait sur rien." (1)

"L'expérience," on the other hand, the spirit of experimentation, is shown accomplishing something far more useful than mere bubbles. Diderot here praises the accomplishments of Galileo, Pascal and Newton:

"Je le vis diriger vers le ciel un long télescope, estimer à l'aide d'une pendule la chute des corps, constater avec un tube rempli de mercure la pesanteur de l'air et, ce prisme à la main, décomposer la lumière." (2)

Although still in its infancy, "L'expérience" grows visibly and causes the collapse of the systematists' dwelling:

"Je vis l'Expérience approcher, les colonnes du portique des hypothèses chanceler, ses voûtes s'affaisser et son pavé s'entr'ouvrir sous nos pieds." (2)

Put in a less allegorical form the theme of this chapter of the *Bijoux indiscrets* is the theme in the methodological section of the *Penseés sur l'interprétation de la nature*: the triumph of experimental science over the old Cartesian rationalism.

The pensées XIV-XXIX serve to elaborate the Baconian method which Diderot has sketched out in the first ten paragraphs. In these later paragraphs, however, we see him modifying Bacon's rigid empiricism to include not only a guarded reliance on the usefulness of the hypothesis, but also, in pensée XVI,

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(1) *A-T*, IV, p.256.
a hint of his thesis (developed later in XXX and XXXI) of the importance of the intuition, the creative power of some men which glimpses what is to be done and guides the genius to a discovery which he can then verify by experimentation.

Pensee XV sums up succinctly the method which Diderot advises the scientist to follow. There are three stages,

"l'observation de la nature, la réflexion et l'expérience."

Unfortunately, all these three processes are rarely followed by one scientist; this complaint recalls Diderot's appeal for a combination of the rational and the experimental in the opening lines of the work. It is in the next paragraph that Diderot's belief in the value of the intuition is first mentioned, although as yet it is not developed at all fully. In this section he leaves it implicit, merely suggesting that it is mainly chance or some inexplicable factor which makes some experimentalists more successful than others. Maintaining his usual distinction between the rationalist and the experimentalist, the "philosophe" and the "manoeuvrier d'expériences" as he here calls them, Diderot points to the logically unaccountable failure of one "manoeuvrier" and the success of another:

"l'un emploiera toute sa vie à observer des insectes et ne verra rien de nouveau; un autre jettera sur eux un coup d'œil en passant et apercevra le polype, ou le puceron hermaphrodite." (1)

Pensee XVII contains yet another complaint against the systematists, who are blamed for man's lack of progress in scientific enquiry. It is not able minds which are lacking, but a practical method of study:

"Les sciences abstraites ont occupé trop longtemps et avec trop peu de fruit les meilleurs esprits; ou l'on n'a point étudié ce qu'il importait de savoir, ou l'on n'a mis ni choix, ni vues, ni méthode dans ses études". (2)

It is, he continues, facts and not theories that must be amassed:

"Les faits, de quelque nature qu'ils soient, sont la véritable richesse du philosophe." (3)

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(1) Pensées sur l'interprétation de la nature, XVI.
(2) Ibid, XVII.
(3) Ibid, XX.
Man's ignorance of nature being still abysmal, he must have much more data to work on before he can begin to understand her. Diderot compares systems which are built without sufficient basis of fact to buildings which must eventually collapse, an image which recalls his criticism of the rationalists and praise of the experimentalists in the *Bijoux indiscrets*. In the *Pensées sur l'interprétation de la nature*, however, Diderot, who was always a lover of the Classics, cannot help admitting to an aesthetic appreciation of the systems of the ancients, even though in terms of utility they must be condemned:

"Les uns passent leur vie à rassembler des matériaux, manœuvres utiles et laborieuses; les autres, orgueilleux architectes, s'empressent à les mettre en œuvre (.....) Heureux le philosophe systématique à qui la nature aura donné, comme autrefois à Épicure, à Lucrèce, à Aristote, à Platon, une imagination forte, une grande éloquence, l'art de présenter ses idées sous des images frappantes et sublimes!" (1)

Diderot's approval of the experimentalist's method is such that he contrasts him again with the rationalist and triumphantly produces a concrete example of the success of the use of observation (by Newton) compared with the old rationalistic approach:

"La philosophie expérim entale ne sait ni ce qui lui viendra, ni ce qui ne lui viendra pas de son travail; mais elle travaille sans relâche. Au contraire, la philosophie rationnelle pèse les possibilités, prononce et s'arrête tout court. Elle dit hardiment: on ne peut décomposer la lumière; la philosophie expérimentale l'écoute, et se tait devant elle pendant des siècles entiers; puis tout à coup elle montre le prisme, et dit: la lumière se décompose." (2)

Nevertheless, Diderot does not remain at the extreme of empiricism and denounce all pre-formed hypotheses. As long as it does not dominate the scientist and colour his reaction to all his results, Diderot accepts the use of hypothesis as fruitful:

"C'est un conseil que je donnerais encore à ceux qui ont l'esprit assez étendu pour imaginer des systèmes, et qui sont assez opulents pour les vérifier par l'expérience: ayez un système, j'y consens; mais ne vous en laissez pas dominer." (3)

(1) *Pensées sur l'interprétation de la nature*, XXI.
(2) Ibid., XXIII.
(3) Ibid., XXVII.
As Professor Dieckmann points out, this is quite opposed to the spirit of the *Novum Organum*:

"Bacon, in contrast with Diderot, extended his animadversion against generalisation to hypothesis." (1)

Diverging still further from Bacon's strictly inductive method, Diderot suggests that there is a mysterious quality, intuition, which is an essential part of scientific genius. It is true that such a capacity for inspired guess-work is founded on long experience, not on some unearned gift:

"La grande habitude de faire des expériences donne aux manoeuvriers d'opérations les plus grossiers un pressentiment qui a le caractère de l'inspiration." (2)

Diderot uses the example of Socrates's "demon" which, born of his long consideration of men's characters, gave him the power to judge situations "par sentiment". This instinct, which Diderot as a follower of Locke of course conceives of as born of experience and not innate, is possessed by great experimental scientists, the "grands manoeuvriers", who are able to intuit the possible workings of Nature:

"On subodore, pour ainsi dire, des procédés inconnus, des expériences nouvelles, des résultats ignorés." (2)

Such a power of intuition often leads, as Diderot admits, to strange seeming results, "extravagances apparentes", but combined with the careful verification of facts the intuition is a valuable part of the interpretation of Nature.

These first thirty-one paragraphs have outlined Diderot's method, beginning with a Baconian dependence on facts and facts only, and moving to a recognition that the inductive method may sometimes be superseded by a man of genius with an inspired use of hypothesis. The second part of the work (XXXII-XXXVIII) supplies actual examples of the workings of the method in the problems of conception (XXXII) magnetism and electricity (XXXII-XXXVI) and the metallurgy of steel (XXXVIII). In each of these fields Diderot shows his method at work, using the combination of observation, reflection and experimentation set forth earlier. In every case Diderot considers the facts available, asks a number of pertinent questions, and shows the effects of experimenting without prejudice to arrive at a solution.

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(1) Romanic Review, no. 4, 1943, p. 320.
(2) *Pensees sur l'interprétation de la nature*, XXX.
The last part of the work, (XXXIX-LVIII) building on Diderot's method, contains advice to scientists and discusses several problems of contemporary science. As we have seen, (1) Diderot is dissatisfied with the public lectures of his time and suggests a subtle way of arousing the pupil's curiosity until he is eager to do his own experiments. Another complaint he has against the scientists of the time is their selfish reticence over their discoveries. The famous dispute between Newton and Leibniz over the discovery of the differential calculus would never have taken place if Newton had immediately revealed his results to the world. (2) Diderot's aim in his main work, the editorship of the Encyclopédie, was of course to do just this, to bring the knowledge possessed by a few into the grasp of many.

In the last part of the Pensees sur l'interprétation de la nature, Diderot's remarks on the scientific method are merely elaborations of his previous statements. In XLII, for instance, he admits again the permissibility of hypotheses if, and only if, they are carefully tested by experiments. In XLV, he repeats his belief in the unity of nature:

"Dans la nature, on reconnaîtra, lorsque la physique expérimentale sera plus avancée, que tous les phénomènes, ou de la pesanteur, ou de l'élasticité, ou de l'attraction, ou du magnétisme, ou de l'électricité, ne sont que des faces différentes de la même affection."

In XLVII, he repeats his stricture that one should have hypotheses but not be ruled by them:

"C'est l'inconvénient qu'il y a, non pas à voir des idées, mais à s'en laisser aveugler, lorsqu'on tente une expérience."

For the very reason that he recognises the extreme usefulness of experimentation, Diderot is as careful as any rationalist to warn against the dangers of its misuse. Experiments must be carried out with great care and honesty:

"Il faut laisser l'expérience à sa liberté; c'est la tenir captive que de n'en montrer que le côté qui prouve, et d'en voiler le côté qui contredit." (3)

(1) Pensees sur l'interprétation de la nature, X.
(2) Ibid, XXXIX.
(3) Ibid, XLVII.
Such counsels as this to the scientist are a development of Diderot's remarks in the *Lettre sur les aveugles*, where he stated that he put his faith more in the reasoning of a competent metaphysician than in ill-ordered experimentation. (1)

Despite his faith in empiricism, Diderot, as we have seen, will still not abandon a moderate trust in the synthesising power of the reason. Certainly he condemns blind dependence on hypotheses, counselling instead an open-minded acceptance of several possibilities and the ultimate discovery of the truth about nature by observation and experimentation. Likewise he differs from Bacon in his belief in the intuitive powers of a scientific genius. As Professor Dieckmann says,

"The notion of an individual endowed with specific insight into nature cannot be found in Bacon." (2)

Diderot obviously had in mind the applicability of his method to the field of education, as we have seen by his criticisms of the current systems of teaching and his suggestion of ways to inspire pupils to become good practitioners of the method. His system of education will not be, therefore, a mere presentation of facts, an unchanging collection of subjects to be learnt by the pupils, like the usual curriculum of the colleges, but an attempt to arouse the pupil's interest. He wishes to lead him to his own investigations, equipped with a healthy amount of doubt in man's ability ever to reveal the mysteries of nature, and a consequent mistrust of both glib hypotheses and careless experimentation.

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(1) A-T, I, p. 313.

(2) *Romanic Review*, XXXIV, No. 4, 1943 p. 316.
Unlike Condillac, Diderot was not content to examine the powers of perception. He did not simplify the action of the human mind, as Condillac did, by stopping at the psychology, but concerned himself also with the physiology of man. To him, the physical constitution of a man was of great importance to his acquisition of knowledge; Condillac, on the other hand, considered the processes of the mind in general terms, ignoring the individual differences there might be between different men. He conceived of perceptions received by the soul. Condillac in fact had much of the rationalist in him, despite his avowed anti-Cartesianism. Although he attacked the systematists, he himself, as Isabella Knight shows (1), had a belief that everything around us, all of nature, must have some coherent arrangement and systematic laws. Diderot's attitude to the question was more complex. He wished, like Condillac, to cling to the idea of order and unity in the universe:

"Sans l'idée de tout, plus de philosophie." (2)

Yet he doubts such a unity. The laws of nature may change, species may develop, change and disappear; thus he produces his theory of transformism. (3)

Diderot in the Pensées sur l'interprétation de la nature had shown that he realised the necessity of establishing a workable method for the exploration of the nature of things. Following Bacon, he had counselled an unprejudiced examination of the available data; perhaps because of his own genius for hypothesis, he had pointed out also the great value of inspired guesswork in any scientific experimentation. Equipped with such a method, in the Pensées sur l'interprétation de la nature, and more so in the dialogues of the Rêve de

(2) Pensées sur l'interprétation de la nature, XI.
d'Alembert, he came forth with a theory which has been variously described as "hylozoistic" and "materialistic". Diderot's belief was that in man the physical and the mental are inextricably linked, that we can in fact because of this proceed from one to the other with ease. Here he diverged from the Malebranchean dualists such as Condillac, whose conclusions Diderot had first criticised, as we have seen, in the Lettre sur les aveugles, as tending towards idealism. (1) Diderot produced a far more complex picture of matter than the dictionary definition of hylozoism presents: "The theory that matter is endowed with life, or that life is merely a property of matter". (2) For Diderot, the atom or "molécule", as he calls it, was only potentially sensitive, capable of being actualised into feeling without being constantly perceptive; here he diverges from Maupertuis's conception of matter, which presupposed the smallest part of matter, the "molécule", as always endowed with sensitivity.

It is by the examination of this theory of Maupertuis's, in the Pensées sur l'interprétation de la nature, (paragraphs L and LI), that Diderot first sketches out the beginning of his own interpretation of matter. He is fully in accord with the laudable aim of Maupertuis's studies:

"Son objet est le plus grand que l'intelligence humaine puisse se proposer; c'est le système universel de la nature." (3)

From his earliest works Diderot had shown a desire to embrace all of nature in one comprehensive, though flexible, scientific theory, to demonstrate the unity of nature. In his notes to Shaftesbury's Enquiry Concerning Virtue and Merit, for instance, at the beginning of his writing career, Diderot had claimed:

"Dans l'univers tout est uni (...) plus on voit dans la nature, et plus on y voit d'union," (4)

And, in the eleventh paragraph of the Pensées sur l'interprétation de la nature, he again stated his belief in the continuity of things, using the common

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(2) O.E.D., Vol V.
(3) Pensées sur l'interprétation de la nature, L.
eighteenth-century conception of the Great Chain of Being:

"L'étonnement vient souvent de ce qu'on suppose plusieurs prodiges où il n'y en a qu'un; de ce qu'on imagine, dans la nature, autant d'actes particuliers qu'on nombre de phénomènes, tandis qu'elle n'a peut-être jamais produit qu'un seul acte. Il semble même que, si elle avait été dans la nécessité d'en produire plusieurs, les différents résultats de ces actes seraient isolés (...) et que cette chaîne générale, dont la philosophie suppose la continuité, se romprait en plusieurs endroits (...) sans l'idée de tout, plus de philosophie." (1)

In the same work, in the fiftieth paragraph, we see Diderot examining Maupertuis's system of nature with two aims in mind: he has an eye to inserting his own modifications of the theory, and also a mischievous delight in pushing Maupertuis's hypotheses to their logical conclusion, atheistic materialism.

He resumes with approval Maupertuis's complaints on the inadequacy of previous metaphysical systems such as Cudworth's natures plastiques and the theory of the preformation of germs, explanations which, he claims, have been given merely to save appearances and evade the accusation of heresy.

On the other hand, Maupertuis's conception of matter, which Diderot finds far preferable to earlier ones, is that it is a combination of sensitive atoms joining together to form various beings:

"Mais chaque élément perdra-t-il, en s'accumulant et en se combinant, son petit degré de sentiment et de perception? Nullement, dit le docteur Baumann [Maupertuis]. Ces qualités lui sont essentielles. Qu'arrivera-t-il donc? Le voici. De ces perceptions d'éléments rassemblés et combinés, il en résultera une perception unique, proportionnée à la masse et à la disposition; et ce système de perception dans lequel chaque élément aura perdu la mémoire du soi et concourra à former la conscience du tout, sera l'âme de l'animal." (2)

Diderot goes on to quote a passage in Latin from Maupertuis's Système de la nature which deals with this formation from various molecules of a being with its own unity and its own consciousness of self. The corresponding part from the French version, which appeared in 1754, runs thus:

(1) Pensées sur l'interprétation de la nature, XI.
(2) Ibid. L.
"Il semble que de toutes les perceptions des éléments rassemblés il en résulte une perception unique, beaucoup plus forte, beaucoup plus parfaite, qu'aucune des perceptions élémentaires, et qui est peut-être à chacune de ces perceptions dans le même rapport que le corps organisé est à l'élément. Chaque élément dans son union avec les autres, ayant confondu sa perception avec la leur, et perdu le sentiment particulier du soi, le souvenir de l'état primitif des éléments nous manque, et notre origine doit être entièrement perdu pour nous." (1)

Such a view has certain points in common with Leibniz's monadology. Although Diderot admired Leibniz, and wrote the article Leibnitzianisme for the Encyclopédie (2), he did not draw on him for his ideas. Leibniz's theories had not been published in French, only in Latin (in 1721) and anyway Diderot probably consulted Brucker's Historia philosophiae for his information on Leibniz. Leibniz began with the notion of a unit, not a unit of matter, but an immaterial "monade" which has no extension, and which has unity. Such "monades," simple units, combine to form complex wholes. Each "monade" has a window on the world, some obscure consciousness of the whole, which makes psychical activity in Nature possible even in its most primitive form. Maupertuis's theory, as Diderot expounds it here, is simpler. He takes the idea of Newton's atoms, or Descartes's particles, but abolishes the idea of an outside force which puts them in motion. Maupertuis's idea is non-mechanistic, that the atoms find their place spontaneously. This seems to Diderot a fruitful hypothesis, but he insists with mock gravity on the "terribles conséquences de son hypothèse", which must lead Maupertuis, its perpetrator, towards atheism. If, Diderot says, Maupertuis denies the unity of these "molécules sensibles et pensantes", which form all matter, he is breaking the Great Chain of Being, denying the order of nature and destroying the central argument for the existence of a creator:

"Il ébranlera d'un seul mot l'existence de Dieu, en introduisant le désordre dans la nature; et il détruirra la base de la philosophie, en rompant la chaîne qui lie tous les êtres." (3)

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(1) Maupertuis, Système de la nature, Essai sur la formation des corps organisés, LIV.
(3) Pensées sur l'interprétation de la nature, L.
If, on the other hand, he makes the only other possible decision and admits that the molecules form a whole, he is led inevitably to what he calls "Spinozism", and is forced to concede

"que, le monde pouvant être infini, cette âme du monde, je ne dis pas est, mais peut-être un système infini de perceptions et que le monde peut être Dieu."  

Diderot assures his readers, tongue in cheek, that it is his concern to rescue Maupertuis from such appallingly atheistic, or at least heretical, consequences. Such a statement provides him with an opening to expound his own theory of life. He suggests that we should regard the atom as endowed with merely a potentiality for feeling,

"Une sensibilité mille fois moindre que celle que le Tout-Puissant a accordée aux animaux les voisins de la matière morte," (1) 

a "sensibilité sourde". Diderot is here going back to the old scholastic notion of the distinction between sensibility "in potentia" and sensibility "in actu", although possibly he does not do so deliberately. Here he seems drawn into a contradiction, affirming that the atom may have merely latent sensitivity while still giving it some small measure of sensitivity - "mille fois moindre" than that of the animals closest to dead matter. Each molecule, Diderot continues, arrives at its correct place in the structure of an individual being for two reasons: because of this potential sensitivity, and by an in-built automatic impulse to find the most suitable place for its existence. Diderot replaces Maupertuis's "dangerous" theory with his own definition of any being:

"il eût défini l'animal en général, un système de différentes molécules organiques qui, par l'impulsion d'une sensation semblable à un toucher obtus et sourd que celui qui a créé la matière en général leur a donné, se sont combinées jusqu'à ce que chacune a rencontré la place la plus convenable à sa figure et à son repos." (1)

His references to God, "le Tout-Puissant" and "celui qui a créé la matière en général", as the creator of the whole situation, have produced a respectably orthodox veneer for Maupertuis's hylozoism.

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(1) *Pensées sur l'interprétation de la nature*, LI.
Here Diderot ends his discussion of the nature of matter to continue with his theme of the elaboration of the scientific method. It was not until 1769, in the dialogues usually grouped under the title of the Réve de d'Alembert, that he developed his hypothesis more fully. Some of his writings in the late 1760s, however, bear witness to his continued interest in this question of the potential sensitivity of matter. In a letter in 1765, for instance, he wrote:

"La sensibilité, c'est une propriété universelle de la matière, propriété inerte dans les corps bruts (...) propriété rendue active dans les mêmes corps par leur assimilation avec une substance animale vivante (...) l'animal est le laboratoire où la sensibilité d'inerte qu'il était, devient active." (1)

And in the Encyclopedia article Spinoziste he again emphasises the closeness between "living" and "dead" matter, describing the egg as a

"corps inerte qui par le seul instrument de la chaleur graduée passe à l'état d'êatre sentant et vivant." (2)

Similarly, in the Salon of 1767 (3), he foreshadowed the use of the image of the spider and its web as forming an organic whole which appears in the Réve de d'Alembert. The whole bias of his work Éléments de physiologie, notes on Haller's Elementa physiologiae corporis humani, which Diderot began in 1765 (4), show his constant preoccupation with the closeness between physiological and mental processes. This is shown clearly by his letter to Dr Petit, in which he introduces the subject of his speculations in the Éléments de physiologie, giving the hypothetical case of a young man,

"un grand fainéant de vingt-cinq ans, (5)

who lives in twenty years through the various stages of violent physical action, indolence, overwhelming envy and, finally, lameness. These physical and mental vicissitudes must both, Diderot insists, have a great influence on the man's physiology:

(1) Roth, Vol V, p. 141 (10 October 1765).
(2) A-T, XV, p. 474.
(3) Ibid. XI, p. 146.
(5) A-T, IX, p. 239.
"En conséquence, j'aurai par degrés successifs les effets d'une condition, d'une maladie, d'une passion et d'une difformité sur les organes extérieurs d'une figure originellement de la plus parfaite régularité." (1)

In the Éléments de physiologie Diderot maintains his thesis of the Rêve de d'Alembert, that different beings are merely rearrangements of the same sensitive matter:

"La végétation, la vie ou la sensibilité et l'animalisation sont trois opérations successives. Le règne végétal pourrait bien être, et avoir été la source première du règne animal, et avoir pris la sienne dans le règne minéral, et celui-ci émaner de la matière universelle hétérogène." (2)

In the Rêve de d'Alembert, he will try to show the unbroken link between matière morte and matière vivante, to elucidate such important problems as

"la sensibilité générale, la formation de l'être sentant, son unité, l'origine des animaux, leur durée, et toutes les questions auxquelles cela tient," (3)

This Diderot does by means of his dialogues, the Entretien entre d'Alembert et Diderot, and the Rêve de d'Alembert, in which the participants, Diderot himself, D'Alembert (dreaming or awake), Doctor Bordeu and Mademoiselle de Lespinasse try to reach some agreement in their ideas on the nature of matter. At the beginning of the Entretien, Diderot causes his friend D'Alembert to put his finger at once on the most startling conclusions to be drawn from Diderot's belief in the general potential sensitivity of matter. D'Alembert points out that, taken to its logical extreme, such a hylozoistic theory implies that what we normally regard as inanimate matter, such as stone, is in fact capable of sensation:

"D'autres obscurités attendent celui qui le rejette [the God of the deists] car enfin cette sensibilité que vous lui substituez, si c'est une qualité générale et essentielle de la matière, il faut que la pierre sente." (4)

(1) A-T, IX, p. 240.
(4) Ibid, p. 258.
"Pourquoi non?" replies Diderot. All matter is endowed with sensitivity, either the "sensibilité inerte", as yet not actualised, possessed by a marble statue, or else the "sensibilité active" of man, the animal world, perhaps even the plant world. "Dead" matter may become "living" matter by a simple rearrangement of molecules; as an example Diderot suggests the process of eating. He proposes that they take a marble statue of Falconet's and turn it into living matter by making it edible:

"Je le rendrai comestible." (1)

"Rendre le marbre comestible, cela ne me paraît pas facile", objects D'Alembert. Firstly, says Diderot, they must grind it into powder; then they can mix it with plant matter to transform it into humus:

"Je mêle cette poudre à de l'humus ou terre végétale; je les pétris bien ensemble; j'arrose le mélange, je le laisse putréfiier un an, deux ans, un siècle; le temps ne me fait rien. Lorsque le tout s'est transformé en une matière à peu près homogène, en humus (...) j'y sème des pois, des fèves, des choux, d'autres plantes légumineuses. Les plantes se nourrissent de la terre, et je me nourris des plantes." (2)

He has thus achieved the transformation of seemingly non-sensitive matter into living flesh.

But there remains a second step which Diderot must take in this demonstration of the close contact between the physiological and the mental. He must make the passage from "l'être sentant" to "l'être pensant" (3), from sensation to thought. This he effects by an excursion into the realms of human psychology. He begins by basing the consciousness firmly on memory: without memory, there would be no coherent, separate self-awareness:

"Sans cette mémoire il [the being capable of sensation] n'aurait point de lui, puisque, ne sentant son existence que dans le moment de l'impression, il n'aurait aucune histoire de sa vie. Sa vie serait une suite interrompue de sensations que rien ne lierait." (4)

This power of memory is derived from a certain "organisation" of the being.

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(1) Œuvres philosophiques, Paris, 1956, p. 262.

(2) Ibid. p. 263.

(3) Ibid. p. 269.

(4) Ibid. p. 270-1.
and enables it to reflect on the impressions its senses receive:

"Il nie, il affirme, il conclut, il pense." (1)

Diderot substantiates this view of the psychology of man by his comparison of the mind with a musical instrument. Each is made up of different "fibres" or strings, which vibrate and react upon each other. Thus the mind is capable of an unlimited number of thoughts at the same time, conveyed by different fibres to the brain. D'Alembert's objection to this is that, although Diderot intends to refute dualism, claiming that all matter is possessed of latent sensitivity, he is in fact by this image creating a gulf between the mind and the fibres:

"Si vous y regardez de près, vous faites de l'entendement du philosophe un être distinct de l'instrument, une espèce de musicien qui prête l'oreille aux cordes vibrantes, et qui prononce sur leur consonance ou leur dissonance." (2)

Diderot's only reply is to insist on the unmistakable, though imperceptible, graduation between seemingly dead matter and the mental processes. An egg, he says, slowly forms a being capable of sensation from "une masse insensible". (3) If we observe the progress from the egg to the fully-formed bird, we will refute D'Alembert and conclude:

"qu'avec une matière insérè, disposée d'une certaine manière, impregnée d'une autre manière insèrè, de la chaleur et du mouvement, on obtient de la sensibilité, de la vie, de la mémoire, de la conscience, des passions, de la pensée." (4)

Towards the end of the Entretien, Diderot again runs through his argument, summing his whole theory up succinctly. Again he states his belief in the close contact between seemingly "dead" matter, sensitive matter and matter which is capable of thought. Every being in the universe is composed of potentially sensitive molecules, he insists, which differ only because of the different arrangement of organisation of these molecules. It is because

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(2) Ibid, p. 273.
(3) Ibid, p. 275.
of this organisation, and not because of any intrinsic variation in the matter, that a living being, such as a man, is not the same as a non-living being such as a marble statue:

"Il n'y a plus qu'une substance dans l'univers, dans l'homme, dans l'animal. La serinette est de bois, l'homme est de chair. Le serin est de chair, le musicien est d'une chair diversement organisée; mais l'un et l'autre ont une même origine, une même formation, les mêmes fonctions et la même fin." (1)

The second dialogue in the series, the Rêve de D'Alembert, continues the elaboration of Diderot's support for this theory of hylozoism. D'Alembert, in his dreaming state, carries on his argument with Diderot by, first of all, a puzzled denial of one of Diderot's central beliefs, the basic unity of all matter in our universe:

"Tenez, philosophe," he objects, "je vois bien un agrégat, un tissu de petits êtres sensibles, mais un animal,... un tout! un système un, lui, ayant la conscience de son unité!" (2)

Diderot explains his view of matter by his favourite method of analogy. He compares it to a cluster of bees. Each bee is an individual creature, but the cluster as a whole seems itself to be a single being; similarly, dealing in far smaller particles of matter, we may imagine each molecule as a tiny individual creature, which, in combination with other molecules, forms a certain organisation of matter, an individual substance. Bordeu, Diderot's mouthpiece, explains it to Mademoiselle de Lespinasse thus:

"L'homme qui prendrait cette grappe pour un animal se tromperait(...) Vous voulez transformer la grappe d'abeilles en un seul animal? amollissez les pattes par lesquelles elles se tiennent; de contiguës qu'elles étaient, rendez-les continues. Entre ce nouvel état de la grappe et le précédent, il y a certainement une différence marquée; et quelle peut être cette différence, sinon qu'à présent c'est un tout, un animal un, et qu'auparavant ce n'était qu'un assemblage d'animaux? ... Tous nos organes(...) ne sont que des animaux distincts que la loi de continuité tient dans une sympathie, une unité, une identité générales." (3)

(1) Oeuvres philosophiques, Paris, 1956, p. 278.
(2) Ibid. p. 288.
(3) Ibid. p. 293.
In this image Diderot is insisting on the non-existence of rigid divisions in matter. He has here a transformist conception of matter, as composed of molecules which may separate and form new beings, even new species, as time passes. The only constant thing is the presence of some sort of sensitive matter:

"Suite indéfinie d'animalcules dans l'atome qui fermente, même suite indéfinie d'animalcules dans l'autre atome qu'on appelle la terre. Qui sait les races d'animalx qui nous ont précédés? qui sait les races d'animalx qui succéderont aux nôtres? Tout change, tout passe, il n'y a que le tout qui reste." (1)

That this was a fascinating speculation to Diderot, and an essential part of his thought, is shown by the presence of much the same idea in two other works, the Lettre sur les aveugles, written twenty years earlier, and the Entretien entre d'Alembert et Diderot, where it is sketched in. Saunderson's death-bed speech in the Lettre had presented the universe as a combination of perpetually fermenting matter, where species and even whole worlds might come and go (2). And in the Entretien, Diderot had imagined such a process:

"Le soleil étient, qu'en arrivera-t-il? Les plantes périront, les animaux périront, et voilà la terre solitaire et muette. Rallumez cet astre, et à l'instant vous rétablirez la cause nécessaire d'une infinité de générations nouvelles, entre lesquelles je n'oserais assurer qu'à la suite des siècles nos plantes, nos animaux d'aujourd'hui se reproduiront ou ne se reproduiront pas." (3)

Returning to the expression of this idea in the Rêve de d'Alembert, we find D'Alembert in his dreaming state made to stress again and again the universal sensitivity of matter and the consequent imprecision of the divisions into individuals:

"Tous les êtres circulent les uns dans les autres, par conséquent toutes les espèces... tout est en un flux perpétuel(...)Toute chose est plus ou moins une chose quelconque, plus ou moins terre, plus ou moins eau, plus ou moins air, plus ou moins feu; plus ou moins d'un règne ou d'un autre... donc rien n'est de l'essence d'un être particulier." (4)

(2) A-T, I, p. 309.
(4) Ibid. p. 311-2.
And he continues:

"Les espèces ne sont que des tendances à un terme commun qui leur est propre. Naitre, vivre et passer, c'est changer de formes. Depuis l'éléphant jusqu'au puceron ... depuis le puceron jusqu'à la molécule sensible et vivante, l'origine de tout, pas un point dans la nature qui ne souffre et ne jouisse." (1)

To put his view of matter in another way, Diderot chooses yet another image, the image of the spider and its web, which although apparently separate divisions of matter are in fact intricately connected to each other.

"Imaginez, says Mademoiselle de Lespinasse, une araignée au centre de sa toile si les fils que l'insecte tire de ses intestins, et y rappelle quand il lui plaît, faisaient partie sensible de lui-même?" (2)

Surely the actions of the human mind with its reactions to physical stimuli can be compared to the essential unity of the spider and its web? Doctor Bordeu agrees, reminding her that his image of the cluster of bees reflected much the same belief in the structure of matter. Logically, then, if all matter is sensitive, and connected into a great whole which is the universe, each member of the universe should be affected by any event which occurs,

"puisque je suis un peloton de points sensibles, que tout presse sur moi et que je presse sur tout." (3)

This obviously non-existent situation Diderot disposes of by explaining that the sheer distance between the various parts of the universe, and the presence of so many impressions at close quarters, makes it impossible for us to be affected, as we logically should be, by every action in the surrounding sensitive matter:

"Mais il y a si loin, l'impression est si faible, si croisée sur la route, vous êtes entourée et assourdie de bruits si violents et si divers; c'est qu'entre Saturne et vous il n'y a que des corps contigus, au lieu qu'il faudrait de la continuité." (4)

After a brief excursion into metaphysics, in which Bordeu suggests that

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(2) Ibid. p. 314.
(3) Ibid. p. 315.
(4) Ibid. p. 316.
the only possible God is a God who is intrinsic in matter,

"une grosse ou petite araignée dont les fils s'étendent à tout", (1)

Diderot returns to the subject which at this time is so important to him, the physiology of man, and the close link between the physical and the mental. He causes Bordeu to outline the development of the human being in much the same way as he did the development from egg to bird in the Entretien (2), the gradual progression from seemingly dead matter,

"un point imperceptible, formé de molécules plus petites," (3)

to the human being capable of sensation and thought. Here he takes pains to ridicule the theory of "germes préexistants". Scientists at this time were concerned with the problem of the appearance of the form of a creature. The existence of matter was acceptable, but the form of a new-born being needed some explanation. Scientists such as Leeuwenhoek and Bonnet supported a theory which had entered biological thought at the end of the seventeenth century, the "emboîtement de germes", the existence since the Creation of tiny ready-formed creatures, one inside the other (4). Diderot emphatically opposes any belief in these "germes préexistants" as contradictory to his own belief in the perpetual flux of the universe and the formation of new beings from the one basis of sensitive matter. In the Entretien he pours scorn on the theory as contradictory to the findings of the scientists and to reasonable probability:

"Contre l'expérience qui chercherait inutilement ces germes dans l'œuf et dans la plupart des animaux avant un certain âge; contre la raison qui nous apprend que la divisibilité de la matière a un terme dans la nature, quoiqu'elle n'en ait aucun dans l'entendement, et qui répugne à concevoir un éléphant dans un atome et dans cet atome un autre éléphant tout formé, et ainsi de suite à l'infini." (5)

(3) Ibid, p. 320.
In the *Rêve de d'Alembert*, Diderot again dismisses the idea as ridiculous, making his spokesman, Bordeu, assure Mademoiselle de Lespinasse that "rien cependant n'est plus faux que cette idée." (1)

According to Bordeu, the process is far more complicated, and more gradual, than the mere growth to full size of a creature that has always existed in miniature. Man is formed of a complex "bundle of threads", each of which develops within the womb to give him the capacity for sensation:

"un brin formant une oreille, donne naissance à une espèce de toucher que nous appelons bruit ou son; un autre formant le palais, donne naissance à une seconde espèce de toucher que nous appelons saveur" (2),

and similarly with the senses of smell and sight. If the organisation of these "brins" or ends of the nerve-threads is changed, the structure of the creature itself will be changed, and hence we have cases of deformity. Here Diderot diverges into accounts of various peculiarities in the structure of men, such as the man with his heart on the right side and all his organs reversed, or the "Cyclops" child with only one eye, right in the middle of the forehead. Such creatures, he insists, are proof of the fact that we are merely arrangements of the same material, sensitive matter, and that a difference in the formation of the "brins" will necessarily mean a difference in our outward arrangement.

With these ideas on the structure of the body clear in his mind, Diderot now turns to the passage from the "être sentant" to "être pensant" which had presented problems in his discussion with D'Alembert in the *Entretien*. (3) He repeats his point that it is memory which gives a being unity, its coherence, memory which must be founded on

(2) Ibid. p. 320-1.
(3) Ibid. p. 270-1.
the sense-impressions. The awareness of oneself, therefore, and the consequent ability to form thoughts, depend on the arrangement of our organs; such capacities are formed

"à l'origine du réseau",

at the central point of our network of nerves. Diderot illustrates this point by showing various examples of the closeness between the mental process and one's physical constitution - the Siamese twins, for instance, who lost consciousness alternately because their "réseau" or network of nerves was in fact one, not two.

The rest of the Rêve de d'Alembert is taken up with the conclusions of the hylozoism which Diderot has expounded so eloquently. He now gives many examples of the inevitably close contact that must exist between the physical and the mental. All matter being potentially sensitive, and man being made up of a network of nerves and organs with their different degrees of sensitivity, the dividing line between sensation and thought is much harder to draw than has previously been supposed. Diderot gives several examples: the young man who, because of an accident causing physical damage to the brain, lost all memory of his past training and accomplishments, returned to a mental state of childishness and had to be completely re-educated; the woman who overcame her violent hysterics by a conscious effort of will coupled with a deliberate care of her physical constitution; the priest who, by his powerful mental effort, endured a serious operation with no visible signs of pain; the philosopher who lost all awareness of his toothache by determinedly absorbing himself in his books. Such a link between the physical and mental leads Diderot to formulate one of his important theories, which has obvious pedagogical implications. He suggests that genius depends largely, although not entirely, on the physical
constitution of a man:

"Le principe ou le tronc est-il trop vigoureux relativement aux branches? De là les poètes, les artistes, les gens à imagination, les hommes pusillanimes, les enthousiastes, les fous(...). Le système entier énergique, bien d'accord, bien ordonné? De là les bons penseurs, les philosophe, les sages." (1)

The man of genius has in his physical make-up a "brin" which predominates and gives him his own special talent:

"le chien a l'odorat, le poisson l'ouïe, l'aigle la vue; D'Alembert est géomètre, Vaucanson machiniste, Grétry musicien, Voltaire poète; effets variés d'un brin du faisceau plus vigoureux en eux qu'aucun autre et que le brin semblable dans les êtres de leur espèce." (2)

This physiological basis for talent is a point which Diderot, as we shall see, was to insist on in his Réfutation d'Helvétius. Here in the Rêve de d'Alembert he returns to it when he gives Mademoiselle de Lespinasse a short summary of the whole theory:

"D'après vos principes, she says to Bordeu, il me semble que, par une suite d'opérations purement mécaniques, je réduirais le premier génie de la terre à une masse de chair inorganisée, à laquelle on ne laisserait que la sensibilité du moment, et que l'on ramènerait cette masse informe de l'état de stupidité le plus profond qu'on puisse imaginer à la condition de l'homme de génie." (3)

All that she has to do is to disorganise the arrangement of the "brins" and the man of genius will be reduced to an unthinking, unfeeling mass; if she then re-creates them correctly, and lets the rest of his capacities develop, she has restored her man of genius. Diderot traces these theoretically simple operations with an accumulation of careful detail. The last stage, for example, he describes thus:

(2) Ibid, p. 355.
(3) Ibid, p. 366.
"Je reprends cette masse et je lui restitue les brins
olfactifs et elle flaire; les brins auditifs et elle entend,
les brins optiques, et elle voit; les brins palatins, et
elle goûte. En démêlant le reste de l'écheveau, je
permets aux autres brins de se développer, et je vois
renaitre la mémoire, les comparaisons, le jugement,
la raison, les désirs, les aversions, les passions,
l'aptitude naturelle, le talent, et je retrouve mon homme
de génie, et cela sans l'entremise d'aucun agent hétérogène
et intelligible." (1)

Such a close examination of the various stages shows how
important this notion of the link between genius and the physiology
was for Diderot. His view of man in the Rêve de d'Alembert,
therefore, is as a creature greatly influenced by his physical
constitution, the organisation of the "brins du faisceau" and
the impressions which they receive. D'Alembert, he points
out, may live a whole day quite automatically, reacting
mechanically to the stimuli around him in much the same way
as he did in his dream:

"Dans le cours de vos méditations, à peine vos yeux
s'ouvriraient le matin que, ressaisi de l'idée qui vous
avait occupé la veille vous vous y têtiez, vous vous
asseyiez à votre table, vous méditiez, vous traciez des
figures, vous suiviez des calculs(...sans avoir fait le
moindre acte de volonté." (2)

Each human act is based on some cause which it must logically
follow:

"La dernière de nos actions est l'effet d'une cause une:
nous, très compliquée, mais une." (3)

That cause is our own individual constitution. This is tantamount to a belief in determinism, and leads Diderot, with his constant preoccupation with moral questions, to the application of the theory to the ever-present problems of vice and virtue. In the Lettre sur les aveugles, as we have seen, he was already aware that the way his thoughts were going, towards the elimination of the theory of innate ideas and the foundation of all man's ideas on experience alone, was to have grave moral consequences:

Vice and virtue may be seen as purely relative:

"Que la morale des aveugles est différente de la nôtre! Que celle d'un sourd différerait encore de celle d'un aveugle, et qu'un être qui aurait un sens de plus trouverait notre morale impaire, pour ne rien dire de pis!" (1)

In the Rêve de d'Alembert Diderot has moved so far along this line of thinking as to see "vice" and "virtue" as quite meaningless terms. Better, he says, to talk of actions in terms of their results, as "bienfaisance" and "malfaisance", and to exert oneself to persuade men of the advantages of good actions, than to evoke such misleading terms as

"l'estime de soi, et la honte, et le remords." (2)

These words are meaningless because they imply greater freedom from our organisation or constitution than we actually have.

Nevertheless, Diderot does not see man as completely subject to his temperament, but as an "être modifiable", who should be corrected or encouraged according to his actions. This return to moral problems in the midst of the physiological details of the

(2) Ibid, p. 364.
Reve de d'Alembert recalls Diderot's unceasing desire to reach some decision on the nature of virtue and its advantages. Indeed one of his earliest works, the translation of Shaftesbury's Enquiry Concerning Virtue and Merit, was the scheme for a comprehensive moral code. Since then Diderot had not lost sight of moral problems. In the Reve de d'Alembert he is developing ideas which he had first set out in a letter to Paul Landois in 1756: here he had maintained his belief in man's lack of freedom, and the consequent meaninglessness of moral judgements. Here he had also reiterated his faith in the educability of man:

"Vous verrez que le mot liberté est un mot vide de sens; (...) que nous ne sommes que ce qui convient à l'ordre général, à l'organisation, à l'éducation, et à la chaîne des événements ... Mais s'il n'y a point de liberté, il n'y a point d'action qui mérite la louange ou le blâme; il n'y a ni vice ni vertu, rien dont il faille récompenser ou châtier. Qu'est-ce qui distingue les hommes? la bienfaisance et la malfaisance(...) Mais quoique l'homme bien ou malfaisant ne soit pas libre, l'homme n'en est pas moins un être qu'on modifie(...) De là les bons effets de l'exemple, des discours, de l'éducation, du plaisir, de la douleur, des grandeurs, de la misère, etc." (1)

In the Reve de d'Alembert, after similar remarks on "bienfaisance" and "malfaisance", and the modifiability of man Diderot now leaves the moral problems concomitant with his hylozoistic conception of the universe, and returns to questions of physiology and its relation to mental activity:

"Voilà donc, says D'Alembert, tout ramené à de la sensibilité, de la mémoire, des mouvements organiques;

After Mademoiselle de Lespinasse's recapitulation of the physiological basis for genius, that firmly held belief of Diderot's which we have already discussed, and whose importance to the Réfutation d'Helvétius is plain, Bordeu repeats these questions of D'Alembert's, "Mais l'imagination? mais les abstractions?", and goes on to answer this, insisting on Locke's point that all knowledge is derived ultimately from our sense-impressions. There is, he says, no such thing as pure invention or abstraction, because whatever we imagine must be based on some combination of elements we already know to exist in nature. Imagination, by which Diderot means the power of making mental images, is based on memory:

"L'imagination, c'est la mémoire des formes et des couleurs." (2)

This remark recalls Diderot's insistence that colour is an essential part of the imagination in the Lettre des aveugles. (3) D'Alembert asks Bordeu if he believes that man cannot really imagine anything that is not based on experience,

"s'il est bien persuadé qu'une forme qui ne ressemblerait à rien, ne s'engendrerait jamais dans l'imagination, et ne se produira point dans le récit."


(2) Ibid. p. 367.

(3) "Il [l'aveugle-âne] n'imagine point; car, pour imaginer il faut colorer un fond et détacher de ce fond des points, en leur supposant une couleur différente de celle du fond (...) du moins c'est ainsi que les choses s'exécutent dans mon imagination; et je présume que les autres n'imaginent pas autrement que moi." Oeuvres philosophiques, Paris, 1956, p. 95.
Bordeu sticks to his belief, setting all ideas firmly back on the sense-impressions:

"Je le crois. Tout le délire de cette faculté [l'imagination] se réduit au talent de ces charlatans qui, de plusieurs animaux dépecés, en composent un bizarre qu'on n'a jamais vu en nature." (1)

There is therefore, he continues, no such thing as pure abstraction, but only ideas founded solidly on physical reality:

"On n'a nulle idée d'un mot abstrait. On a remarqué dans les corps trois dimensions... on s'est occupé de chacune de ces dimensions, et de là toutes les sciences mathématiques. Toute abstraction n'est qu'un signe vide d'idée."

Thus, says, Bordeu, recalling Diderot's elaboration of a scientific method in the Pensées sur l'interprétation de la nature,

"Ce n'est qu'en rattachant le signe à l'objet physique que la science redevient une science d'idées; de là le besoin, si fréquent dans la conversation, dans les ouvrages, d'en venir à des exemples." (1)

With this important theme the dialogue breaks up into the hurried closing remarks of Doctor Bordeu as he leaves D'Alembert and Mademoiselle de Lespinasse, bringing the conversation to an end.

This brief discussion of the Entretien and the Rêve de d'Alembert has shown Diderot developing his belief in the relationship between the physical and the mental, based on his idea of the potential sensitivity of matter which he fills in from his first tentative explorations of the subject in the Pensées sur l'interprétation de la nature. Given his theory that there is no abyss between "l'être pensant" and "l'être sentant", that "matière morte" and "matière vivante" are merely different combinations of the same materials and are constantly transformed the one into the other, Diderot's views on the nature of man become clearer. All man's ideas relate back to his sense-impressions,

and his character and imagination and mental prowess to his physical constitution. It is thus impossible, in any discussion of human psychology, to divorce the action of the mind from the brain and from the physical organisation of the person concerned. Such a belief was to cause Diderot to disagree violently with Helvétius, whose mechanistic view of man was directly opposed to Diderot's theories. Helvétius did not recognise the existence of any "common sense" to combine the impressions which the senses receive: according to him, each sense is able to present a complete picture of reality, as long as attention (based on self-interest) and conscious perception are present. All men are therefore equally educable. Diderot, on the other hand, has a physiological basis for education which Helvétius lacks. For him, the physical constitution of a man, and his individual temperament, play a great part in the theory of education. Some men have more aptitude than others; some are by their very nature geniuses and different from their fellows, and others may be unteachable. In his Réfutation d'Helvétius, Diderot, using as a basis his theories of physiology and psychology, was to make sharp criticism of Helvétius's mechanistic view of the education of man.
Chapter V

THE PROBLEM OF THE "MÉCHANT" : THE ARTICLE DROIT NATUREL

"Diderot semble avoir été obsédé par l'idée de méchanceté et par la nécessité de supprimer le méchant." (1) Diderot's obsession with the problem of the evil man is important to a study of his educational ideas. To him, as to the other thinkers of his age, "education" did not mean merely the development of the intellect, but "moral education", the formation of a social being who is aware of his rights and duties as a citizen. According to the eighteenth century broad view of education, the first task of the educationalist is to instil into the subject's mind not the mechanical principles of grammar and arithmetic, but the love of virtue and truth. Rousseau's Émile, for example, the most famous educational treatise of the century, published in 1762, is the study of the mind of the child in every situation, an essay in child-care, not a programme of lessons fit only for the classroom. Although, as Diderot shows in his discussion of the process of thought in the Réfutation d'Helvétius, the psychology of education is of vital interest to the educator, the question of moral education is no less important to him. Men must be shown that the pursuit of virtue brings advantages to themselves as well as to society as a whole. Such was the task which Diderot had set himself in his translation of Shaftesbury's Enquiry Concerning Virtue and Merit, where he tried to form principles of behaviour valid for all men. Yet throughout his writing Diderot was constantly aware of the existence of the evil man, the "méchant" who may be unconvinced by Diderot's reasoned defence of virtue and insist on acting anti-socially. Diderot's problem is to convince the evil man that there is some natural law governing him and the society to which he belongs, a law which obliges him, if he is to be truly consistent, to acknowledge that virtue is the best goal for all men, and act accordingly.

In the *Essai sur le mérite et la vertu*, Diderot's first recorded expression of his moral views, the "méchant" has not yet become a serious threat to his theories. Following Shaftesbury's optimism, Diderot in the greater part of the *Essai* dismisses the possibility of an entirely bad man because of his faith in the essential rationality of man. The order of the universe is such that every being is necessary to the complete plan; what man sees as evil is merely relatively bad, because he cannot possibly prove that apparent evils are not in fact part of a greater harmonious good which he is unable to see from his limited viewpoint:

"Nous nous garderons donc de prononcer qu'un être est absolument mauvais, à moins que nous ne soyons en état de démontrer qu'il n'est bon dans aucun système." (1)

Diderot here marks his approval of this line of reasoning by supplying in a note the image of the Mexican who, uninstructed in the nature of anchors, sails, masts, ladders and so on, awakens to find himself becalmed on board a ship in the middle of the ocean. He would be extremely presumptuous, Diderot suggests, if he were to proceed to treat these devices as

"poids incommodes et superflus"

and throw them overboard. He should observe what he can of the harmony of their structure and the skill of their creator which this betokens. Similarly, he says, atheists who point out the existence of evil in the world are only giving proof of the narrowness of their viewpoint:

"On dirait, à les entendre dogmatiser, qu'ils sont initiés dans tous [les] desseins [de la Nature], qu'ils ont une connaissance parfaite de ses ouvrages, et qu'ils seraient en état de se mettre au gouvernail, et de manoeuvrer à sa place." (2)

Combined with his faith in the power of human reason, this argument proves to the satisfaction of Shaftesbury, and apparently of Diderot, since he makes no comment, that there can be no such thing as a completely evil man:

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(1) A-T, I, p.27.
(2) Ibid. note 1.
"Nous avons vu combien il était difficile de dire de quelqu'un qu'il était un parfait athée; il paraît maintenant qu'il ne l'est guère moins d'assurer qu'un homme est parfaitement vicieux." (1)

Even criminals, he maintains, have their own code of honour, a misconception of virtue, which may urge them to sacrifice themselves for their fellows. The "sentiment intérieur" which apprehends good and evil may be corrupted, but it can never be entirely eliminated from the mind. (2) Although in the Essai Diderot's views are optimistic, and he treats the existence of evil as of minor importance, he does even at this early stage of his writing acknowledge the possibility that there may exist anti-social men who will refuse to conform to Shaftesbury's moral principles. There may be men whose passions cause them to reject Shaftesbury's code of behaviour in favour of a more immediate and temporary gain:

"Il est évident que les principes d'intégrité seront des règles de conduite pour la créature qui les possède, s'ils ne trouvent aucune opposition de la part de quelque penchant entièrement tourné à son intérêt particulier, ou de ces passions brusques et violentes, qui, sujuguant tout sentiment d'équité, éclipsent même en elle les idées de son bien privé, et la jettent hors de ces voies familières qui la conduisent au bonheur. (3)

In such a creature there can be discerned some of the qualities of the "méchant conséquent" of Diderot's later writings. He passionately resents any misfortune, refuses to resign himself as a good theist should to the blows of Fate, and struggles for his own preservation at the expense of his fellow-men. The problem here, however, is seen from a religious, not a political, point of view. This man is an atheist who will not be convinced of the underlying order of the universe, and the consequent existence of a creator. He does not present the powerful justification of his behaviour as the "méchant" of the article Droit naturel was to do. Here Diderot's solution, following Shaftesbury, (4) is the religious one of a conversion to theism:

(1) A-T, I, p.41.
(2) Ibid. p.42.
(3) Ibid. p.49.
(4) Diderot clearly approved of Shaftesbury's solution, as he showed in the preface to the Essai. He felt it necessary to add only a few remarks to introduce the reader to Shaftesbury's topic, since he was fully in accord with Shaftesbury's adherence to theism.
"'Quelque effet que l'ordre qui règne dans l'univers ait produit, il ne peut être que bon.' Cela suffit." (1)

Also in the Essai Diderot suggests that misanthropy, carried to its extreme, carries the risk of becoming "méchanceté". Being himself of a sociable temperament, and subscribing to Shaftesbury's ethic of sociability, whereby each individual must be judged according to his usefulness to society, Diderot condemns outright all those who shun society. The man who chooses to live in solitude must, by definition, be an unworthy member of society and therefore a "méchant":

"Il n'y a que le méchant qui soit seul", as he maintained later in the Fils naturel of 1756. (2) Such a view comes out clearly in the Essai. Shaftesbury shows the solitary man as unnatural and consequently unhappy:

"Peu de gens oseraient supposer qu'une créature en qui ils n'aperçoivent aucune affection naturelle, qui leur paraît destituée de tout sentiment social, (...) jouit en elle-même de quelque satisfaction (...) Le chagrin, l'impatience et la mauvaise humeur ne seront plus en elle des moments fâcheux; c'est un état habituel, auquel tout caractère insociable ne manque pas de se fixer (...) Le sentiment intérieur, qui lui crie qu'un être si dépravé, incommode à qui quiconque l'approche, ne peut qu'être odieux à ses semblables, la remplit de soupçons et de jalou- sies, la tient dans les craintes et les horreurs (...) Tels sont les symptômes de la perversité complète." (3)

Such a "méchant" is held up again later in the Essai as an example of misery because of his unnatural life: the condition of the "méchant" is:

"misérable, horrible, accablant"; (4) he must be

"sombre, triste, chagrin et mal constitué." (5)

To this last mention of the "méchant" as an "homme insociable", Diderot adds a sarcastic note denying its applicability to hermits prompted by religious reasons to shun the company of other men:

(2) Act IV, Scene iii.
(4) Ibid. p.121.
(5) Ibid. p.99.
"Il n'est point ici question de ces pieux solitaires que l'esprit de pénitence, la crainte des dangers du monde, ou quelque autre motif autorisé par les conseils de Jésus-Christ, et par les vues sages de son Église, ont confinés dans les déserts." (1)

In the article Célibat in Volume 2 of the Encyclopédie, Diderot was again to record his disapproval of celibacy, although still, with obvious insincerity, exempting members of the Christian Church from his condemnation. In this article he quotes the Essai sur le mérite et la vertu (A-T, I, p.24-5) and continues:

"La conservation de l'espèce n'est-elle pas un des devoirs essentiels de l'individu, et tout individu qui raisonne et qui est bien conformé ne se rend-il pas coupable en manquant à ce devoir, à moins qu'il n'en ait été dispensé par quelque autorité supérieure à celle de la nature? Voyez l'Essai sur le mérite et la vertu.

J'ajoute, à moins qu'elle n'en ait été dispensé par quelque autorité supérieure à celle de la nature, afin qu'il soit bien clair qu'il ne s'agit nullement ici du célibat consacré par la religion." (2)

The problem of the "méchant" reappears in the Promenade du sceptique (1747), where the evil man goes so far as to be actively evil, a "malfaisant", not merely passively anti-social. The conversation between Athéos (the atheist) and the Christian (3) leads to the Christian's abandoning religion and committing crimes against society - rape, murder and robbery. (4) At this time Diderot saw the atheist's arguments as dangerous, because they denied the existence of a creator and destroyed the Christian's set of arbitrary rules without replacing them by some set of values based on the nature of mankind. In the article Droit naturel, he was to deny implicitly the existence of God (as Athéos does explicitly) by completely failing to mention the Christian code of ethics; he was to go a step further than Athéos, however, by arguing with the "méchant" in an effort to establish some moral code valid for all men, some system of "natural law" which is designed to prove that the very nature of man in society obliges him to behave virtuously.

(2) A-T, XIV, p.50.
(4) Ibid. p.235.
In the *Suite de l'apologie de l'abbé de Prades*, the "méchant" appears again, this time under the name of the "Hobbiste". Here, as in the *Promenade du sceptique*, Diderot presents no argument against him but merely shows the attitude of the "méchant"; like the "méchant" of the *Essai sur le mérite et la vertu*, he refuses to consider himself as a part of society, even going so far as to wage war against his fellow-citizens. This is wrong, Diderot suggests, because he is refusing to accept the structure of human society as it is. Diderot has outlined, in the *Suite de l'apologie de l'abbé de Prades*, the progress of society, showing that men have united because their needs are similar, into a society which must protect their interests and satisfy their needs. He refers to de Prades's thesis as saying:

"A peine commençons-nous à parcourir les objets qui nous environnent (...) que nous découvrons parmi eux un grand nombre d'êtres qui nous paraissent entièrement semblables à nous; tout nous porte donc à penser qu'ils ont les mêmes besoins que nous éprouvons, et par conséquent le même intérêt à les satisfaire: d'où il résulte que nous devons trouver beaucoup d'avantages à nous unir à eux. De là l'origine de la société." (1)

This is in fact taken directly from D'Alembert's *Discours préliminaire* to the *Encyclopédie*, Oeuvres, Paris, 1805, Volume I, p.190.

He had explained this more fully in the article *Besoin*, (2) where he suggested that in the early stages of society men tend to assert their own interests, and society becomes "un état de guerre", where every man, motivated by fear, struggles against his fellow-citizens. A state of inequality results. But, Diderot maintains, this must be only a temporary phase where men exist "en troupeau" (as he puts it in the *Suite de l'apologie*) (3) caused by men's general ignorance and their false ideas of their own needs. Diderot in the *Suite de l'apologie* misrepresents Hobbes's views and in fact gives a false meaning to the term "Hobbiste". Possibly he had not yet read Hobbes. In his earlier writings he

(2) This article was marked by an asterisk to indicate Diderot's authorship.
(3) A-T, I, p.466.
had shown that he was not averse to mentioning Hobbes with only a slight knowledge of the English writer's ideas. For example, in the notes to the *Essai sur le mérite et la vertu*, his only mention of Hobbes is to show that an atheist may be a virtuous man; (1) his reference to Hobbes in the *Pensées philosophiques* (2) likewise indicates that Diderot was not well acquainted with Hobbes's ideas. His later references to Hobbes, such as his long article *Hobbisme* in Volume VIII of the *Encyclopédie*, was based not on Diderot's own reading of Hobbes's works but on Brucker's chapter on Hobbes in his *Historia critica philosophiae*. (3)

In the *Suite de l'apologie de l'abbé de Prades*, Diderot claims that what has actually happened is that society has advanced beyond the stage at which Hobbes saw it as fixed, because men have recognised the dangers of this constant struggle and have made laws and set up authorities which must try to restore men's original equality. Hobbes, of course, does not see men as still in the state of the "troupeau": the state of war exists between pre-social men and according to him is replaced upon the formation of society by safety and peace for all its members. (4) Society, Diderot continues, is a society for mutual convenience with its members protected by the laws:

"alors les hommes ne seront plus un troupeau, mais une société policée; ce ne seront plus des sauvages indisciplinés et vagabonds, ce seront des hommes, ainsi que nous les voyons, (...) et soumis à des gouvernements." (5)

Anyone who wishes to annul this development of law and order and to return to the state of the "hommes en troupeau", of "l'anarchie originelle" where the rule of the strongest prevails, is to Diderot's way of thinking a "méchant", a "Hobbiste", who seeks the gratification of his own desires at the expense of others:

(2) Ibid. p.132.
"Si dans la société d'hommes il se trouve un citoyen assez déraisonnable pour ne pas sentir les inconvénients de l'anarchie originelle, pour secouer le joug des conventions établies, et pour revendiquer l'ancien droit d'inégalité, ce droit barbare qui donnait à tous droit à tout, armait les hommes les uns contre les autres, ce citoyen sera un Hobbiste." (1)

This false use of the term "Hobbiste" suggests that at this stage Diderot still contributed to the common view of Hobbes's philosophy as shocking, (2) without having improved his acquaintance with Hobbes's works. In his note to the word Hobbiste Diderot merely gives Hobbes's well-known dictum homo homini lupus, (3) which conflicted with the views of those who believed in man's basic goodness, without adding any discussion of Hobbes's political theories. The only solution which Diderot suggests against this unreasonable man is a negative one; he produces no specific arguments to try to persuade the "Hobbiste" to change his mind, but merely counsels a general execration:

"il se chargera de l'exécration de ses concitoyens." (4)

In the article Droit naturel (morale), (5) on the other hand, although eventually drawn helplessly to the same conclusion, that the evildoer must be suppressed if he proves impossible to convince, Diderot does his utmost to develop reasoned arguments combatting the "méchant conséquent", who presents himself fully equipped with logical refutations of the philosophical defence of virtue. This article marks an important stage in Diderot's struggle with the "méchant" for two reasons. Firstly, because it brings together his suspicions that his early Shaftesburyian easy equation of virtue and happiness must in some cases be at fault; secondly, for the way Diderot typically refuses to settle on a water-tight theory and leaves the question open for future discussion. If we look at the article closely, we can see Diderot trying, with a much more subtle sense of compromise than Shaftesbury, to reconcile the undeniably egoistic thrust of the individual with the preservation of society. Diderot starts by going back to his early belief in virtue as

(5) This article was marked by an asterisk in Volume V of the Encyclopédie, to indicate Diderot's authorship.
something intuitive, suggesting that all men, both the philosopher and

"l'homme qui n'a point réfléchi", (1) feel that they know what "natural law" is. This recalls Diderot's early faith in man's sentiment intérieur, (2) which is capable of discerning good and evil if it is not blinded by the passions. In the article Droit naturel, Diderot goes more deeply into the question of natural law, although bearing in mind from the very beginning that the problem is complex, if not insoluble. Diderot, from the philosopher's point of view, comes up immediately against several corollaries which are just as difficult to define as the notion of natural law.

"Le philosophe interrogé dit: le droit est le fondement ou la raison première de la justice." (3)

But this forces him to attempt to define justice:

"c'est l'obligation de rendre à chacun ce qui lui appartient."

But this definition in its turn brings two problems. What of a primitive society which has not yet formed notions of possession and obligation? And what of a man who ignores such ideas and acts as if he were in such a primitive society, demanding no rights and refusing all co-operation with others? This is the "méchant conséquent", who will in this article defend his anti-social position with undeniable eloquence. He recalls the "Hobbiste" in the Suite de l'apologie de l'abbé de Prades, who also saw society as if it were in its original and truly "Hobbesian" state of warring interests.

Diderot sets forth a series of nine propositions in which he tries to clarify the problem. First, he toys with the idea of determinism and the consequent irrelevance of moral standards. It is possible that man is not free in his choice of action, that his "déterminations instantanées, ou même ses oscillations", are in some way affected by physical causes, by

"quelque chose (...) qui soit extérieur à son âme".

(2) A-T, I, p.34.
But as usual in this first decade of his writing Diderot rejects this idea as being logically possible but emotionally abhorrent and, pointing out how important it is to prove that man is free, proceeds as if he has done so:

"D'où l'on voit, pour le dire en passant, combien il importe d'établir solidement la réalité, je ne dis pas du volontaire, mais de la liberté, qu'on ne confond que trop ordinairement avec le volontaire." (1)

In his second proposition Diderot acknowledges the propensity for evil which is present in man, the constant desire for his own happiness which prompts him to pursue his own interests at the expense of others:

"Nous avons des passions et des besoins. Nous voulons être heureux; et à tout moment l'homme injuste et passionné se sent porté à faire à autrui ce qu'il ne voudrait pas qu'on lui fît à lui-même." (1)

Diderot is here being consistent with his earlier views of mankind, which were never as blindly trustful as those expressed by his model Shaftesbury in the Enquiry Concerning Virtue and Merit. In the Enquiry, for example, Diderot had added to Shaftesbury's view of human nature in a note where, deploring the belief that all vices and virtues are innate, and not formed by influences, he had pointed out that men do have some natural penchant for evil:

"Nous naissions tous plus ou moins dépravés; les uns timides, ambitieux et colères; les autres averse, indolents et téméraires" (2)

Here, however, he had still clung partly to Shaftesbury's optimistic outlook, adding that this natural tendency towards evil serves only to enhance the beauty of virtue, which can overcome such obstacles. In the Promenade du sceptique also he had maintained this view of man, who is neither completely flawless by nature nor completely corrupt:

"nous sommes pour l'ordinaire plus faibles que méchants." (3)

In the article Droit naturel, therefore, Diderot is in no way

(1) A-T, XIV, p.297
contradicting his previous views, but is expanding them to apply to the "méchant". He insists that the only way to avoid allowing the evildoer to justify his anti-social behaviour is to recognise man's basic susceptibility to corruption and work from there:

"[l'homme] voit sa méchanceté et il faut qu'il se l'avoue, ou qu'il accorde à chacun la même autorité qu'il s'arrogate." (1)

Then the philosopher, equipped with his understanding of man, can proceed to argue with the "raisonneur violent" of the third proposition. He is presented as a man of violent passions and strongly egoistic temperament, recalling the " créature" in the Essai sur le mérite et la vertu who,

"furieuse du coup qu'il a reçu, se récrie contre le sort, s'emporte et déteste sa condition." (2)

He has become far more dangerous to Diderot's theory of the equation of virtue and happiness, because he expounds his ideas logically and is prepared to accept with open eyes the consequences of his egoism. He expresses his natural inescapable love of self, which outweighs all other affections:

"Personne ne m'est plus cher que je me le suis à moi-même (...) C'est la voix de la nature qui ne s'explique jamais plus fortement en moi que quand elle me parle en ma faveur." (3)

And he insists, as Diderot had done in his examination of the origins of society, that self-interest is the main-spring of all men's actions: if a man could go undiscovered and unpunished he would sacrifice others for his own safety:

"Quel est celui d'entre vous qui, sur le point de mourir, ne rachèterait pas sa vie au dépens de la plus grande partie du genre humain, s'il était sûr de l'impunité et du secret?"

Yet he claims to be fair and logical in admitting that others may attack his liberty just as he attacks theirs. He is in fact trying to establish a state of war among men, where strength, not justice or virtue, is the factor for survival.

(2) A-T, I, 61.
(3) A-T, XIV, p.298.
Diderot enters into a complete rebuttal of these arguments. First of all, in his fourth proposition, he points out the importance of reason to the whole discussion. As he had claimed from the *Essai sur le mérite et la vertu* onwards, virtue is a "bonté raisonnée", perceived by the intellect. As he says here, "il faut raisonner en tout, parce que l'homme n'est pas seulement un animal, mais un animal qui raisonne." (1) He therefore dismisses any sort of wrongdoer who refuses to see reason as a "bête farouche", whom "il faudrait (...) étouffer sans lui répondre", removed from the problem of morals because he has abdicated his right to be considered as a human being. The "méchant conséquent", however, he says in the fifth proposition, is a special case, because he submits to reason and claims to desire justice: "Il veut encore être équitable."

If the "méchant" were to refuse to apply his reason to the problem and admit Diderot's point of view, he would have to be suppressed: "Que répondre à notre raisonneur violent, avant que de l'étouffer?"

Diderot attacks his arguments by pointing out that the agreement he proposes, in which men should be able to battle against each other, is not in fact a just one. The "méchant" has not the right to dispose of his own liberties, or urge others to trade in theirs; he is simplifying, and therefore falsifying, the matter:

"La question du droit naturel est beaucoup plus compliquée qu'elle ne lui paraît." (2)

No one man has the necessary understanding to preserve or remove anyone's life or liberty. Diderot has thus disposed of the suggestion by the "méchant" to turn society back to an "état de guerre" by denying him the right to establish his own moral code. He must submit to the general will, the "volonté générale" which Diderot presents in the sixth proposition as the natural will of society, which works for the good of mankind in general and can never be mistaken or clouded by the passions, as the individual so often is. Unfortunately, for all

(1) A-T, XIV, p.298.
(2) Ibid. p.299.
Diderot's insistence on reason as the criterion for morals, the concept of the "volonté générale" turns out to be vague, and dependent far more on intuition than on logic. He does suggest a pragmatic method of deciding what the "volonté générale" is: we should examine the laws which civilised nations have made, the behaviour of primitive and even renegade groups, and see what principles they have in common:

"Dans les principes du droit écrit de toutes les nations policées; dans les actions sociales des peuples sauvages et barbares; dans les conventions tacites des ennemis du genre humain entre eux." (1)

But he also appeals to the emotions, to indignation and even resentment, which, he claims, instruct us what our rights should be.

Diderot's conclusion, proposition nine, is forceful and on the surface convincing. He maintains, firstly, that anyone who consults only his own interests and refuses to concern himself with society is to be condemned as

"l'ennemi du genre humain";

secondly, that the intellectual nature of moral judgments is all-important - the "volonté générale" is

"un acte pur de l'entendement",

which every individual, if not blinded by his own particular demands, must admit to be right; thirdly, that this concept of the "volonté générale" is the only guide for both social and international relationships: fourthly, that even criminal societies have their own code of honour, founded on their enlightened submission to the "volonté générale":

"Hélas! la vertu est si belle, que les voleurs en respectent l'image dans le fond même de leurs cavernes!";(1)

fifthly, that man is not free to form his own moral code without considering the good of society as a whole; sixthly, that those in positions of authority must be venerated because of the nobility of their task, which is to interpret the "volonté générale"; seventhly, that the nature of natural law would remain constant even if the notion of species changed; eighthly, that equity is the spirit behind the

(1) A-T, XIV, p.300.
practical administration of justice; and ninthly that the evildoer who refuses to use his reason and accept the cogency of these conclusions deserves to be treated not as a man but as an "être dénaturé."(1)

But despite the force and eloquence of this article Diderot has not proved conclusively to the evildoer that it is actually to his advantage to co-operate with his fellowmen. Society being as it is, he will still be happier if he dupes others and promotes his own interest at whatever cost to his fellows. As Rousseau pointed out in his refutation of the article,

"Il ne s'agit pas de m'apprendre ce que c'est que la justice; il s'agit de me montrer quel intérêt j'ai d'être juste." (2)

The "méchant conséquent" may admit that Diderot's theories are logically coherent, that one should, morally, to be a virtuous man, follow these theories, but he will not necessarily reform his ways. As an excuse he may invoke the force of his passions, or the nature of his temperament, which makes him unable to suppress his egoism.

In 1761 Diderot was to return to the problem of such a "méchant" in the Neveu de Rameau, where the "neveu", unconvinced by any rational justification of altruism, still maintains that by practising vice he follows both his own nature and his own advantage.(3)

Therefore, despite his apparent satisfaction with his conclusions in the article Droit naturel, Diderot could not exorcise the phantom of the "méchant conséquent". He could, however, continue to maintain that an ethics of some sort is possible, and therefore continue in his desire for the moral education of the citizen.

(1) A-T, XIV, p.300.
(3) See below, p. 170-1.
Diderot's Réfutation d'Helvétius, which he first set out on the appearance of De l'Homme in 1773, and revised during the next two years, is not a polished work, but a collection of reflections on such various topics as economics, aesthetics, morals, politics and human physiology. Diderot takes as his starting-point the work of Helvétius but we find, instead of an outright denial or "refutation" of his whole system of ideas, as the title suggests, (1) a grudging acceptance of most of his premises, as Diderot understands them, with, however, an appalled protest at the length to which Helvétius carried his conclusions:

"Dans presque tous les raisonnements de l'auteur, les principales sont vraies et les conséquences sont fausses, mais les principales sont pleines de finesse et de sagesse." (2)

Several times Diderot acknowledges the validity of much of Helvétius's thought:

"Malgré les défauts que je reprends dans votre ouvrage, je assure Helvétius, ne croyez pas que je le méprise. Il y a cent belles, très belles pages; il fourmille d'observations fines et vraies, et tout ce qui me blesse, je le rectifierais en un trait de plume." (3)

He contrasts him with Rousseau, accusing Rousseau of inconsistency and bad faith in his writings and praising Helvétius for the sound basis for his thought:

"La différence qu'il y a entre vous et Rousseau, c'est que les principes de Rousseau sont faux et les conséquences vraies; au lieu que vos principes sont vrais et vos conséquences fausses. Les disciples de Rousseau, en exagérant ses principes, ne seront que des fous; et les vôtres, en tempérant vos conséquences, seront des sages." (4)

(1) The title seems not to have come from Diderot; Naigeon in the Lémoires historiques et philosophiques sur la vie et les ouvrages de Denis Diderot (Paris, 1821) refers to Diderot's "diverses réflexions" (p. 320), mentioning the two revisions and explaining that he did not have the final copy of the work (p. 322). He gives extracts (p. 322-45); however in the Oeuvres (Paris, 1798) he did not include any of Diderot's notes. They were first published upon H. Tourneaux's obtaining a copy from the ambassade (see A-T, II, p. 266); presumably the choice of the title was his.


(3) Ibid. p. 315.

(4) Ibid. p. 316.
Nevertheless, despite his genuine disagreement with much of Helvétius's and Rousseau's philosophy, Diderot with typical openmindedness acknowledges the value of their attempts, however misguided, to formulate some basic truths about man:

"Il y a toujours quelque chose à apprendre dans les ouvrages des hommes à paradoxe, tels que lui et Rousseau; et j'aime mieux leur déraison qui me fait penser, que des vérités communes qui ne m'intéressent point." (1)

De l'Homme, therefore, was an ideal work to spark off Diderot's reaction to ideas on many subjects. Diderot in the Réfutation is always trying to modify Helvétius's arguments, to temper them with his own philosophy, not to demolish them completely; there is more interest in such comments than in a flat contradiction, because the work blossoms out into a full-scale dialogue between the two philosophers. Diderot is forced continually to work out and express his own ideas more precisely, insisting on subtle shades of meaning so that the reader cannot accuse him of adhering to Helvétius's mechanism. His comments on Helvétius's work become an important statement of his views on man, and the possibility of his moral and intellectual educability.

Diderot was at this time especially preoccupied with the question of education. Added to his ever-present desire to enlighten mankind and sweep away superstition, which he tried to fulfil in his editorship of the Encyclopédie, was a more specific problem. He wanted to urge Catherine the Great to reform Russian society according to his ideals of tolerance and equality, and was bound to consider the problem of educating the Russian people to his satisfaction. He was to observe the Russian system of education at work, and in 1775 fulfil Catherine's request for a plan of a university. Helvétius's statements on the educability of man, and Diderot's speculations on the most efficient sort of education, were therefore particularly opposite to Diderot's task. Diderot had to decide, as far as his lack of dogmatism would allow, on some firm conception of the nature of man, which would enable him to develop a psychology of education. He refers in the Réfutation to current problems, not, in fact, in Russia, but in France, where educational reform was also badly needed:

This hope of Diderot's, that a better public education is possible, and will have beneficial effects on society, is an important point of difference between him and Helvétius. In the fourth Discourse of De l'Esprit, Helvétius had said that an improved public education was impossible in France, without a radical change in the state of society also:

"L'art de former des hommes est, en tout pays, si étroitement lié à la forme du gouvernement, qu'il n'est peut-être pas possible de faire aucun changement considérable dans l'éducation publique, sans en faire dans la constitution même des états." (2)

Except for a brief comment on the uselessness of the teaching of dead languages instead of modern French, Helvétius therefore refuses to enter into idle speculations on the reform of the educational system:

"On est, à cet égard, trop éloigné de toute idée de réforme, pour que j'entre dans des détails, toujours ennuyeux lorsqu'ils sont inutiles." (2)

His attitude is due to his view of the French society of his time, which according to Helvétius demands that its most successful members should be adaptable and servile, not intelligent and well-educated. Unlike a republic, where "les honneurs sont le prix du mérite", and where "l'esprit de conduite n'est autre chose que le génie même et le grand talent", (3) France is controlled by a few powerful men, who reward servility instead of true merit. The men who control France, occupying the high places, have in fact no need for a good education, which would be a positive disadvantage. Helvétius traces their careers, as they leave the collège at sixteen or seventeen, learn the art of horse-riding, and spend the next few years on a superficial course of law studies. They procure their posts by influence and money, and instead of examining

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(3) Ibid. p.585.
the moral basis of the laws, they devote their time to applying the laws to specific cases:

"Pour remplir cette charge, il n'est pas nécessaire de s'instruire du droit de nature, du droit des gens, du droit public, mais consacrer tout son temps à l'examen de quelques procès particuliers." (1)

The rest of their careers is taken up in trivialities, in which they have no time for reflection. Helvétius's only suggestion for improving this state of affairs is to encourage such men to travel, so that they may compare the different forms of government, the legislation, the national character, and the way of life of different countries. (2). Society being as it is, for him there is no point in outlining a system of educational reform.

Diderot, on the other hand, as we have just seen, believes that by founding a sound educational system France will have the starting-point for improving the state of her society. This is why, unlike Helvétius, he insists on "la nécessité d'une meilleure éducation publique." (3) His conception of education, as he develops it in the Réfutation, is as a building-up on the natural abilities of the child, who will then be equipped to take his particular place in society in the most useful way possible:

"...et quoi consiste donc l'importance de l'éducation? Ce n'est point du tout de faire du premier enfant communément bien organisé ce qu'il plaît à ses parents d'en faire, mais de l'appliquer constamment à la chose à laquelle il est propre: à l'éducation, s'il est doué d'une grande mémoire; à la géométrie, s'il combine facilement des nombres et des espaces; à la poésie, si on lui reconnaît de la chaleur et de l'imagination; et ainsi des autres sciences: et que le premier chapitre d'un bon traité d'éducation doit être de la manière de connaître les dispositions naturelles de l'enfant." (4)

Thus Diderot shows that, before setting out on any systematic curriculum (for public, not private, education, in Diderot's case) he recognises, like other educationalists such as Rollin and Rousseau, the need to study the child's individual character or "génie". (5). To do this, he

(1) De l'Esprit, Paris, 1758, p. 611.
(2) Ibid. Fourth Discourse, Chapter XV.
(4) Ibid. pp. 374-5.
(5) See below, p. 163-4.
must embark on an exploration on the psychology of man: the Refutation represents just such an exploration.

As early as 1753 Diderot had objected to Helvétius's views on man in a few pages entitled Réflexions sur le livre de l'Esprit par M. Helvétius. As Assezat points out, (1) Diderot was in some ways very close to the starting-point of Helvétius's philosophy, and was even believed to have collaborated in part of the work. Nevertheless, he refutes Helvétius's conclusions. In these Réflexions, Diderot contents himself with reporting what he claims to be the kernel of Helvétius's argument, reducing it into four paradoxes, and giving only a brief criticism of each. From the very beginning he gives his approval to what he considered to be the basis of Helvétius's philosophical thought: "Il paraît attribuer la sensibilité à la matière en général;" he writes,

"système qui convient fort aux philosophes et contre lequel les superstitions ne peuvent s'élever sans se précipiter dans de grandes difficultés." (2)

In fact, Helvétius at no stage of De L'Esprit makes such an assumption. The question of the general sensibility of all matter, which was so important to Diderot in the Rêve de D'Alembert, does not concern Helvétius at all. Diderot is attributing his own conclusions to Helvétius. What Helvétius does discuss in the First Discourse of De l'Esprit is the action of the mind which is, he suggests, divided into two faculties, two "puissances passives". One of these is "sensibilité physique", the capacity to receive impressions from the outside world; the other is memory, which retains these impressions. All our ideas, therefore, Helvétius points out in the Lockeian tradition, depend ultimately on the nature of our sense-impressions: "La sensibilité seule produit toutes nos idées." (3) In a footnote discussing why animals differ from man, Helvétius concedes that they share with men these two faculties of sensibility and memory, (4) faculties which are however sterile in animals because they differ from men in their physical

(2) Ibid. p. 267.
(4) Ibid. p. 17, note I.
organisation and are therefore unable to use their impressions, as man does, to combine ideas. They have had neither the opportunity nor the pressing need to develop their faculties, being better equipped by nature against the cold and other hazards. The point which Helvétius makes here, that both men and animals possess a "sensibilité physique", is seized on by Diderot and drawn to conclusions which have little to do with Helvétius's writings. "Les animaux sentent, on n'en peut guère douter", (1) he says, referring to Helvétius. But he then proceeds to use this statement to make it appear that Helvétius's views are similar to his own:

"or, la sensibilité est en eux ou une propriété de la matière, ou une qualité d'une substance spirituelle." (2)

This misinterpretation of Helvétius's ideas was to continue into the Réfutation, in which Diderot frequently stretches Helvétius's statements to cover ground which he thinks they should, instead of reporting what Helvétius does in fact say.

It is in his objections to Helvétius's Third Discourse of De l'esprit that Diderot anticipates the discussion in the Réfutation which is our main concern here, the opposition between ability as considered as a basic part of one's organisation, or merely as the end result of a certain set of chances and an education. Diderot says here that he approves of Helvétius's insistence that a man's organisation, his personal physical and mental traits, counts for far less than had often been claimed, and that other factors, "la passion, l'intérêt, l'éducation, les hasards," must be considered. He admits that there is some truth in Helvétius's claims:

"Joue le paradoxe aussi étrange que le sien, on ne le lit pas sans se sentir ébranlé." (3)

But, says Diderot, Helvétius takes his theories too far and maintains that these factors annul the "organisation". He accuses Helvétius of saying

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(2) Ibid.
(3) Ibid. p. 271.
"Qu'il n'y a point d'homme en qui la passion, l'intérêt, l'éducation, les hasards n'eussent pu surmonter les obstacles de la nature, et en faire un grand homme; et qu'il n'y a pas non plus un grand homme, dont le défaut de passion, d'intérêt, d'éducation, et de certains hasards n'eussent pu faire un stupide, en dépit de la plus heureuse organisation." (1)

Diderot is again misrepresenting Helvétius so that his own theories may be shown into sharper relief. What Helvétius has in fact maintained in the section which Diderot is criticising (Third Discourse, Chapters I and II of De l'Esprit) is that education (in its widest sense of everything which comprises our instruction throughout life) counts for far more than any inherent differences in organisation. It is chance which places a man in certain situations, confronted with certain objects rather than others. Chance, Helvétius suggests, by forming a certain set of circumstances, played a far greater part than is recognised in the discoveries of Galileo and Newton. Helvétius compares men to trees of the same species, all with the same general characteristics, developing differently because of the infinitely great variety in their environments. Man's experience, likewise, as well as his basic conformation, influences what he becomes:

"Je pourrais donc conclure que l'inégalité d'esprit des hommes peut être indifféremment regardée comme l'effet de la nature ou de l'éducation." (2)

But Helvétius in no way suggests in the Third Discourse that genius is produced only by chance and education, with no need for a basis of natural talent. Diderot, however, writes as if he had, and himself insists on the infinite variety of human minds due to their different conformation. As we shall see, this insistence is unnecessary, because Helvétius in both De l'Esprit and De l'Homme is also aware of the great variety among men, although attributing it, unlike Diderot, to the variety of experience rather than the original material.

Diderot's Réflexions on De l'Esprit lay the basis for his objections to Helvétius's line of thought. Diderot (unjustifiably, as we have seen) suggests that Helvétius is proceeding from similar

(2) De l'Esprit, Paris, 1758, p. 256.
premises to his own on the sensibility of matter. He attributes to Helvétius views similar to what Diderot was trying to establish in the Rêve de d'Alambert, that it is a short and easy step from "living matter" to "dead matter", and that it is in fact difficult to draw the line between sensation and thought. In fact, although Helvétius does not specifically deny these theories, he has no concern with such a topic. Diderot, then, seeing some divergence between his own ideas on man and those of Helvétius, proceeds to exaggerate the differences, pushing Helvétius's claims to their extreme, in order to suggest that they are entirely ridiculous, thereby making his own theories, by contrast, seem more convincing.

In our examination of the Réfutation d'Helvétius, we shall first of all consider the ground on which Diderot's beliefs are similar, though not identical, to those of Helvétius - their recognition of the close interaction between the physical and the mental. We shall then go on to see how Diderot denies that all knowledge must therefore be considered only as a product of the sense-impressions, without the power of reflection to combine their evidence. Thirdly, we shall see him insisting repeatedly on the importance of the individual organisation of a man, attributing the differences between men to this rather than to the variety of experience, as Helvétius does.

Diderot sets out to demonstrate what is, for him, the inadequacy of Helvétius's line of argument:

"Faiser brusquement de la sensibilité physique, c'est-à-dire de ce que je ne suis pas une plante, une pierre, un métal, à l'amour du bonheur; de l'amour du bonheur à l'intérêt; de l'intérêt à l'attention; de l'attention à la comparaison des idées; je ne saurais m'accommoder à ces généralités-là; je suis homme, et il me faut des causes propres à l'homme." (1)

He is really missing the whole point of Helvétius's argument, which is that differences of mentality do not depend on greater or less capacity for physical sensation, but on experience. He accuses Helvétius of not considering man as a special type of animal, a human being, but lumping him together with the rest of creation by considering

"une enfilade de conséquences qui conviennent également au chien, à la belette, à l'huître, au dromadaire." (1)

Diderot returns to this objection several times, claiming that he can lead Helvétius into self-contradiction by causing him to admit the individual differences between, for example, dogs, while denying the diversities of individual men. He accuses him

"d'employer la même cause pour expliquer la diversité d'un chien à un chien, et de la rejeter lorsqu'il s'agit des variétés d'intelligence, de sagacité, d'esprit d'un homme à un autre homme." (2)

Indeed Helvétius sees far more differences among men than could possibly be explained by differences of temperament or "organisation", which could only produce a certain amount of characterological types.

Discussing Helvétius's maxim "sentir, c'est juger", (4) Diderot attacks his conclusions, again misrepresenting Helvétius's opinions. He accuses him of reducing man to the level of the animal, which lives entirely by its senses and reacts only to physical causes. Diderot draws the distinction between "conditions" and specific "causes" of an action. He admits that, to act as they do, men must be composed as they are, but this physical organisation is merely a basic condition for man's existence as man, not a direct cause of all his actions as, Diderot suggests, Helvétius would have it:

"Sans doute, il faut être organisé comme nous et sentir pour agir; mais il me semble que ce sont là les conditions essentielles et primitives, les données sine qua non, mais que les motifs immédiats et prochains de nos aversions et de nos désirs sont autre chose." (5)

(1) A-T, II, pp.300-01.
(2) Ibid. p. 334.
(3) De l'Homme, Third Discourse, Chapter I.
(5) Ibid. p. 302.
"le bonheur ou le malheur de notre vie, bonheur et malheur qui supposent la sensation physique comme condition, c'est-à-dire qu'il ne faut pas être un chou." (1)

This is a distinction which Helvétius would indeed not deny, his discussion of the organisation of man in the First Discourse of *De l'Etre*, as we have seen, far less simplified than Diderot would have one believe. Yet Diderot accuses him of confusing conditions with causes:

"Prendre des conditions pour des causes, c'est s'exposer à des paralogismes puérils et à des conséquences insignifiantes." (2)

Here Diderot is distinguishing between "conditions" and "causes", yet a few pages later he seems to be using "but" and "motif" as synonyms for "cause". (3) This rather strange use of "cause" perhaps implies that Diderot's non-mechanistic outlook affected his use of the word. Both Diderot and Helvétius agree in so far as they are seeking for explanations of human behaviour, accepting a deterministic attitude. Their dispute is here only on the nature of the causes of behaviour. Diderot objects to the importance which Helvétius places on men's bodily desires, their craving for safety and comfort and for sexual pleasure, as causes of their actions. He quotes from *De l'Homme*, where Helvétius writes:

"Plaisir et douleur sont et seront toujours les seuls principes des actions des hommes." (4)

Diderot condemns such a conclusion for two reasons. Firstly, as we have seen, he unjustifiably blames Helvétius for an over-simplified conception of cause and effect:

"Celles-ci [les douleurs et les plaisirs] vous les ramenez à la sensibilité comme cause; moi, je prétends que ce n'est que comme condition éloignée, essentielle et primitive." (5)

Diderot illustrates this so-called confusion by an imaginary example taken, characteristically, from his own personal life. If he wishes to visit Helvétius he does, he says, not because of his physical

(2) Ibid. p. 302.
(3) Ibid. p. 304.
(4) Ibid. p. 310.
(5) Ibid. p. 310.
capacity for doing so, which enables him to walk there, but because of his desire for his friend's company:

"il faut que je marche pour aller rue Sainte-Anne causer avec un certain philosophe que j'aime, ou m'entretenir plus doucement encore avec une femme de son voisinage; mais n'y vais-je que parce que j'ai des pieds? Ces deux actions sont sans doute réductibles en dernière analyse à de la sensibilité physique, mais comme condition, et non comme cause, but ou motif." (1)

Having disposed of Helvétius's hypothesising as too simple, Diderot secondly objects that any observation of human actions must show him to be wrong. Men do not in fact live as will best benefit their needs; Diderot takes concrete examples of famous men - Leibniz, who spent thirty years in the pursuit of knowledge, and would obviously not have sacrificed his work to the temptations of women, ambition or even, despite his reputation for avarice, riches. Perhaps, Diderot conceives, it was the desire for renown rather than the disinterested love of learning which spurred him on, but certainly his motives were higher and more complex than the mere desire for pleasure. (2)

Similarly with Helvétius himself, as Diderot does not fail to point out. Persecuted after the publication of De l'âme, he swore to abandon his writings, only to return to them purely for the sake of philosophy, with no chance of gaining wealth thereby. He produced De l'Homme not for any fame or physical gratification. In this discussion Diderot has shifted the emphasis and this slightly distorted Helvétius's argument. Helvétius had been concerned with the influence of sexual desire, not, as Diderot develops it, with the psychology of savants. Nevertheless, Diderot is justified in pointing out that Helvétius tends to over-simplify matters. Diderot shows that Helvétius is being far too superficial in his examination of the human mind, if he believes that sexual desire is invariably the strongest of human motives. Diderot is really condemning Helvétius for failing to accomplish something which it is not in fact his aim to do; he is in De l'Homme writing a moral treatise, not trying to produce a psychological or physiological examination of man, as Diderot obviously wished him to do. Proceeding on this assumption, Diderot points out

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that a whole collection of other desires, both bodily and mental, must be taken into account:

"Dites (et dieu veuille toutefois que ce ne soit pas d'après votre expérience) qu'il y a des plaisirs qui piquent infiniment plus son voisin que la jouissance d'une belle femme. Dites que ce qu'il peut dire de lui, il ne faut pas le dire de son voisin, qui est un averse qui ne tirerait pas vingt louis de son coffre-fort pour coucher avec la belle dame Helvétius." (1)

Diderot concludes from this discussion of men's motives with Helvétius that his premises are in general sound, but his reasoning and eventual conclusions false. Diderot attributes to him a basis of belief in the general sensibility of matter which is in fact, as we have seen, a topic of indifference to Helvétius. Ignoring the nature of De l'Homme, Diderot criticises it for its inadequacies as a work of psychology. Helvétius's excursions into psychology are, he insists, superficial, and will not stand up to Diderot's far fuller and more understanding view of the ways in which men act. An examination even of his own motives should be enough to show Helvétius his error. Diderot urges him to modify his statements, not however denying the great influence which the physical has over men's minis, as it has often been denied in the past:

"Il dit: Nos peines et nos plaisirs se résolvent toujours en peines et plaisirs sensuels. Dites: Assez souvent." (2)

"Dites que souvent nos travaux, nos sacrifices, nos peines, nos plaisirs, nos vices, nos vertus, nos passions, nos goûts, l'amour de la gloire, le désir de la considération publique ont un but relatif aux voluptés sensuelles; et personne ne vous contredira." (3)

In this discussion Diderot has misrepresented Helvétius, failing to recognise that his aim in writing De l'Homme was not a detailed examination of human psychology. In his efforts to stress the importance of the individual temperament, Diderot, as will appear later, does not acknowledge that Helvétius is far from denying the differences between individuals, attributing them however to the effects of education rather than to any original innate differences of organisation.

(2) Ibid. p. 356.
(3) Ibid. p. 316.
Another central point in Diderot's refutation of Helvétius is their differing views of the actual workings of the human mind, the way it acquires and retains knowledge, although here again Diderot refuses to give a complete account of Helvétius's point of view, merely using parts of De l'Homme as a stepping-stone for an exposition of his own theories. As early as 1749 we have seen Diderot interested in the question of epistemology, giving his view, in the Lettres sur les aveugles, that the judgment, having learnt from experience, must combine the sense-impressions into some coherent pattern. Helvétius (like Diderot's earlier opponent, Condillac, in his Essai sur l'origine des connaissances humaines) maintains that there is no need for this power of reflection, that it does not exist. One sense alone is capable of giving as complete a picture of outside reality as man needs. Diderot in the Réfutation d'Helvétius returns to the problem to maintain, against Helvétius, that there must be something more than the efficient workings of all five senses, and a favourable set of circumstances and education, for the production of an intelligent man:

"Si entre les hommes les plus parfaitement organisés il en est si peu de spirituels, c'est que l'esprit n'est pas le résultat de la finesse des sens combinée avec la bonne éducation; c'est qu'il est encore autre chose que l'excellence et des sens et de l'enseignement ne donne pas." (1)

This "something else" he refers to as "la tête", "le cerveau" or "le juge commun". To Helvétius's statement that there are five senses, Diderot replies,

"Oui, voilà les cinq témoins: mais le juge ou le rapporteur? Il y a un organe particulier, le cerveau, auquel les cinq témoins font leur rapport." (2)

Any examination of the human mind in terms only of the individual senses is quite useless, because we gain a one-sided picture of the whole process of the acquisition of knowledge:

"C'est qu'il ne faut pas examiner les sens relativement à l'effet général de leur concours, sans y faire entrer l'organe corrélatif, la tête. Séparer dans cette comparaison un des termes de l'autre, c'est arriver à l'erreur." (3)

(2) Ibid. p. 318.
(3) Ibid. pp. 319-20.
However good a man's physical perceptions may be, if he cannot combine what he experiences into some coherent pattern he is no better than an imbecile:

"Il a ses cinq sens excellents, mais la tête est mal organisée: les témoins sont fidèles, mais le juge est corrompu; il ne sera jamais qu'un sot." (1)

Helvétius had in fact already dealt with this question in the Third Discourse of *De l'Esprit*, in a chapter entitled *De la finesse des sens*. Here he pointed out that it does not follow that the greater the ability of the senses, the greater the intellectual capacity of their possessor:

"Entre les hommes que j'appelle bien organisés, ce n'est point à la plus ou moins grande perfection des organes, tant extérieurs qu'intérieurs, des sens, qu'est attachée la supériorité des lumières." If this were the case, men with spectacles would have a greater opportunity of a good intellect than those without. In fact, as long as a man has an adequate use of his senses, as long as he can judge objects in relation to one another, he is at no disadvantage. Even though a fathom may appear to be of a different size to different men, provided that it appears constantly larger than, for example, a foot, a man has sufficient aptitude of the senses to judge of external reality. Helvétius defines "la justesse d'esprit" as "la vue nette des véritables rapports que les objets ont entre eux." As he says in *De l'Homme*, it is his intention to show

"que tous les hommes communément bien organisés ont une égale aptitude à l'esprit." (2)

Diderot, however, unlike Helvétius, is anxious to examine the action of the "reflection" in combining ideas. Man, he says, differs from the rest of the animal kingdom by his power of reflection; whereas animals specialise and develop one of their senses to the exclusion of the others, man has his reason, his "entendement", which selects what is most useful from the information of all the senses:

(2) *De l'Homme*, Chapter X.
"Toute l'âme du chien est au bout de son nez, et il va toujours flairant. Toute l'âme de l'aigle est dans son œil, et l'aigle va toujours regardant. Toute l'âme de la taupe est dans son oreille, et elle va toujours écoutant.

Hais il n'en est pas ainsi de l'homme (...) [l'organe de sa raison] est un juge qui n'est ni corrompu ni subjugué par aucun des témoins; il conserve toute son autorité, et il en use pour se perfectionner: il combine toutes sortes d'idées et de sensations, parce qu'il ne sent rien fortement." (1)

This search of Diderot's for a "juge commun des sensations" was already evident in 1743 when, in Chapter LIX of the Bijoux indiscrets, he put into the mouth of Mirza a light-hearted philosophical discourse on a subject which obviously preoccupied him: where is a man's "soul"?

In his feet, she concludes, if he is nimble, in his tongue, if he is talkative, and so on. Now in 1773 Diderot considers the question from a different point of view: there is one organ, the brain, which combines the sensations of sight, smell, sound, and touch so that it can judge and reason. Diderot rejects Helvétius's hypothesis of a man "réduit à un œil vivant ou à une oreille vivante", being able to judge, think and reason as well as a man who is fully equipped with all the senses. To have human consciousness, to be aware of his own existence, a man needs not only five senses which function correctly, but the brain, which carries out its function of combining and recording the sensations:

"Sens un correspondant et un juge commun de toutes les sensations, sans un organe coordonnant de tout ce qui nous arrive, l'instrument sensible et vivant de chaque sens aurait peut-être une conscience momentanée de son existence, mais il n'y aurait certainement aucune conscience de l'animal ou de l'homme entier." (2)

Again Diderot is here setting out his own ideas rather than undertaking a refutation of Helvétius, who does not, of course, exclude the importance of memory. In the third Discourse of De l'esprit, in a chapter entitled De l'étendue de la mémoire, he had pointed out the central role which the memory plays in the action of the mind. Searching for the explanation of the difference in quality of men's intellect, Helvétius suggested that the greater the capacity of the memory, the

(2) Ibid. p. 337.
greater the "esprit":

"Les sensations, les faits et les idées doivent donc être regardées comme la matière première de l'esprit. C'est plus le magasin de la mémoire est spacieux, plus il contient de cette matière première; et plus, dira-t-on, l'on a d'aptitude à l'esprit."

He was at pains to go on to point out that, although the memory is with us from birth, it may be trained by experience.

Diderot, continuing his discussion of the action of the brain, refers to it later specifically as the "cerveau":

"Est-ce l'oreille qui observe et compare les rapports? Non. Est-ce l'œil qui observe et compare les rapports? Non. Ils reçoivent des impressions, mais c'est ailleurs que la comparaison s'en fait. Cette opération n'est d'aucun des sens, à qui appartient-elle donc? Au cerveau, je crois." (1)

Human thought, therefore, is dependent not only on the senses, for its raw material, but on the brain, which has the important power of combination. Since the brain is a physical organ, which suffers and ages like the rest of the body, a man's ability will obviously be subject to his physical state - both the individual physical organisation with which he has been born, and his condition, which has been influenced by outside circumstances in the world.

Here Diderot is differing in his emphasis from Helvétius, by insisting on the basic individuality of each man's organisation, or "temperament", which may well be greatly modified by experience and education but will never be completely standardised. Helvétius, says Diderot, sees men as infinitely and equally educable:

"Que m'importe, Diderot makes him say, la diversité de l'organisation? Il me suffit qu'elle préexiste, même à la naissance (...) L'usage des mauvaises eaux, des aliments grossiers, des appétits désordonnés ne font rien à l'esprit." (2)

But, as we have seen, Helvétius, despite Diderot's inferences, does not deny the uniqueness of the individual. At the beginning of De l'Esprit he attributed it to the infinite variety of human experience. Diderot, in his eagerness to stress that any educational scheme must take into account both the natural abilities and the body,

(2) Ibid. p. 361.
is led to distort Helvétius's point of view and suggest that he is unaware of the variety of men.

Diderot, therefore, in his Refutation d'Helvétius, is driven constantly to insist on the importance of recognising the differing "organisation" of men - the individual formation of their whole body including their diaphragm (which Diderot saw as the organ of the emotions) and the brain. This organisation is something which education cannot annul. To Helvétius's dictum on the instructiveness of unfortunate experiences, Diderot replies,

"J'en conviens, mais y a-t-il deux enfants au monde pour qui la même chute n'ait également douloureuse, en général, pour qui une sensation quelconque puisse être identique? Voilà donc une première barrière insurmontable entre leurs progrès; et cette barrière où est-elle placée? Dans l'organisation." (1)

He gives many examples of children who possess their own individual temperament before any education, or any experience of life, has been possible: Alcibiades and Cato, who showed their distinctive brands of courage at a very early age; the two brothers, one of whom is naturally daring, the other sybaritic; (2) another pair of brothers, one miserly, the other extravagant; the Prince Galitsin's children, only a few years old, one naturally an intriguer from birth, the other open and frank. (3) Children show their character early:

"Un enfant sourois se montre sourois à six mois; un enfant se montre vif ou balourd, impatient ou tranquille, insensible ou colère, triste ou gai." (4)

This insistence on the individual character or " génie" of the child was not of course peculiar to Diderot. Such a point had appeared in Rollin's Traité des études, and had been followed by other educationalists such as Rousseau. In his Projet pour l'éducation de M. de Sainte-Lorre, Rousseau had shown himself anxious to establish his pupil's natural disposition, to

"connaître le génie de chaque élève et baser la méthode sur cette connaissance." (5)

A debate on this point arose in the Nouvelle Héloïse, initiated by Saint-Freux's claim that the aim of education is to mould the subject

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(2) Ibid. p. 230.
(3) Ibid. p. 313.
(4) Ibid. p. 379.
until he is close to a model of perfection:

"par la force de l'éducation, en excitant l'un, en retenant l'autre, en reprenant les passions, en perfectionnant la raison, en corrigeant la nature." (1)

Voltaire objects to this "correction of nature", counselling a thorough study of the individual nature or "L'âme" of the child before attempting any education:

"L'observation (...) nous apprend qu'il y a des caractères qui s'amortissent presque en naissant (...) mais, quant aux autres qui se développent moins vite, vouloir former leur esprit avant de le connaître, c'est s'exposer à gâter le bien que la nature a fait et à faire plus mal à sa place." (2)

Rousseau carries out this idea of Voltaire's throughout Émile, in which he constantly studies Émile's character in order to discover the most suitable ways of educating him. Indeed, his choice of Émile was based on his belief in the innate differences of character: he was deliberately selecting a pupil who was not "lycée", so that he would submit the more cheerfully to the discipline imposed upon him. (3)

Diderot, discussing the difference of temperament in the Réfutation d'Helmétius, places it in one particular organ, the diaphragm, which is according to him the seat of the emotions:

"le siège de toutes nos peines et de tous nos plaisirs; ses oscillations ou crispatons sont plus ou moins fortes dans un être que dans un autre; c'est elle qui caractérise les âmes pusillanimes et les âmes fortes (...) Celui qui a le diaphragme très mobile cherche les scènes tragiques ou les fait, parce qu'il peut arriver qu'il en soit trop vivement affecté et qu'il reste, après le spectacle, ce que nous appelons le cœur serré." (4)

Some men are by nature inclined to melancholy, while others are of a cheerful temperament:

"La mélancolie est une habitude de tempérament avec laquelle on naît et que l'étude ne donne pas. Si l'étude la donnait, tous les hommes studieux en seraient attaqués, ce qui n'est pas vrai." (5)

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(2) Ibid. p. 565.
(5) Ibid. p. 355.
Here Diderot comes near to the medieval psychology, for which the temperament or "complexion" was a mixture of humours, red bile, phlegm, black bile and blood, one of which predominated to give a man his characteristic temperament. Since the diaphragm is a physical organ, Diderot continues, not only does it vary according to its owner, but it changes and develops as a man ages: "Il n'y a que l'âge qui ait quelque empire sur elle." (1) Diderot protests strongly that Helvétius, in refusing to acknowledge that men differ in temperament, makes them mere machines who are all equally open to the effects of education:

"Quoi! M. Helvétius, il n'y aura nulle différence entre les compositions de celui qui a reçu de la nature une imagination forte et vive avec un diaphragme très-mobile, et de celui qu'elle a privé de ces deux qualités?"(2)

In fact, as we have seen, Diderot misses Helvétius's basic argument, which acknowledges the differences between individuals but attributes them to the sum of their experience, not to inborn qualities.

Men differ basically, Diderot claims, in ability as well as in temperament. Helvétius is guilty of illogicality, he maintains, because he distinguishes between men and animals by their organisation, and yet ignores the difference in organisation between individual men. He attributes the extent of a man's knowledge to his memory, his accumulation of knowledge gained throughout life. True, says Diderot, but does the memory vary widely in capacity from man to man?

"L'est-il pas d'expérience que rien n'est plus variable entre les hommes? Voilà donc pour quelques-uns une barrière insurmontable dans la carrière des arts et des sciences, et une très grande inégalité dans l'aptitude naturelle de tous, soit à l'acquisition des idées, soit à la formation de l'esprit." (3)

As we have already seen, Helvétius would not deny that men's memories actually differ; but he attributes this to the varying experiences of men and points out that the memory is subject to deliberate change, as it can be trained to retain information. Ignoring these remarks of

(1) A-T, II, p. 337.
(2) Ibid. p. 338.
(3) Ibid. p. 298.
Helvétius's, however, Diderot continues that we have examples of natural differences in such people as D'Alembert, to take a famous example, who has the innate ability to understand and remember geometrical proofs, whereas Diderot himself learns with difficulty and soon forgets them. (1) It is not enough to have one's sense working efficiently, as Helvétius claims; a madman may receive exactly the same sense-impressions as Helvétius, but if he does not have the ability to interpret them (an ability which comes from the organisation of his brain), it will never be possible to educate him:

"On voit, on entend, on flaire, on goûte, on touche aussi finement aux Petites-Liaisons que dans votre cabinet de la rue Sainte-Anne, mais on y raisonne bien diversément (...) Vous ne penserez donc pas qu'il ne naît presque aucun homme sans quelques-uns de ces défauts d'organisation, ou que les temps, le règime, les exercices, les peines, les plaisirs, ne tardent pas à les introduire en nous; et vous persisterez dans l'opinion ou que la tête n'en sera pas affectée, ou que cette affection sera sans conséquence pour la combinaison des idées, (...) pour la raison et pour le jugement." (2)

Diderot's belief in the diversity of natural talent led him to disagree decisively with Helvétius on the question of genius. The phenomenon of the man of genius was something which interested Diderot from various aspects. As Herbert Dieckmann has shown, (3) Diderot's views on the man of genius are especially important because he is writing from his own experience. He is, claims Dieckmann,

"the first to speak of the workings of genius not as a pure theorist or as an external observer." (4)

His first-hand knowledge of the state means that, although he may wish to explain the phenomenon of genius by rationalisation, he is nevertheless constantly forced to recognise the irrational, indefinable nature of real genius. This conflict appears throughout his work. There is no doubt about Diderot's admiration for the man of genius: here he is typical of his time for, as Dieckmann points out,

(2) Ibid. p. 366.
(4) Ibid. p. 182.
"At the end of the eighteenth century, the artistic genius comes to be thought of as the highest human type, and thus replaces such earlier ideal types as the hero, the "sage", the Saint, the uomo universale, the cortigiano, the honnête homme." (1)

Diderot is prepared to praise the genius even if he disagrees entirely with his views. For example, he cannot conceal his respect for the genius of Leibniz:

"Les modernes ont quelques hommes, he begins his article Leibnizianisme, tels que Bayle, Descartes, Leibniz et Newton, qu'ils peuvent opposer, et peut-être avec avantage, aux génies les plus étonnants de l'antiquité." (2)

And in the Pensées sur l'interprétation de la nature he praises the great thinkers of the past, despite the limitations of their systems:

"Heureux le philosophe systématique à qui la nature aura donné, comme autrefois à Epicure, à Lucrece, à Aristote, à Platon, une imagination forte, une grande éloquence, l'art de présenter ses idées sous des images frappantes et sublimes!" (3)

To mention only one other example, in his critical article De la poésie dramatique, he praises Homer warmly as inimitable:

"Qu'est-ce qu'il y a là-dedans? [Dans l'Iliade] Point d'esprit, mais des choses d'une vérité si grande, qu'on se persuaderait presque qu'on les aurait trouvées comme Homère. Pour nous, qui connaissons un peu la difficulté et le mérite d'être simple, lisons ces morceaux; lisons-les bien; et puis prenons tous nos papiers et les jetons au feu. Le genre se sent; mais il ne s'imita point." (4)

The phenomenon of genius is thus seen to be an important part of Diderot's thought. From it three questions present themselves. Firstly, what is the nature of genius, how can it be defined and distinguished from mere talent? Secondly, is the man of genius above the code of ethics which must be accepted by ordinary men for their own good and the preservation of society? Thirdly, what are the origins of genius, is it due to favourable circumstances or is it innate? The third question is the only one which Diderot covers fully in the Réfutation. The first two must be discussed briefly in order to show the value Diderot placed on genius.

He defines genius as characterised by a strongly elated feeling, an "enthusiasm" which carries its possessor away and can be assuaged.

(2) A-T, XV, p. 436.
(3) Pensées sur l'interprétation de la nature, XII.
only by the act of creation. In the second of the Entretiens sur Le fils naturel he expresses it thus:

"Le poète sent le moment de l'enthousiasme; c'est après qu'il a médité. Il s'annonce en lui par un frémissement qui part de sa poitrine, et qui passe, d'une manière délicieuse et rapide, jusqu'aux extrémités de son corps. Bientôt ce n'est plus un frémissement; c'est une chaleur forte et permanente qui l'embrase, qui le fait haïsser, qui le consume, qui le tue; mais qui donne l'amour, la vie à tout ce qu'il touche. Si cette chaleur s'accroissait encore, les spectres se multiplieraient devant lui. Sa passion s'éleverait presque au degré de la fureur. Il ne connaîtrait de soulagement qu'à verser au dehors un torrent d'idées qui se pressent, se heurtent et se chassent." (1)

The genius is distinguished from the mere man of talent by his unpredictability; sometimes he is capable of great things but sometimes, when the frenzy leaves him, he can do nothing, while the man of talent is regularly competent and no more:

"Nous ne confondrons, ni vous, ni moi, l'homme qui vit, pense, agit et se meurt au milieu des autres; et l'homme enthousiaste, qui prend la plume, l'archet, le pinceau, ou qui monte sur ses trente-quatre. Hors de lui, il est tout ce qui lui plaît à l'art qui le domine. Mais l'instant de l'inspiration passée, il rentre et rédevient ce qu'il était; quelquefois un homme commun. Car, telle est la différence de l'esprit et du génie, que l'un est presque toujours présent, et que souvent l'autre s'absente." (2)

Such descriptions show Diderot's admiration for the frenzy of genius. He frequently defends the passions as being necessary for the accomplishment of great works. In the Pensees philosophiques, for example, he claims that

"Il n'y a que les passions, et les grandes passions, qui puissent élever l'âme aux grandes choses." (3)

Yet these passions must not be allowed to run wild; part of the power of genius lies in its self-control:

"Ce sera donc un bonheur, me dira-t-on, d'avoir les passions fortes. Qui, sans doute, si toutes sont à l'unisson. Établissez entre elles une juste harmonie." (4)

In the Rêve de d'Alembert he goes further in this direction, condemning excessive sensibility:

(1) A-T, VII, p.103.
(2) Ibid. pp. 363-4.
(3) Pensees philosophiques, I.
(4) Ibid. IV.
"Le grand homme, s'il a malheureusement reçu cette disposition naturelle, s'occupera sans relâche (...) à la dominer, à se rendre maître de ses mouvements (...) Les êtres sensibles ou les fous sont en scène, il est au parterre; c'est lui qui est le sage." (1)

And in the Paradoxe sur le comédien one of his main themes is that genius must consist both of strong passions and of self-control.

"Les grands poètes, les grands acteurs, et peut-être en général tous les grands imitateurs de la nature, quels qu'ils soient, doués d'une belle imagination, d'un grand jugement, d'un tact fin, d'un goût très sûr, sont les êtres les moins sensibles (...) La sensibilité n'est guère la qualité d'un grand génie." (2)

Having established the nature of genius, which exists in this rare combination of passion and control, Diderot has to face the moral problem of the genius: as he differs so much from the ordinary man in the quality of his mind, is he entitled to ignore the ordinary ethical rules? Diderot, in his admiration, is led to except the genius from the moral obligations which he is anxious to impose on the rest of mankind:

"S'il faut opter entre Racine méchant époux, méchant père, ami faux et poète sublime, et Racine bon époux, bon père, bon ami et plat honnête homme, je m'en tiens au premier. De Racine méchant que reste-t-il? Rien. De Racine homme de génie, l'ouvrage est éternel." (3)

In the Leveu de Rameau the same views concerning Racine are propounded; yet a man must possess real genius to be justified in ignoring the rules of society. The neveu is condemned as a méchant because he does not have the greatness to justify his immorality. He himself admits:

"J'ai donc été, je suis donc fâché d'être médiocre. Cui, oui, je suis médiocre et fâché." (4)

His discussion of genius reflects Diderot's views on the "scale of being." Diderot sets above ordinary mortals those who are exceptionally gifted (like Racine) and who thus may be exempted from ordinary moral laws; but further still above these he places those whom he considers really great both in creative genius and breadth of spirit. In his

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(2) A-T, VIII, p. 368.
article Leibnizianism is significant that the list of men whom he sees as being "à la tête de l'espèce humaine" (1) does not include Racine. Such geniuses are

"en commmunion avec une Nature qui est une valeur supérieure et qui est au-dessus de la morale humaine ordinaire." (2)

But, paradoxically, because of the ambiguity of the notion of "nature", the genius is also in touch with a "nature" which is below the level of the human race. Thus there are some geniuses, to take Diderot's example of Racine, who are below the ordinary man in probity; such a genius is "fâcheux, traître, ambitieux, envious, méchant." (3)

Diderot's discussion of genius in the Neveu de Rameau leads him to the question of temperament: what if a man such as the neveu claims to be naturally evil and, without even needing the excuse of genius to justify his disregard of moral laws, maintains that his temperament inevitably leads him to evil behaviour? The neveu presents his argument with eloquence. Like the méchant of the article Droit naturel, he says that his way of living is not freely chosen by him, but follows inevitably on his character, that of a "fainéant, de sot, de vaurien." (4)

He refers to his vices as natural to him, and dismisses any thought of trying to improve his behaviour because, society being as corrupt as it is, the practice of virtue would give him no material advantage. He sees his temperament as fixed, and any attempt to reform would be to do the impossible, to give him "un caractère étranger au mien." (4)

Later he returns to the subject and blames heredity for his propensity for vice:

"Il y avait quelque chose de race. Le sang de mon père et le sang de mon oncle est le même sang; mon sang est le même que celui de mon père; la molécule paternelle était dure et obtuse, et cette mauvaise molécule première s'est assimilé tout le reste." (5)

Thus, the neveu suggests, education is largely useless, because it is powerless to overcome the natural impulse of the temperament and will only confuse a man. Speaking of the proposed moral education of his son, he explains:

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(1) A-T, XV, p. 437.
(4) Ibid. p. 427.
"Si la molécule voulait qu'il fût un vaurien comme son père, les peines que j'aurais prises pour en faire un homme honnête lui seraient très nuisibles. L'éducation croissant sans cesse la pente de la molécule, il serait tiré comme par deux forces contraires et marcherait tout de guingois dans le chemin de la vie." (1)

In this case Diderot gives the neveu the last word, but such a position must obviously be refuted if Diderot is to retain any belief at all in the efficacy of moral education. In the Réfutation, therefore, while refusing to agree with Helvétius that one's experience in life is the only thing which forms one's personality, he also refuses to concede to the neveu the opposite, that temperament is all-important. He strikes a balance between the two to show that man is educable although having a certain individual temperament. As he had shown in the Rêve de d'Alembert, man is possessed of sensitivity and is therefore an "être modifiable" who can be encouraged to follow the path of virtue. (2)

Hence his conclusions on the third main question connected with genius: its origin. Is it innate, or acquired because of favourable circumstances? Diderot had already, in the Rêve de d'Alembert, laid down his belief in the physiological basis of genius. A man's organisation determines the extent and quality of his talents:

"Le principe ou le tronc est-il trop vigoureux relativement aux branches? De là les poètes, les artistes, les gens à imagination, les gens pusillanimes, les enthusiasmes, les fous (...) le système entier énergique, bien d'accord, bien ordonné? De là les bons penseurs, les philosophes, les sages." (3)

In the Réfutation Diderot insists that it is mainly the original organisation of man, his innate capacity, which determines that he will be a genius. The great achievements of men are not due merely to chance and a good education, as Helvétius would have it, but to the original quality of the genius. It is ridiculous of Helvétius to insist on his unrealistic theories:

"il ne le serait pas moins d'assurer qu'on puisse faire un Platon, un Montesquieu, de tout être communément bien organisé." (4)

(1) Neveu de Rameau., A-T, V, p. 469.
Helvétius, says Diderot, goes so far as to claim that great poetry and art are due not to individual genius, but to chance, which presents suitable objects to the mind, and interest, which causes the mind to wish to combine and record its impressions. Diderot rejects this outright. If this were so, the amount of great poetry and art would be far larger, because everyone would have it in his power, given the favourable circumstances, to create masterpieces.

But, in fact, there is an enormous number of inferior productions:

"Ce n'est pas une ivresse, la meilleure instruction ne lui apprendra jamais qu'à contrefaire plus ou moins saussudement l'ivresse. De là tant de plats imitateurs de Finkure et de tous les auteurs originaux." (1)

Diderot does not however entirely reject all Helvétius's propositions. He wishes, as we have seen him admit, to modify them, to acknowledge the indubitably large part which education and the circumstances may play in the development of the genius, without relinquishing his belief in some natural talent waiting to be fostered. He takes the example of famous geniuses whom all his readers would know - Descartes, Leibniz, Newton, Galileo, Roemer - all equipped with able minds, all of whom add the fruits of their studies to their original ability and have remarkable success in their search for the truth.

Helvétius refuses to see this pattern as anything more than a series of chances,

"d'indue prense être son existence et le dernier sa découverte; et il n'y a point d'hommes communément bien organisés qui n'aient apporte en naissant l'aptitude au même sort et à la même illustration." (2)

Diderot sees the discoveries of the genius as caused by a combination of unique organisation and fortuitous circumstances:

"C'est la nature, c'est l'organisation, ce sont des causes purement physiques qui préparent l'homme de génie; ce sont des causes morales qui le font éclorre; c'est une étude assidue, ce sont des connaissances acquises qui le conduisent à des conjectures heureuses; ce sont des conjectures vérifiées par l'expérience qui l'immortalisent." (3)

Education may develop and even improve the original material, but it cannot create any sort of aptitude out of nothing:

(2) Ibid. p. 369.
(3) Ibid.
"L'avantage de l'éducation consiste à perfectionner l'aptitude naturelle, si elle est bonne, et à l'étouffer ou à l'écraser, si elle est mauvaise, mais jamais à supprimer l'aptitude qui manque." (1)

Education can accomplish, not everything, as Helvétius would have it, but many things. Diderot constantly reveals this moderate view of the influence of education:

"Il dit: l'éducation fait tout. Dites: l'éducation fait beaucoup."

"Au lieu d'affirmer que l'éducation, et l'éducation seule, fait les hommes ce qu'ils sont, dites que peu s'en faut que vous ne le croyiez." (2)

Diderot shows in the Refutation that he is aware of the need for moral education. He refers regretfully to D.-F. Rivard,

"qui introduisait dans nos écoles publiques l'étude des mathématiques et substituait les questions à l'argumentation, (et qui) s'était proposé d'enseigner, à la place de la mauvaise morale scolaïstique, de bons éléments du droit public et du droit civil. La chose allait s'exécuter, lorsque la Faculté de droit intervint, prétendant qu'on empiétait sur son district. Qu'en arriva-t-il? Que le droit public et le droit des gens ne furent enseignés ni dans nos collèges, ni sur les bancs de la Faculté." (3)

The Refutation d'Helvétius is valuable, not as a fair report on De l'Homme, for as we have seen Diderot constantly interprets Helvétius's statements in the light of his own ideas, but as an exposition of Diderot's opinions on the nature of man and his educability. He can be seen to be establishing a psychology of education which takes equally into account the diversity of human minds, and their susceptibility to outside influence. In his insistence on the inherent differences in men's organisation, which causes them to have different talents, Diderot falsifies the views of his opponent Helvétius, to make them appear simple and uniform. He represents Helvétius as refusing to recognise the difference in organisation and believing that a consistent policy should produce minds of much the same calibre; as long as his subjects are capable of receiving impressions through

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(2) Ibid. p. 316.
(3) Ibid. p. 452; see below, p. 229-231.
Their senses, they will interpret their information as they are taught to do. As we have seen, however, by an examination of Helvétius's actual words in the beginning of *De l'Esprit*, he acknowledges as Diderot does the diversity of men, although attributing it to the infinite variety of circumstances throughout their lives. Diderot admits that the mind can be greatly influenced by education. But his emphasis is different from that of Helvétius. He draws on his knowledge of physiology (unlike Helvétius, who is a moralist, not a psychologist) to enter into a detailed examination of the workings of the mind. He is at pains to insist that the individuality of each man's brain and senses means that men will interpret their experience, even if it is identical (a possibility which Helvétius will not acknowledge) in various ways. Any efficient scheme of education must take into account this diversity of organisation, and suit the training to the subject's temperament and abilities.
Chapter VII


Criticism of the French system of education took on a new form towards the middle of the eighteenth century, as a different conception of public education developed. Before this, educational reformers had taken one of two attitudes: either, like Montaigne or Fleury, they rejected the sequestration of the collèges and suggested the solution of domestic education, enabling the pupil to have access to society; or, like Rollin, they clung to the framework of the old collèges and tried to reform the teaching plan from within.

At the end of the sixteenth century, Montaigne, in his essay De l'institution des enfants, objected to the principles by which the collèges were run. They were designed upon the old monastic tradition, to keep the pupil isolated for as long as possible from the corruptions of the world outside. Such an ideal Montaigne rejects entirely. In the essay, as soon as he comes to the practical problems of education, he counsels the choice of a tutor, a gouverneur or conducteur, who will take charge of his pupil's lessons and at the same time help him in his contact with society. The pupil whom Montaigne has in mind is, of course, a member of the privileged class,

"qui recherche les lettres, non par le gain (car une fin si abjecte est indigne de la grâce et faveur des Muses)" (1)

and who is designed to become not a pedant but a cultured gentleman,

"plutôt(...) un habile homme qu'un homme savant."

The important feature of the education Montaigne favours, which the pupil misses in a collège, is his opportunity to mix with society, to enjoy

"le commerce des hommes" (2)

and thus to become a proper member of society when his education is completed. By first-hand experience in his travels in other countries, he will be better equipped to behave as an educated gentleman should in France:

(1) Montaigne, Œuvres complètes, Pléiade, 1962, p. 149.
(2) Ibid. p. 152.
Montaigne's ideal is a tolerant cosmopolitanism, not, as was to emerge in the mid-eighteenth century, a desire to form citizens for the patrie. Montaigne, besides the implicit condemnation of the collèges which his choice of private education shows, makes open comments on them several times. Because they shun the outside world and concentrate only on learning, they dull the pupil by overwork:

"Je ne veux pas corrompre son esprit à le tenir à la géhenne et au travail, à la mode des autres, quatorze ou quinze heures par jour, comme un portefaix. (...) J'ai ouï tenir à gens d'entendemment que ces collèges où on les envoie, déquoi ils ont faisoix, les abrutissent ainsii." (2)

The pupils of the collèges have great amounts of learning forced into them by cruelty:

"Cette institution [of the whole man, by physical and mental training] se doit conduire par une sévère douceur, non comme il se fait. Au lieu de convier les enfants aux lettres, on ne leur présente, à la vérité, que horreur et cruauté." (3)

The collèges teach the pupil a false eloquence without accustoming him to the ways of the world. (4) Locke also (in Some Thoughts on Education, which was very influential in the eighteenth century) was opposed to the schools because they provide no training for entering into society. (5)

A different kind of criticism of the collèges came from writers who favoured the broad outlines of their policy while being anxious to reform their curriculum. One of the most famous of these is Charles Rollin (1661-1741), author of the Traité des études (6) of 1728. Rollin, a teacher at the Université in Paris, began his treatise by placing his reforms firmly in the framework of the contemporary system of public education. The opening lines of his Discours préliminaire show

(2) Ibid. p. 163-4.
(3) Ibid. p. 165.
(4) Ibid. p. 168.
(5) Some Thoughts on Education, paragraph 70.
(6) Traité des études, ou de la manière d'enseigner et d'étudier les belles-lettres par rapport à l'esprit et au coeur, Paris, 1726-8.
him basing his Réflexions générales sur les avantages de la bonne éducation directly on the aims of the University of Paris; his point of view remains the same throughout the treatise:

"L'université de Paris, fondée par les rois de France pour travailler à l'instruction de la jeunesse, se propose dans cet emploi si important trois grands objets, qui sont la science, les mœurs, la religion." (1)

"Nous allons examiner chacun de ces trois objets en particulier et nous tâcherons de montrer combien il est nécessaire de les avoir toujours en vue dans l'éducation des jeunes gens." (2)

Nevertheless, Rollin occasionally shows signs of a new patriotic awareness. For example, he counsels teachers to concentrate less on developing the intellect than on training the pupils to be virtuous, to be

"bons fils, bons pères, bons maîtres, bons amis, bons citoyens." (3)

Such remarks would have been out of place in earlier writings such as Montaigne's.

In his Projet pour perfectionner l'éducation (1728), the Abbé de Saint-Pierre (1658-1748) shows that he is aware of the importance to society of a good education, but still looks at the question very much in the manner of the previous century. True, he says that the aim of education is to form concitoyens, but he still dwells more on the fostering of vertu and on the development of bienfaisance than on any national conception of education. A sound education is important, he says in his Préface,

"tant pour les particuliers jeunes, que pour leurs concitoyens futurs, c'est-à-dire pour l'état à venir."

He plans this education firmly within the existing framework of the Church:

"Rendre les hommes beaucoup plus vertueux et beaucoup plus heureux qu'ils ne sont, en perfectionnant de beaucoup l'éducation de la jeunesse dans tous les états chrétiens est un très grand objet."

His emphasis on the concept of bienfaisance, a word which he claims in the Avertissement to have restored or created, resembles far more closely the attitude of writers of the seventeenth century, such as Shaftesbury's belief in

(1) Traité des études, ou de la manière d'enseigner et d'étudier les belles-lettres par rapport à l'esprit et au cœur, Paris, 1726-8, vol I, p. i.
(2) Ibid. vol. I, p. iii.
(3) Ibid. vol. I, p. xxii.
the "natural affections" of mankind, than that of educationalists two decades later, whose main aim was to produce patriots and citizens for France. The Abbé de Saint-Pierre's discussion is far more abstract and philosophical, covering education in general. Although his concern with education gives some indication of the growing discontent with the present system of the collèges, his criticism is fairly mild. Both as they are and as they could be, he says in his chapter Education domestique, they are preferable to a domestic education because they provide expert teachers, and possibilities for competition among the pupils. (1)

Towards the middle of the century, this attitude became more common, and writers turned more and more to a new conception of public education, a political conception which had as its basis the need to form citizens for the patrie, to train pupils to work in harmony with the public good. Writers on education who deplored the state of the collèges, instead of turning to private education, as they had done before, used this new idea of public education to suggest a complete reform of the aims and methods of the collèges. Numerous plans were drawn up; projects for a new educational system abounded. The philosophes were in general in accord with the movement towards national education. A brief examination of some of the comments of the philosophes on education, and a survey of some of the more important educational projects, will show how wide-spread the new attitude was.

Montesquieu, in the Esprit des lois (1748), claims that public education is for democratic republics only. In Book IV (entitled Que les lois de l'éducation doivent être relatives aux principes du gouvernement) he distinguishes between the different aims of education in the three different types of government:

"Dans les monarchies [les lois de l'éducation] auront pour objet l'honneur; dans les républiques, la vertu; dans le despotisme, la crainte." (2)

In monarchies, he continues, a man's real education is derived from his experience in society, and anything he has learnt in the public school has only to be unlearnt:

(1) Chapter XIII.
(2) Esprit des lois, 1748, Chapter I.
"Ce n'est point dans les maisons publiques où l'on instruit l'enfance, que l'on reçoit dans les monarchies la principale éducation; c'est lorsque l'on entre dans le monde, que l'éducation, en quelque façon, commence." (1)

"(... nous recevons trois éductions différentes ou contraires; celle de nos pères, celle de nos maîtres, celle du monde." (2)

Duclos in his _Considérations sur les moeurs de ce siècle_, (1751) entitles his second chapter _Sur l'éducation_. In his opening lines he reveals immediately his concern for the establishment of a national education:

"On trouve parmi nous beaucoup d'instruction et peu d'éducation (... on ne s'est pas encore avisé de former des hommes, c'est-à-dire de les élever respectivement les uns pour les autres."

What he wishes is that pupils should be accustomed to

"chercher leurs avantages personnels dans le plan du bien général"

and that, whatever their calling, they should begin

"par être patriotes." (3)

A new type of man must be formed for France, not a social butterfly (used to mixing with his fellow-men, it is true, but possessed of no virtue, only a false politesse) but a man with true regard for his fellow-citizens, produced by an education based on

"l'humanité et la bienfaisance." (4)

Also in 1751 there appeared, anonymously, the _Lettre critique sur l'éducation_ by the naturalist and explorer La Condamine (1701-1774). In this he confined himself to the criticism of one branch of the present educational system, the study of the humanities in the Faculty of Arts; (5) but his general views on education are made plain. He describes a typical product of the present system, leaving the collège totally unsuited to the society he is about to enter:

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(1) _Esprit des lois_, 1748, Chapter II.
(2) Ibid. Chapter IV.
(3) _Considérations sur les moeurs de ce siècle_, Berlin, 1751, p. 17.
(4) Ibid. p. 36.
"Il sort à quinze ans de Rhetorique, dont on lui fait faire quelquefois une seconde année: voilà six ou sept ans passés dans un college: il a étudié neuf heures par jour, cinq en classe et quatre dans sa chambre: que sait-il au bout d'un si long temps? Un peu de latin, peut-être lire le grec, et rien de plus." (1)

The pupil's later education is no less superficial, equipping him only for the frivolities of the mondain society: on entering l'Académie, by which word was meant, in the eighteenth century, an Academy of Arms,

"il y apprend à monter à cheval, à danser, à faire les armes; voilà ce qu'on l'accoutume à regarder comme la partie essentiel de l'éducation d'un homme de condition." (2)

La Condamine suggests gradual reforms, as he clearly sees the impossibility of changing the whole system and finding competent, widely-read teachers overnight. He suggests a proper use for the child's memory, before his capacity for judgment is formed: he should be trained by habit to speak several languages, being taught to regard study as a pleasant occupation. Such reforms, he claims, showing his concern for the new national conception of public education, will form useful citizens:

"Quoi de plus propre à former des citoyens utiles à leur patrie?" (3)

Several articles in the Encyclopédie also echo this concern for the formation of citizens by a new public education. D'Alembert's article Collège, for example, in Volume III, is extremely important because of its wide diffusion, although his conclusions may at first sight seem surprising. He enters into the discussion by referring to Quintilian's attitude to public and private education, only to point out the flaws of such an appeal to authority. The problem must be discussed afresh: Quintilian may well have had good reason to prefer public education but, D'Alembert insists, in the true spirit of the Encyclopédie,

"il s'agit ici de raison, et non pas d'autorité."

(1) Lettre critique sur l'éducation, Paris, 1751, p. 11.
(2) Ibid. p. 14.
(3) Ibid. p. 35.
Times have changed, and it is the present system of the colleges which must be compared with private education. He goes on to suggest various reforms — the study of French should be improved, and foreign languages introduced into the curriculum; the study of history should be changed, so that the pupil moves from modern to ancient times; philosophy should supersede the study of rhetoric; morals should be taught by reference to Seneca, Epictetus and the Sermon on the Mount; an early knowledge of the principles of geometry and experimental physics should be introduced. D'Alembert's conclusion in favour of private over public education is seen by Professor Mortier as something

"qui peut surprendre le lecteur moderne." (1)

In fact, he is very much part of his time, just as interested as La Condamine or Duclos in a new form of education for the patrie, undertaken by a group of bons citoyens, but insists that, with the present state of the colleges, parents must wait for the government to reform the system and, meanwhile, rely on the private education of their children:

"C'est au gouvernement, comme je l'ai dit, à faire changer là-dessus la routine et l'usage (...) mais en attendant cette réforme, dont nos neveux auront peut-être le bonheur de jouir, je ne balance pas à croire qu'elle est, est sujet à beaucoup plus d'inconvénients qu'une éducation privée."

Thus, although inspired by love of his nation, by

"l'amour du bien public"

and the wish that his own experience should be of use to the patrie, D'Alembert is reluctantly led to advise all parents who can afford it to choose a private education for their children. Later, with a discussion of Rousseau's ideas on the subject, it will be clear that Rousseau was similarly reluctant to discard public education. One is not surprised to find that D'Alembert's assessment of Émile was one of the most sensible at the time. Although objecting to a lack of constructive criticism, D'Alembert approved of

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Rousseau's views on the education of the time:

"les réflexions de l'auteur (...) renferment quantité de vues profondes et utiles, dont on peut tirer beaucoup d'avantages pour une éducation moins imaginaire. Presque tout ce qu'il dit sur les vices de l'éducation ordinaire est excellent; mais on pourrait lui faire le même reproche qu'il fait à la philosophie moderne, d'être plus habile à détruire qu'à édifier." (1)

Dumarsais's article Education in Volume V of the Encyclopédie also shows a preoccupation with the advantages accruing to the state through a good educational system. Those who benefit by education, according to Dumarsais, are, firstly, the pupil himself; secondly his family; and thirdly

"l'état même, qui doit receuillir les fruits d'une bonne éducation que recoivent les citoyens qui le composent."

He expands on this third point: the result will be a well-educated sovereign who knows his rights and duties to the state, magistrates who have learnt "leurs devoirs et ont des moeurs",

and citizens who have been taught that they are members of a political body and thus realise that they are obliged to

"concourir au bien commun, rechercher tout ce qui peut procurer des avantages réels à la société, et éviter ce qui peut en déconcerter l'harmonie, en troubler la tranquillité et le bon ordre!"

Thus the patrie will benefit:

"Si chaque sorte d'éducation était donnée avec lumière et avec persévérance, la patrie se trouverait bien constituée, bien gouvernée, et à l'abri des insultes de ses voisins."

In Volume V of the Encyclopédie there appeared another article on education entitled École militaire, written by Jean Baptiste Paris de Meyzieu, himself the head of the École royale militaire. His comments on the present system of education, although in line with those of his contemporaries, are more moderate. He confines himself to the mild suggestion that the collèges, if they need reform, should be changed from within instead of being replaced by new establishments:

"N'y a-t-il pas assez d'écoles où l'on enseigne la Théologie et la Jurisprudence? manque-t-on de secours pour s'instruire dans toutes les Sciences et dans tous les Arts? S'il s'est glissé quelques abus dans ces institutions, il est plus aisé de les réformer que de faire un établissement nouveau, qui ne pourrait que difficilement suppléer à ce qui est fait."

Meyzieu traces the history of the idea of an école militaire, recently given substance in France by the King's approval of its institution in 1751. The aim of the school is in accord with the best patriotic principles, to form "des militaires et des citoyens."

While admitting the difficulty of public education - the diversity of the pupils' talents and their different goals - Meyzieu sketches with confidence a practical plan of studies for the school, with no doubt in its ability to train useful citizens. What he calls "à peu près (...) le plan du plus bel établissement du monde" is, by the very nature of the school, part of the new scheme for national education.

A more thorough exposition of the aims of the new public education is to be found in Rousseau's article Économie politique, (also in Volume V of the Encyclopédie) although Rousseau, as will be seen later, was forced reluctantly to adopt a private form of education in Émile. In the article, he leaves the reader with the impression that a good public education is indispensable to the formation of good citizens, but that France is at the moment ill-equipped to work under such a system.

"Voulons-nous que les peuples soient vertueux?"

he asks.

"Commencons donc par leur faire aimer la patrie." (1)

One way to do this is to make sure that the state carries out the protection of its members efficiently; the second way is to institute public education. From childhood, citizens must be taught to love the patrie, to regard themselves as members of the community:

"L'éducation publique sous des règles prescrites par le gouvernement et sous des magistrats établis par le souverain est donc une des maximes fondamentales du gouvernement populaire et légitime." (2)

(2) Ibid. p. 260-1.
After this praise of a new public education, Rousseau as yet hardly makes explicit the impossibility of such a scheme in France, as he was to in *Emile*: he merely mentions that in the past it has succeeded in only three nations, and because states have grown too big, and for

"d'autres raisons que le lecteur peut voir aisément", (1)

public education is unsuitable for modern nations. Here France is implied: Rousseau made some differences when talking about Geneva.

In the article *Législateur* (published in Volume IX of the *Encyclopédie* but probably written earlier), which has long been attributed to Diderot but has been shown to be by Saint-Lambert, (2) the author expresses his approval of national education in terms current at the time. The amour de la patrie, he writes, eliminates petty rivalry and creates true citizens, who work together for the bien commun; like Dumarsais, Saint-Lambert believes that a state composed of such citizens will be at peace with its neighbours:

"Un état animé de cet esprit ne menace pas les voisins d'invasion, et ils n'en ont rien à craindre."

One of the main ways to instil the love of one's country is, Saint-Lambert maintains, by a good public education:

"L'éducation des enfants sera pour le législateur un moyen efficace pour attacher les peuples à la patrie, pour leur inspirer l'esprit de communauté, l'humanité, la bienveillance, les vertus publiques, les vertus privées, l'amour de l'honnête, les passions utiles à l'état, enfin pour leur donner, pour leur conserver la sorte de caractère, de génie, qui convient à la nation."

Not only were writers at this time theorising on education: the dissolution of the Jesuits' schools in 1762 and their expulsion from France in 1764 formed a gap in the system, and practical measures were needed. The disappearance of the Jesuits was a triumph for the parlements, and many of those who proposed educational plans in the 1760s and 1770s were Parliamentarians. The emphasis was still on the necessity to form citizens. The best-known of these projects is the *Essai d'éducation nationale ou plan d'études pour la jeunesse*, by

Louis-René de Caradeuc de la Chalotais (1701-1785), the procureur-général of the parlement of Brittany. In this, La Chalotais immediately makes the distinction between forming scholars and forming citizens, the old ideal and the new:

"Nous avions une éducation qui n'était propre tout au plus qu'à former des sujets pour l'école. Le bien public, l'honneur de la nation, demandent qu'on y substitue une éducation civile qui prépare chaque génération naissante à remplir avec succès les différentes professions de l'état." (1)

What must be realised, continues La Chalotais, is the effect of a sound public education on the nation as a whole,

"combien une bonne ou une mauvaise éducation influent sur le bonheur ou sur le malheur d'une nation." (2)

Hence his opposition to the dominance of religion in the schools. He inveighs against the former power of the Jesuits, whose first allegiance was not to the French nation but to the Pope:

"Comment a-t-on pu penser que des hommes qui ne tiennent point à l'état, qui sont accoutumés à mettre un religieux au-dessus des chefs des états, leur ordre au-dessus de la patrie, leur instituts et des constitutions au-dessus des lois, seraient capables d'élever et d'instruire la jeunesse d'un royaume?" (3)

The control of the Jesuits was positively harmful to France:

"Ainsi l'enseignement de la nation entière, cette portion de la législation qui est la base et le fondement des états, était resté sous le direction d'un régime ultramontain, nécessairement ennemi de nos lois. Quelle inconscience, et quel scandale!" (4)

A national education must be established at once:

"Le bien de la société exige manifestement une éducation civile; et si on ne sécularise pas le nôtre, nous vivrons éternellement sous l'esclavage du pédantisme." (5)

La Chalotais goes on to draw up his own plan for public education, stressing the

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(2) Ibid. p. 2.
(3) Ibid. p. 13.
(4) Ibid.
(5) Ibid. p. 15.
need for French rather than Latin, as La Condamine and D'Alembert had done before him.

His work was warmly praised by Grimm in the Correspondance littéraire of 1763. Without going into details, Grimm describes the Essai as a plan raisonné (1) which gives evidence of the author's breadth of vision. He refers to the spate of educational treatises with unfavourable remarks on a work which had just appeared, the Deux discours sur l'éducation, by Ignace Vernière, and on the short work De l'éducation publique (1762) which has sometimes been attributed to Diderot. Since its authorship is in doubt, this work will be fully discussed later.

In 1763 there also appeared a book which showed the trend towards a new public education, the Anti-Émile of Jean Formey (1711-1797). Formey was writing, according to his own statement, inspired above all by the love of the public good: writings dangerous to the state, he maintains, can justifiably, and indeed must, be suppressed by the authorities:

"La première voie à la vérité de réprimer les attendas de ceux qui veulent répandre des principes pernicieux au bien public, c'est celle de l'autorité souveraine." (2)

And he criticises as harmful the very basis of Rousseau's plan for domestic education in Émile because (according to Formey) it is incompatible with the good of society; it is quite impractical, he maintains, for Rousseau to place the duty of education on the father;

"Sans parler de la capacité qui manque à la plupart des pères, les charges et les occupations de la vie sont presque toujours incompatibles avec les défauts de l'éducation. Le negociant, l'artisan, le soldat, ne sauraient quitter leur comptoir, leur métier, leur tente, pour y vaquer." (3)

Here he refuses to realise Rousseau's own awareness of which problems: noone was more conscious of the difficulties of any sort of education in the society of the time than Rousseau. Likewise Formey seems not to know that Rousseau would in fact have preferred a public education (as he said in the article Économie politique) if only it were possible in France at the time. This he takes Rousseau's criticisms of the specific situation as general principles: where Rousseau says

"Il faut opter entre faire un homme et un citoyen; car on ne peut faire à la fois l'un et l'autre," (4)

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(2) Anti-Émile, Berlin, 1763, p. 2.
(3) Ibid., p. 34.
Formey argues with this on general grounds, considering what should be rather than (as Rousseau does) what is:

"C'est précisément le contraire. Si l'on ne fait pas le citoyen en faisant l'homme, on dénature l'homme, on le détourne de sa destination." (1)

Formey insists that France is capable of forming true citizens, patriots:

"Un Français qui aime sa patrie, son roi, sa ville, sa famille, et qui agit en conséquence, est un bon citoyen, meilleur peut-être que le Romain et le Spartiate." (2)

Formey's criticism, made without sufficient knowledge of Rousseau's view of the society of his time, is nevertheless important as yet another example of the new faith in public education as the means of forming citizens for the patrie. However, unlike other writers of the time, whose references to the collèges were usually scathing, Formey was inclined to defend them or at least avoid any condemnation; to Rousseau's reference to them as "ces risibles établissements"

Formey seems more anxious to ridicule Rousseau, with a disregard of the facts, than to make serious comment on the collèges.

"Où est-ce que M. Rousseau a appris à penser et à écrire?" he asks.

"S'il avait été élevé à la sauvage, ou même à l'Emile, je doute que son nom fût connu. Peut-être à la vérité que cela fait preuve contre les collèges, et justifie l'épithète de risibles." (3)

The treatise De l'éducation civile by Jean-Jacques Garnier (1729-1805) (4)

"Professeur royal d'hébreu, et de l'Académie royale des inscriptions et belles-lettres" according to the title-page, published in 1765, carries on the criticism of the collèges and the suggestion of a new public education. Garnier bases his remarks on a comparison between the educational system of the Greeks and the Romans, with that of eighteenth-century France: the ancients' education was true public education, encouraging the "commerce de monde"; (5)

(1) Anti-Émile, Berlin, 1763, p.23.
(2) Ibid. p.24.
(3) Ibid. p.25; in fact Rousseau was not educated at a collèges.
(4) Paris, 1765.
(5) Ibid. p.3.
the colleges, on the other hand, carry on the monastic tradition and are "des espèces de prisons." (1)

Garnier gives an approving account of the ancients' education, which was designed to produce "des citoyens et des hommes d'état, et non des savants et des gens de lettres, dans l'acceptation qu'on donne vulgairement à ces mots." (2)

French education, on the contrary, wastes the talents of the pupils on the study of dead languages and a superficial course of Rhetoric and Philosophy, which equips them badly for the entry into the world. Such a state of affairs concerns Garnier for the damage it does to the patrie:

"Qu'un homme en place fasse une faute considérable, la Patrie entière s'en ressent, et souvent la plaie devient incurable (…) C'est dans l'éducation qu'il faut chercher un remède à ces malheurs; et puisque nous trouvons dans la conduite des Grecs et des Romains, le modèle d'une éducation où tout tendait à former des hommes d'état et des citoyens vertueux, pourquoi n'y pas prendre le correctif dont le nôtre peut avoir besoin, en y faisant tous les changements que les moeurs et les circonstances présentes sembleront exiger?" (3)

By these remarks of Garnier's it can be seen that, despite his familiarity with the history of the colleges and his great respect for the example of the ancients, (which reveals a different outlook from that of some of the Encyclopédistes, D'Alembert, for example, who saw the ancients' public education as irrelevant to eighteenth-century France) he was eager for reforms in the collèges and a total change in the attitude towards public education. His is a moderate plan: he has no wish to eliminate the study of Greek and Latin, but merely to add that of French; (4) the Philosophy should cover both ancient and modern writers and in three years deal with mathematics, astronomy, natural history, chemistry, experimental physics, logics, metaphysics and

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(1) De l'éducation civile, Paris, 1765, p. 4.
(2) Ibid., p. 9.
(4) Ibid., p. 28-9.
"l'étude de la morale pratique, de l'économique, de la politique, qui comprendrait le droit de la nature, le droit des gens et le droit public." (1)

Such an education will produce his ideal, l'homme civil. Garnier's plan includes remarks on the choice of teachers and of text-books.

The Abbé Coyer (1707-1782), a Jesuit who had had experience both in the colleges and in private teaching, published anonymously in 1770 a Plan d'éducation publique. Coyer in his Discours préliminaire to the Plan dwells on the inadequacy of previous writings on education. The philosophers, he complains, Montaigne, Locke, Fleury and later Rousseau, are interested only in private education; Rollin was too loyal to the University to admit most of its faults; La Chalotais's Essai, despite its quality, has had no practical results. Coyer points plainly to the situation as it was in 1770: the colleges, which everyone accepted as ineffecual, are no longer the only alternative to private education; there is a new type of public education which is undoubtedly superior to both:

"Si l'éducation reste telle qu'elle est dans nos collèges, le cri général décide contre elle. Si on l'éleve au degré de perfection dont elle est susceptible, elle reprendra bientôt la supériorité qu'elle mérite." (2)

Public education is the best method, not only because private education is necessarily confined to the rich, but because of the benefits a public education confers on the patrie:

"L'éducation publique est absolument nécessaire au corps de la nation." Following the traditional view, (3) that both physical and moral training are important, Coyer divides his work into two parts, De l'éducation physique and De l'éducation morale. The aim of moral education he expresses with an emphasis typical of his time on the instilling of virtue:

"Pour former l'homme moral, il faut éclairer son esprit, et placer la vertu dans son cœur." (4)

In the 1770s this ideal was continued in Turgot's attitude towards education. In 1775, A.-R.-J. Turgot (1727-1781), who was at that time the Comptroller General of Finances, but was concerned with all aspects of the abuse of power,

(1) De l'Éducation civile, Paris, 1765, p.32.
(3) For example, see Montaigne, De l'institution des enfants. Oeuvres complètes, Pléiade, 1962, p.165.
drew up a Mémoire au roi, sur les municipalités, sur la hiérarchie qu'on pourrait établir entre elles, et sur le service que le gouvernement en pourrait tirer. One small section of this, De la manière de préparer les individus et les familles à bien entrer dans une bonne constitution de société, (1) expresses in a few pages his faith in public education for the formation of patriotic citizens. Unlike many previous educational reformers, he does not draw up any detailed curriculum, but contents himself with setting out the principles of public education. He suggests the formation of a Council of National Education, because

"Il y a des méthodes et des établissements pour former des géomètres, des physiciens, des peintres. Il n'y en a pas pour former des citoyens. Il y en aurait, si l'instruction nationale était dirigée par un de vos conseils." (2)

It is not enough to educate only a small number of privileged people: all citizens must, for their own good and for the good of the nation, be taught their duties towards society:

"Un nouveau système d'éducation, qui ne peut s'établir que par toute l'autorité de Votre Majesté, secondée d'un conseil très bien choisi, conduirait à former dans toutes les classes de la société des hommes vertueux et utiles, des âmes justes, des coeurs purs, des citoyens zélés." (3)

What must be cultivated is

"l'uniformité des vues patriotiques." (4)

Such an education, Turgot points out, needs special text-books and trained teachers, because it is to be the basis for the education of all children. Later, in the collèges, some pupils may go on to specialised learning, but the important point of Turgot's educational plan is that a moral training, an education towards virtue and the spirit of patriotism, comes before all other teaching.

From these writings by the philosophes and educational reformers it is evident how strong a desire there was for a public education based on the new political conception of the moral training of the citizen. Some writers, however, although equally dismayed at the inadequacies of the collèges and the need to form citizens for France, found themselves forced to reject public education as ineffective in the society of their time. Rousseau is a striking example of such an attitude. In the article Économie politique, published in Volume V of the Encyclopédie in November 1755, he stresses the importance of producing citizens for the nation although indicating obscurely that public education in the

(2) Ibid, p.395.
(3) Ibid, p.396.
(4) Ibid, p.397.
France of his time was impossible. (1) Later, in *Émile* (1762), he makes it perfectly clear that he is forced to choose private education as the only way to train Émile to be virtuous. In Book I he points out that, the society of his time being in such opposition to the principles of justice, the educator must choose between the formation of a man and that of a citizen:

"Forcé de combattre la nature ou les institutions sociales, il faut opter entre faire un homme ou un citoyen; car on ne peut faire à la fois l'un et l'autre." (2)

Public education was feasible in Plato's scheme of the Republic, but in a monarchy such as France, which is based on privilege and oppression, it has become impossible to form a virtuous man without making him quite unfit for the corrupt society around him:

"L'institution publique n'existe plus, et ne peut exister; parce qu' où il n'y a plus de patrie il ne peut plus y avoir de citoyens. Ces deux mots, patrie et citoyen, doivent être effacés des langues modernes." (3)

Later again, Rousseau shows that it is indeed the present state of France, and not any objection to the principle of public education, which caused him to choose a private education for Émile. In the *Considerations sur le gouvernement de Pologne*, Rousseau gives up his democratic political philosophy, accepting the Polish social structure, in order to make discussion of public education possible. He repeats his complaint that patriotism is dead:

"Il n'y a plus aujourd'hui de Français, d'Allemands, d'Espagnols, d'Anglais même, quoiqu'on en dise; il n'y en a que des Européens. Tous ont les mêmes goûts, les mêmes passions, les mêmes mœurs, parce que aucun n'a reçu de forme nationale par une institution particulière." (4)

This is not as it should be, however. In the section entitled *Éducation*, he continues:

"C'est l'éducation qui doit donner aux âmes la force nationale, et diriger tellement leurs opinions et leurs goûts, qu'elles soient patriotes par inclination, par passion, par nécessité. Un enfant en ouvrant les yeux doit voir la patrie et jusqu'à la mort ne doit plus voir qu'elle." (5)

(1) See above, p. 183-4.
(3) Ibid., p. 250.
(4) Ibid., Vol III, p. 960.
(5) Ibid., p. 966.
And he goes on to outline a system of public education for the Poles, with physical and moral training to form them into loyal citizens of the republic.

The advantages to the state will be enormous:

"Dirigez dans cet esprit l'éducation, les usages, les coutumes, les moeurs des Polonais, vous développerez en eux ce levain qui n'est pas encore éven té par des maximes corruppues, par des institutions usées, par une philosophie égoîste qui prêche ce qui tue." (1)

If only the state of French society were different, if it were a republic, Rousseau would obviously prefer a system of public education.

Helvétius expresses similar views: in the Quatrième discours of De l'esprit he opts for private education because, like Rousseau, he believes that the whole structure of contemporary society would have to be changed before any effective system of public education was really practicable. (2)

Condillac too (going against the general opinion, like D'Alembert in the article Collège) chooses private education. As late as 1775, despite the number of treatises of public education, still identifying public education with the collèges and seeing no way of improving them without a radical change in society, he drew up his Cours d'Études for a private education. In the last chapter of the section Histoire moderne, he explains that the old system should be abolished:

"Il ne suffit pas de faire de bons établissements; il faut encore détruire les mauvais, ou les réformer sur le plan des bons et même sur un meilleur, s'il est possible." (3)

Some progress has been made, he concedes, since the thirteenth century, but the teachers are conservative and disinclined to make the effort necessary for a change. Like Diderot in the Essai sur le mérite et la vertu (4) and so many other eighteenth-century writers, Condillac points out that the education provided by the schools has little relevance to the requirements of society:

"Quand nous sortons des écoles, nous avons oublié beaucoup de choses frivoles, qu'on nous a appris; à apprendre des choses utiles, qu'on croit nous avoir enseignées; et à étudier les plus nécessaires, sur lesquelles on n'a pas songé à nous donner des leçons." (5)

(2) See above p. 149.
Well-educated men owe their accomplishments not to their formal education but to their own exertions; the schools have not produced any useful text-books; the study of mathematics is ignored. Condillac's final grievance echoes the complaints of La Chalotais, Rousseau and others:

"On oublie précisément [les sciences] les plus nécessaires aux citoyens, qui doivent un jour conduire les autres." (1)

Condillac therefore chooses to compose a course of private education.

Against this background of discussion on the relative merits of public and private education, Diderot's Plan d'une université pour le gouvernement de Russie may be seen to respond to a need in France just as much as in Russia. However much of the treatise De l'éducation publique he was responsible for, Diderot was clearly confident that it was possible to form citizens. Like many of his contemporaries he saw the need and, with characteristic hopefulness, he set about writing his own educational plan.

Chapter VIII

DIDEROT'S INTEREST IN THE DETAILS OF EDUCATION BEFORE 1774

Diderot's direct experience of the educational system of his time was gained from the point of view of the pupil: although always on the fringe of the educational world, with his post of tutor to the financier Randon some time in the 1730s (1) and his constant interest in the enlightenment of his fellow-men, he did not turn to teaching as a profession.

The details of his own schooling are uncertain. In his native town, Langres, as was not unusual at the time, he learnt to read and write before going to school. He was enrolled at the Jesuit collège there about the end of 1723. (2) Many years later, in his notes on the Russian cadet school for Catherine the Great, he looked back with nostalgia on his early education as a time when physical prowess was as important as academic development: he described himself as

"un homme dont la première éducation a été aussi dissipée, aussi pénible et beaucoup plus périlleuse [as that of the cadets in the Russian school] et qui a le front cicatrisé de dix coups de fronde reçus de la main de ses camarades. Telle était de mon temps l'éducation provinciale. Deux cents enfants se partageaient en deux armées. Il n'était pas rare qu'on en rapportât chez leurs parents de grièvement blessés. On dit que cette éducation vigoureuse et lacedémonienne s'est abattue; j'en suis fâché (...)

Je regrette qu'à cette éducation qui préparait des corps robustes et des âmes fortes, courageuses et libres, il en ait succédé une effémine, péjantesque et raide." (3)

Diderot showed his intention of taking up an ecclesiastical career by receiving the tonsure in 1726, at the unusually early age of thirteen; the story of his trying to run away and join the Jesuits in Paris would indicate that this intention was more than lack of resistance, but, if he did plan to join the Jesuits, he seems soon to have relinquished such hopes.

(1) See A. Wilson, Diderot: The Testing Years, New York, 1957, p. 28.
(2) Ibid., p. 15.
Between 1729 and 1732 he studied his rhetoric and philosophy in Paris, to gain a Master of Arts degree in the University of Paris, but whether he continued under Jesuit tuition at the collège Louis-le-Grand, attended the Collège d'Harcourt or the Collège de Beauvais, or even went to lectures at some other college, is not known.

An examination of the evidence produces contradiction and uncertainty. It has been suggested (1) that he did his rhetoric at Louis-le-Grand and then, since there was apparently no philosophy course there, went on to the Collège d'Harcourt, which was famous for its philosophy class.

The main argument to support the theory that Diderot attended Louis-le-Grand is his own testimony, in the Lettre sur les sourds et les muets (1751). Here he explicitly describes, from the pupil's point of view, a class by Père Forée (Charles Forée, who held the chair of rhetoric at Louis-le-Grand from 1708 to 1741). He is discussing Racine's description of Hippolyte and his horses in Act V, Scene vi of Phèdre:

"Lais si l'on nous faisait remarquer à Louis-le-Grand toutes les beautés de cet endroit de la tragédie de Racine, on ne manquait pas de nous avertir en même temps qu'elles étaient déplacées dans la bouche de Théramène, et que Thésée aurait eu raison de l'arrêter et de lui dire: Eh! laissez là le char et les chevaux de mon fils; et parlez-moi de lui. Ce n'est pas ainsi, nous ajoutait le célèbre Forée, qu'Antiloch annonce à Achille la mort de Patrocle (...)

C'est ainsi que l'habile rhéteur nous instruisait. Il avait, certes, l'esprit et le goût; et l'on peut dire de lui que ce fut le dernier des Grecs. Mais ce Philoemen des rhéteurs faisait ce qu'on fait aujourd'hui; il remplissait d'esprit ses ouvrages, et il semblait réserver son goût pour juger des ouvrages des autres." (2)

This seems indisputable evidence that Diderot was present at the rhetoric classes given by Forée, and the passage is taken by the Canon Marcel to prove Diderot's constant attendance at Louis-le-Grand.

(3) Marcel ignores two hypotheses, however. Firstly, Diderot's attendance at Forée's classes would not exclude the possibility of his going later to lectures at one of the collèges of the University; secondly, Diderot's testimony in this passage may be misleading, and

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(3) 'Diderot écolier', RIF, XXXIV, pp.377-402.
the context must be examined. Marcel does not do this, and actually slips up by attributing the passage to the wrong letter, the Lettre sur les aveugles. As R. Salesses has pointed out (1) the Lettre sur les sourds et les muets was published anonymously and Diderot, after his imprisonment in Vincennes, had become cautious. He obviously intends to conceal his identity, dating it from "Y" [Versailles], mentioning the Lettre sur les aveugles as being by someone else and not very good, (2) and disclaiming any knowledge of music (3) when in fact he was known for his interest in music. What is more, Diderot's reference to Père Porée is obviously inaccurate in one respect, because he dates the teaching "il y a trente à quarante ans", (4) which would put it back to 1711 to 1721, the years either immediately before his birth, or reaching up to the time he was eight years old. It is not unlikely that Diderot's falsification should extend to the deliberate fabrication of his attendance at Louis-le-Grand.

There is, however, mention of Diderot's attendance at Louis-le-Grand by Antoine Taillefer [born 1755] in his Tableau historique. (5) He states that

"Il entra en rhétorique à Louis-le-Grand, sous le Père Porée, à qui il avait été recommandé par les Jésuites de Langres." (6)

He gives no evidence, however, and this information could come from a credulous reading of the Lettre sur les sourds et les muets, coupled with the assumption that Diderot would naturally continue to be educated by the Jesuits.

The only other authority for Diderot's attendance at Louis-le-Grand is a passage from Léon de Vandeul's Mémoire on her father's life.

(1) 'Diderot et l'Université', Revue universitaire, XLIV, pp.322-33.
(2) A-T, I, p.347.
(3) Ibid. p.373.
(4) Ibid. p.384.
Although she specifically mentions the Collège d'Harcourt, Marcel suggests that her other remarks indicate that she meant Louis-le-Grand. She writes:

"[les Jésuites] le déterminèrent à quitter la maison paternelle et à s'éloigner avec un Jésuite auquel il était attaché. Denis avait pour ami un cousin de son âge, il lui confia son secret et l'engagea à l'accompagner; mais le cousin, plus médiocre et plus sage, découvrit le projet à son père; le jour du départ, l'heure, tout fut indiqué. Mon grand-père garda le plus profond silence; mais en allant se coucher, il emporta les clefs de la porte cochère, et lorsqu'il entendit son fils descendre, il se présenta devant lui et lui demanda où il allait à minuit? "À Paris, lui répond le jeune homme, où je dois entrer aux Jésuites. - Ce ne sera pas pour ce soir, mais vos désirs seront remplis; allons d'abord dormir..."

Le lendemain son père retint deux places à la voiture publique, et l'amena à Paris au collège d'Harcourt." (1)

His father's promise to fulfill Diderot's desire to join the Jesuits would hardly be accomplished by his enrolment at the Collège d'Harcourt, which was on the contrary a stronghold of Jansenist opinion. Mme de Vandeul also mentions the Abbé de Bernis, who was indisputably at Louis-le-Grand (2) as a condisciple of Diderot's. (3) Obviously her account contains contradictions, but it cannot be proved whether she slipped up on the name of the institution, or on Diderot's intentions on leaving home and the circumstances of his meeting with the Abbé de Bernis. Either seems possible.

As for the Collège d'Harcourt, Diderot certainly had links with men who had attended courses there, such as La Mettrie and Toussaint.
(4) R. Salesses deduces from Diderot's reference to Sartine [the lieutenant general of police, 1729-1801] as "mon ami de trente-cinq ans" (5) that Diderot had met him in 1739 or 1740, when Sartine was a boursier at the Collège d'Harcourt. Diderot had by this time finished his arts course, however, so this does not prove, contrary to what

(4) R. Salesses, 'Diderot et l'Université', Revue universitaire, XLIV.
(5) Roth, XIV, p.49, To General Betskoi, 15th June, 1774.
Salesse claims, that Diderot attended the Collège d'Harcourt. In the Réfutation d'Helvétius, Diderot wrote that he had just been invited to attend at the Collège d'Harcourt the defence of his thesis on integral calculus by Guéneau de Montbeillard. (1) This might suggest, as R. Salesse maintains, that Diderot was a former pupil of the collège, but he was illustrious enough to be invited for his reputation alone.

Mme de Vandeul, whose information can be inaccurate, as has been seen, and Naigeon (2) both state that Diderot attended the Collège d'Harcourt.

The question is still not settled. One of Diderot's remarks suggests strongly that he attended lectures by D. F. Rivard, who taught at Beauvais for forty years. He approved of Rivard's textbooks and suggestions of innovations in the teaching of natural law wholeheartedly. (3) In the Réfutation d'Helvétius Diderot referred by name to Rivard as the man

"qui introduisit dans nos écoles publiques l'étude des mathématiques." (4)

In the Flan Diderot referred, naming no names, to an able mathematician, a former teacher of his, to whom the teaching of mathematics was due:

"des premiers principes de l'arithmétique, de l'algèbre, et de la géométrie, dont l'enseignement est dû à un de mes anciens maîtres." (5)

As Assézat suggests in a footnote, it seems very probable that this was Rivard. Combined with Diderot's links with the Collège d'Harcourt, this evidence seems to suggest that Diderot at some stage attended lectures at Beauvais.

The Collège de Bourgogne is also a possibility, since the appearance in 1943 of a letter in which Vandeul mentions Naigeon's enquiries concerning Diderot's attendance at the Collège d'Harcourt

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(2) J. A, Naigeon, Mémoires historiques et philosophiques sur la vie et les ouvrages de Denis Diderot, Paris, 1821, p.5.
and in addition, he says, at the Collège de Bourgogne. (1) Unfortunately, then, we cannot do more than hypothesise on Diderot's attendance at the collèges. He may have been a pensionnaire at one collèrre and attended lectures at another. His interest in disputation and his ability to see both sides of the question, which he possessed in addition to a thirst for information, make it very likely that he did not rely exclusively for his education on either the Jesuits or one collèrre of the University.

We do know something of what Diderot would have been taught. The system was based on the medieval division of subjects into the "trivium", grammar, rhetoric and philosophy. Three or four years were spent in the study of Latin grammar; the programme of study included Greek grammar, but in fact the Jesuits concentrated on Latin. (2) These years were divided into the "infima grammatica" (sixième and cinquième), the "media grammatica" (quatrième), in which the pupils completed their study of Latin syntax and started to read Cicero, Ovid and the catechism in Greek; and the "supra grammatica" (troisième) in which they advanced to further set texts. A year of preparation for the course of rhetoric was devoted to the "humanities", in which the pupils studied the rules of rhetoric and poetics and were expected to compose verse and prose in Latin. They read Cicero, some of Virgil, and Horace, in expurgated texts. The fifth or sixth year was the rhetoric class, when the pupils were trained to compose Latin debates modelled on the orations of the ancients, especially Cicero. There was no history in the curriculum, only a little time devoted to l'érudition, in which a minimum amount of historical background was supplied, in order to elucidate the texts of the classics which the pupils were reading. There were no scientific studies in the curriculum, only a section known as la polymathie, consisting of frivolous and out-of-the-way subjects, designed to equip the pupil for entry into society,

(1) J. Hassiet du Bieist, Lettres inédites de Naigeon à Mr et l'îme de Vandeaull, Bulletin de la société historique et archéologique de Langres, 1st January, 1949, 2; see A. Wilson, Diderot: the Testing Years, New York, 1957, p.23.

the beau monde: blazonry and numismatics, for example, were touched upon here. The final two or three years of the course, the philosophie, which were followed by only a small number of pupils, were devoted to scholastic philosophy, consisting in the main of the copying down from dictation of commentaries upon questions originally dealt with by Aristotle. Some elements of Cartesian physics and of Euclidian geometry were introduced into the course. There was no course of moral principles on the curriculum of the Jesuit collèges. The University collèges, particularly the Collège d'Harcourt, were slightly more progressive than the Jesuits, introducing some teaching of mathematics and history in French; but the Jesuit collèges (which were not part of the University, although they had the right to present their pupils for degrees) had changed little since the publication of the Ratio studiorum in 1599. (1).

Thus it is not surprising to find Diderot in the preface to his translation of Shaftesbury's Enquiry Concerning Virtue and Merit complaining bitterly of the lack of teaching of any systematic ethics in the collèges of his time:

"Un jeune homme, au sortir de son cours de philosophie, est jeté dans un monde d'athées, de déistes, de socinians, de spinoisistes et d'autres impies; fort instruit des propriétés de la matière subtile, et de la formation des tourbillons, connaissances qui lui deviennent parfaitement inutiles; mais à peine sait-il des avantages de la vertu ce qu'il en a lu dans son catéchisme." (2)

Ethics were for the Jesuits a purely practical subject, as they were for Aristotle, whose Nicomachean Ethics was the teachers' guide.

After the completion of his secondary education in 1732, it is uncertain whether Diderot continued to study at the University. Professor Wilson suggests that he entered the Faculty of Theology for several years; this is a supposition which would explain the familiarity with theological discussion he shows in some of his articles in the Encyclopédie. (3) Whatever his University training, Diderot, as he

shows in his preface to Shaftesbury's *Enquiry*, was left with a contempt for the educational system of the time and, no doubt, the belief that he was well enough qualified to propose reforms. Since he had gained an arts degree he could regard himself as a *philosophe* in the sense that he had completed his *philosophie* at the University of Paris. There was never any question of his entering either of the two other faculties beside theology (law or medicine.)

His early career, which included a brief attempt at tutoring, (1) continued with a number of translations, Stanyan's *History of Greece*, James's *Medical Dictionary*, Shaftesbury's *Enquiry*, and of course the proposed translation of Chambers' *Cyclopaedia* which was to become the full-scale enterprise of the *Encyclopédie*.

Apart from his general concern for the moral and practical education of mankind, which was never far from his mind in any of his works, Diderot did not turn his talents to the specific topic of public education until the part he played in 1762 in the publication of *De l'éducation publique*. However, the education of the young cannot have been a matter of indifference to him. He took a special interest in the authors of three well-known works on education, La Condamine, La Chalotais and the Abbé Coyer.

La Condamine, the author of the *Lettre critique sur l'éducation* (1751) was a friend of Diderot's. This is shown as early as a letter of 1752 (2) in which Diderot asked him for a copy of two works which continued the de Prades controversy, Voltaire's *Défense de Bolinbrooke, par un chaplain anglais*, and the *Tombeau de la Sorbonne*, by Voltaire and probably with information supplied by Prades himself. Diderot's references to La Condamine in letters and other writings are to the *Procès-verbal dressé par M. de la Condamine on the convulsionnaires*, (3) and La Condamine's voyages in South America for scientific research. (4) Diderot was a close friend of La Condamine up to the latter's death in 1774, visiting him just before his own journey to Russia. (5)

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(2) Roth, I, p.147, 16th December, 1752.
(3) Roth, II, pp. 127, 151.
(4) Ibid. p.266; A-T, II, p.211.
(5) Roth, XIII, p.11.
La Chalotais also published a work on public education, *Essai d'Éducation nationale*, 1763. Diderot does not seem to have been personally acquainted with him but, mentioning his imprisonment for refusing to surrender some of Brittany's privileges, refers to him as "un magistrat respectable à tous égards". (1) He was the procureur-général for Brittany. He also calls him "ce grand homme." (2) He refers to the *Essai* in the *Voyage à Langres* (1770). Here he condemns La Chalotais's plan as unsuited to the normal type of child. He laments the fact that the expulsion of the Jesuits has not brought the salutary reform of the schools which the philosophes expected, but on the contrary a decline:

"Aux Jésuites ont succédé des gens sans moeurs et sans lumières; (...) A l'expulsion des Jésuites, nous croyions toucher au moment de la restauration des bonnes études; mais les magistrats qui nous ont débarrassés de mauvais instituteurs n'ont pas songé à nous en donner de meilleurs." (3)

La Chalotais, he complains, despite his undoubted ability, has failed because he

"a pris pour modèle de son instruction un enfant comme il s'en trouverait à peine un seul sur cinq cents; au lieu que le vrai représentant de la généralité des enfants n'est ni un imbécile, ni un aigle." (4)

The Abbé Coyer, whose *Plan d'Éducation publique* appeared anonymously in 1770, was known to Diderot in 1760 for his *Discours sur la satire des philosophes*. (5) It was he who recommended Diderot to the Dutch scholar van Goens when Diderot was preparing for his journey to Russia through Holland. (6)

With La Condamine, Coyer and other philosophes of his acquaintance, such as Grimm, Diderot may well have discussed the problems of setting up a system of public education, which became even more urgent when the expulsion of the Jesuits left a gap in the educational system of France, but there is no proof of his having done so. His involvement with the production of *De l'Éducation publique*, however, is proof of his own interest in the subject.

(1) Roth, VI, p.335.
(2) Roth, XI, p.18.
(3) A-T, XVII, pp.359-60.
(4) Ibid. p.360.
(5) Roth, III, p.91.
(6) Roth, XIII, p.22.
Besides helping with this book, he wrote two letters which set down some of his ideas on the education of the young without actually embarking on an educational programme, a step which he took only at Catherine the Great's request in 1774. The letters to the Princess of Nassau-Saarbrück of 1758 and to the Countess of Forbach of 1772 are both suggestions for the private education of young nobles, and therefore quite different in method from the teaching of classes which Diderot had to outline in the Plan d'une université. His general educational principles are of interest.

The dedication of the Père de famille to the Princess of Nassau-Saarbrück (1) was written in May or June 1758. The Princess was a friend of Grimm's, who no doubt suggested that Diderot should choose her as his patroness. He took as his starting-point the Lettres sur l'éducation des princes, by the Comte de Vareilles. (2)

In this letter Diderot stresses the necessity for both aspects of education, moral and intellectual. These depend upon each other:

"Une erreur d'esprit suffit pour corrompre le goût et la morale." (3)

Each is impossible without the other. Diderot is here drawing together the two strands of his thought - the problem of the origin of our intellectual ideas, (which he had developed in the Lettres sur les aveugles and the Pensées sur l'interprétation de la nature) and the need for a basis for morals (which he had discussed in the Preface to Shaftesbury's Enquiry and the article Droit naturel).

Diderot begins by dwelling on the duty of the parent, since he has chosen a private education, to educate the child himself instead of leaving him to tutors and inferiors: "Comment l'étranger y prendrait-il le même intérêt que moi?" he makes the parent ask.

"Si ceux que j'aurai constitués les censeurs de la conduite de mon fils se disaient au-dedans d'eux-mêmes: Aujourd'hui mon disciple, il sera mon maître demain, ils exagéreraient le peu de bien qu'il ferait. S'il faisait le mal, ils l'en reprendraient mollement et ils deviendraient ses adulateurs les plus dangereux." (3)

These remarks recall Rousseau's recommendations in Émile against the

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(1) Roth, II, p.49.
(2) 1757.
(3) Roth, II, p.51.
use of valets for the education of the child. (1)

Diderot now goes on to make his main point, that a correct training of the intellect must bring with it a correct moral attitude:

"Le mensonge est toujours nuisible. Une erreur d'esprit suffit pour corrompre le goût et la morale. Avec une seule idées fausse, on peut devenir barbare; on approche les pinceaux de la main du peintre (...) on se fait une âme petite et cruelle; le sentiment de la haine s'étend, celui de la bienveillance se resserre." (2)

The child must be taught to admit his mistakes, the mistakes to which the human reason is only too prone, and strive constantly for greater perfection:

"Tranquille alors sur les préjugés que la faiblesse de la raison nous expose, le voile tomberait tout à coup, et un trait de lumière lui montrerait l'édifice de ses idées renversé, qu'il dirait froidement: Ce que je croyais vrai, était faux." (2)

This attitude is similar to that suggested by Diderot in the Pensées sur l'interprétation de la nature, where a constant examination of the facts was shown to be preferable to a blind reliance on the power of reason.

The moral training which Diderot here suggests is in fact an aesthetic training, an education of the taste in order to recognise the beautiful and the good. Here he is following Shaftesbury's moral principles, as he is when he suggests that the concept of order is all-important to man's conduct:

"La conduite de l'homme peut avoir une base solide (...) dans les notions d'ordre, d'harmonie, d'intérêt, de bienfaisance et de beauté auxquelles on n'est pas libre de se refuser."

"C'est en les éclairant sur la valeur réelle des objets, que je mettrai un frein à leur imagination." (3)

The child will be taught to avoid false display, and recognise the real beauty of a rustic scene, peopled by virtuous peasants, above the over-refined elegance of facades and colonnades:

"Des façades, des places publiques les toucheront moins qu'un amas de fumier sur lequel ils verront jouer des enfants tout nus, tandis qu'une paysanne assise sur le seuil de sa chaumière en tiendra un plus jeune attaché à sa mamelle."

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(2) Roth, II, p. 51.
(3) Ibid. p. 52.
"Ils seront moins délicieusement émus à l'aspect d'une colonnade que si, traversant un hameau, ils aperçoivent les épis de la gerbe sortir par les murs entrouverts d'une ferme." (1)

Since these remarks on education are directed at members of the nobility, Diderot concentrates on their duties as rulers of the peasant class. They must be acquainted with hardship, in order to understand the sufferings of the peasants, and they must be sternly counselled against the terrible results of despotism: Diderot sets out a series of statements condemning the abuse of power:

"Que cette espèce de méchants qui bouleversent le globe et qui le tyrannisent, sont les vrais auteurs du blasphème; que la nature n'a point fait d'esclaves et que personne sous le ciel n'a plus d'autorité qu'elle (...) que la justice est la première vertu de celui qui commande, et la seule qui arrête la plainte de celui qui obéit." (2)

Virtue in the noble consists of bienfaisance, of making the acquaintance of the peasants and treating them kindly: this alone will bring him happiness. Diderot now moves on to a defense of sensual pleasures which, since the Princess found it rather too outspoken, was omitted in publication. Diderot defends a moderate indulgence of the passions, although only so far as this will not prevent the virtuous action:

"Celui qui méprise les plaisirs des sens est un hypocrite, qui ment, ou un être mal organisé; mais celui qui préfère une sensation voluptueuse à la conscience d'une bonne action est un être avili (...) Les passions déréglées ôtent la paix de l'âme." (3)

This was a view which Diderot had expressed earlier, in the first few Pensées philosophiques, in 1746.

He concludes by insisting on the importance of virtue as a goal for one's whole life:

"Le Vice et la Vertu travaillent sourdement en nous (...) Mais le méchant ne s'occupe pas à se rendre méchant, comme l'homme de bien se rendre bon. Celui-là est lâche dans le parti qu'il a pris. Il n'ose se perfectionner. Faites-vous un but qui puisse être celui de toute votre vie." (4)

Although this letter is naturally of limited scope, being concerned only with the private education of the children of the

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(1) Roth, II, p.53.
(2) Ibid. p.54.
(3) Ibid. pp.56-7.
(4) Ibid. p.53.
n nobility, it shows that Diderot takes an interest in the education of the young. His general principles, the necessity for both moral and intellectual education and the equation of virtue and happiness, he was to maintain throughout his writings.

The letter to the Countess of Forbach, (1) which he wrote about 1772 in response to her appeal for advice, is a later indication of Diderot's concern for education. Again Diderot is proposing an "éducation libérale" (2) for the members of the nobility, and so he concentrates more on the development of bienfaisance and good taste than the practical subjects which his plan for the youth of Russia was to require. The aim of this sketch for a Plan d'éducation (3) of Diderot's is to make the child honnête and good rather than great. He raises a problem which he had already proposed in the Revue de Rameau, a work he had begun in 1761 and was probably revising about this time, in 1772. There his example was Racine, who instead of being "bon mari, bon père, bon oncle, bon voisin," was "fourbe, traître, ambitieux, envieux, méchant", (4), but the author of some of the greatest plays of French theatre. In this letter Diderot again touches on the suggestion that genius may be above the normal moral standards of mankind:

"Qu'importe cependant qu'il soit mauvais père, mauvais époux, ami suspect, dangereux ennemi, méchant homme? Qu'il souffre, qu'il fasse souffrir les autres, pourvu qu'il exécute de grandes choses? Bientôt il ne sera plus (...) Le méchant ne dure qu'un moment; le grand homme ne finira point." (5)

Diderot has no ready answer to this: he can only maintain that he would rather raise the child to be good than great, and conclude that true greatness consists of justice and firmness, just as true goodness does. He leaves this problem, to sketch out an educational plan in which virtue will be formed and strengthened by sound intellectual training:

(1) Roth, XII, p.36.
(2) Ibid. p.42.
(3) Ibid. p.36.
(5) Roth, XII, p.37.
"On le [l'esprit] rectifie par l'étude des sciences rigoureuses (...) Avec l'instinct de la précision, on sent, dans les cas même de probabilité, les écarts plus ou moins grands de la ligne du vrai (...) c'est en ce sens que les mathématiques deviennent une science usuelle, une règle de la vie, une balance universelle; et qu'Euclide, qui m'apprend à comparer les avantages et les désavantages d'une action, est encore un maître de morale. L'esprit géométrique et l'esprit juste, c'est le même esprit." (1)

Education consists not in filling the pupil full of facts, but in teaching him to see things in their broad outlines, giving him a sense of perspective:

"Il y a entre l'esprit étendu et l'esprit cultivé, la différence de l'homme à son coffre-fort."

For the young nobles whom Diderot has in mind, specific knowledge is far less important than virtue, an "esprit étendu", and, most difficult of all to teach, "le goût", which is

"le sentiment du vrai, du bon, du beau, du grand, du sublime, du décent et de l'honnête dans les moeurs, dans les ouvrages d'esprit." (2)

It depends partly on correct physical formation, relies on the use of the reason, and is fostered by good example. This is the method which Diderot suggests for the Countess's children, to train them to recognise beauty and virtue,

"Voyons de belles choses; lisons de bons ouvrages, vivons avec des hommes, rendons-nous toujours compte de notre admiration; et le moment viendra où nous prononcerons aussi sûrement, aussi promptement de la beauté des objets que de leurs dimensions." (3)

The sight of good examples must be combined with a healthy life, obtained by "l'exercice et la sobriété." (4)

These two letters are valuable indications of Diderot's ideas on education during the years in which he was never far from discussions on public education. They show that he was interested not only in a plan of studies (as he shows by his collaboration in

(1) Roth, XII, pp.38-9.
(2) Ibid. p.40.
(3) Ibid. pp.40-1.
(4) Ibid. p.42.
De l'éducation publique) but also in the principles behind the training of the young towards virtue and intellectual accomplishment. With the Plan d'une université, as with the letters, he was to be spurred on by a specific request made to him for advice, but this time not by a noblewoman anxious to educate her children, but by an Empress wishing to form a new class of intelligentsia for her nation.
The essay on public education entitled *De l'Éducation publique* was first published anonymously in 1762 bearing the false imprint Amsterdam. Grimm made firm denial that Diderot was its author, although admitting that he might well have seen the manuscript and inserted a few sentences here and there. Grimm dwells on the mediocrity of the work:

"À quelques vues près (et il arrive aux gens les plus médiocres d'en avoir de bonnes) c'est un amas de détails minuscules et d'efforts laborieux pour indiquer les livres qu'il faut étudier de classe en classe, avec le code d'une police puérile de l'intérieur des collèges pour le maintien de la discipline. Nulle vue véritablement grande, nul moyen de nous tirer de la barbarie dans laquelle toute l'Europe est à peu près également restée sur ce point." (1)

Grimm had in fact already, like so many of his contemporaries, pointed out the need for an educational system for France with a far more practical bias than that of the collèges. (2) Despite Grimm's clear statement that Diderot was responsible for some, though not all, of the work, later opinion discounted this and generally attributed it to J.-B.-L. Crétier, the historian. E. Dreyfus-Brisac, in the Revue internationale de l'enseignement, (3) examined the question more thoroughly than anyone had examined it previously. He pointed out that editors and bibliographers had followed former hypotheses on the authorship without checking the evidence. Thus, in 1806, Barbier in his Dictionnaire des anonymes gives his opinion that the work is not by Diderot. Later, on the strength of a manuscript note, he attributes it to Crétier. Assezat and Tourneux, in their edition of Diderot's complete works (1875-7), in the list of Ecrits apocryphes, (4) quote Barbier's conclusion without question, although this was based more on Barbier's feeling that the work was uncharacteristic of Diderot than on any positive proof. Hypothesis had quickly become accepted as fact: in L. Buisson's Dictionnaire de pédagogie (1887) the

work had been referred to as being falsely attributed to Diderot, and probably written by Crévier. G. Compayré had taken this up, stating in his Histoire critique des doctrines de l'éducation en France (1) that it was recognised that the work belonged not to Diderot but to Crévier.

Dreyfus-Brisac, re-examining the whole question, quoted Diderot's letter of the 19th August, 1762, to Sophie Volland (2) in which Diderot is probably referring to the work; he writes that he has been reading a work on education, which he does not identify, and that he finds it inadequate for France:

"La matinée s'est passée toute entière à lire un ouvrage sur l'institution publique. C'est été la chose la plus utile et la plus praticable pour un royaume, tel que le Portugal, qui se renouvelle. Pour nous, c'est autre chose. Les mauvais usages multipliés sans fin et invétérés sont devenus respectables par leur durée et irréformables par leur nombre."

The word "irréformables" appears in the preface of the work itself; (3) this concurrence may support Dreyfus-Brisac's theory that De l'Éducation publique is largely by Diderot, or the word may have been used by Diderot merely because he had just been reading the book. The whole passage indicates his interest in the topic of public education, and his recognition that something should be done, without implying that he was collaborator in the work. After a comparison of some of the passages of De l'Éducation publique with Diderot's Plan d'une université, Dreyfus-Brisac decided that Diderot had indeed collaborated in the work, looking over the manuscript and inserting some of his own suggestions; certainly the emphasis on minute details on the policing of the school is not uncharacteristic of Diderot, despite what Grimm says.

However, the discovery of a letter to Damilaville (December 1762 or January 1763) (4) leads one to think that Dreyfus-Brisac probably overrated Diderot's share in the work:

(2) Roth, IV, p.103.
(4) Roth, IV, p.234.
"Je vais chez Durand, writes Diderot, finir l'affaire de l'Éducation publique. Il faut que j'€é é aujourd'hui mon argent et mes exemplaires; mon argent pour l'envoyer à l'auteur, qui en est pressé; mes exemplaires pour vous les distribuer.

Je suis bien curieux de savoir ce qu'on pensera de cet ouvrage. On saura que j'ai traité du manuscrit; on saura que j'ai revu les feuilles. On se souviendra qu'on m'avait invité à m'occuper de ce sujet. On lira; on trouvera des opinions si contraires aux miennes, et des morceaux de détails qui me ressemblent si fort, qu'on n'en saura que dire. Ils seront bien embarrassés."

This makes it clear that Diderot had supervised the publication of the work; it also explains why many of the ideas expressed in the treatise can be so contrary to Diderot's beliefs - the use of celibate teachers, the emphasis on Latin at an early age, the whole-hearted reverence for religion. The whole question of the authorship of De l'Éducation publique must be examined afresh in the light of this letter.

The book is a short work (227 pages) which begins by setting out a Tableau méthodique des connaissances humaines; secondly, it contains a curriculum, class by class, for eight years of study; thirdly, it deals with the administrative details of public schools. This idea of a progression in several subjects was quite different from the system of the collèges: in 1728, in his Projet pour perfectionner l'éducation, the Abbé de Saint-Pierre had had the originality to suggest a study of many subjects concurrently in the early classes. He says of the pupils that

"Dans les plus basses classes on peut leur apprendre quelque chose de général, et de superficiel de tous les arts, de toutes les sciences, dont ils apprennent davantage dans la classe supérieure." (1)

The Tableau méthodique des connaissances humaines has as its aim, like the Système figuré des connaissances humaines of the Encyclopédie, the systematic division of all human knowledge into a logical plan. The tableau treats of the three connaissances essentielles ("les vraies sciences"), religion, morale and physique, dividing each of these sciences into histoire, théorie et pratique. Thus each branch of knowledge is neatly classified. Although the Tableau has

the same aim as the Système figuré of the Encyclopédie, its structure is different from that of the Système, which has as its three broad divisions the arts connected with the memory, those connected with reason, and those connected with imagination.

In the curriculum of De l'Éducation publique, the periods of study are not long, beginning with two hours each morning and evening, and increasing gradually until the seventh and eighth classes, which have three hours in the morning and two and a half in the evening. Each class begins with the necessary subjects — religion, morals and physics — and moves on to a gradual teaching of the "instrumental" subjects. The first class begins with a reading of Fleury's catechism, followed by an elementary lesson in morals, the object being to instil "des notions nettes et simples de ce qu'il y a de plus important et de plus commun dans la vie." (1)

The class then moves on to French grammar, and Latin grammar, syntax and prosody. As yet, the only translation is from Latin into French. Some basic arithmetic, and practice in spelling and calligraphy, complete the course. The author advises plenty of physical exercise for such young children.

The second class studies Fleury's catechism (in Latin this time), continues with moral teaching, and begins the study of geography in a very practical way, with maps and a globe. Latin dialogues must be learnt and recited, and an acquaintance with Terence, Horace, Phaedrus, Cicero, Seneca and Pliny is advised. Arithmetic and the principles of algebra complete the syllabus. A dancing lesson is also permissible, although designed more to benefit the child's deportment than to teach him adult dances such as the minuet, which are more suitable for society than for the school.

The third class begins with Sacred History, based almost entirely on the text of the Bible, little attention being given to commentary. The next lesson is a general history firmly based on a knowledge of chronology; the section physique is represented by cosmography, with a reading of the Abbé Pluche's Histoire du ciel, "mais toujours en

(1) De l'Éducation publique, 1762, p.78.
The pupils are to translate Latin Authors — the Church fathers as well as the Ancients — whose works are relevant to their historical and religious courses, instead of studying classical literature purely for pleasure. Arithmetic and algebra are now joined by geometry; music also enters the syllabus.

Sacred history begins the fourth class also. Ancient history, avoiding the frivolities of mythology, is followed by an introduction to l'histoire naturelle, the study of minerals, plants and animals, which must be learnt by actual experience rather than a reliance on books since, the author states,

"Nous visons toujours moins au curieux, qu'à l'utile du moment." (2)

Latin and geometry are continued, and drawing classes begin.

The fifth class begins with Biblical teaching, an explanation of the Prophets' divine inspiration in foretelling the history of the Church, which will show, so the author writes with enthusiasm,

"la sublimité des idées et l'exactitude des rapports et fondements sensibles de la religion établie par l'esprit suprême, seul capable d'annoncer l'avenir, parce que tout est présent à lui." (3)

After a few months this is replaced by a history, in Latin, of the Church until the time of Constantine. A study of modern peoples is useful, continues the author under the heading morale, especially of the nations of the new world, who present, like primitive men, "des images du droit naturel." (4) Voltaire's Histoire universelle should be used. Experimental physics, mechanics and architecture are studied, and in the Latin class the pupils only now, at the age of twelve or thirteen, begin to write in Latin.

Ecclesiastical history is completed up to the present day, and the history of France based on the development of laws (not the succession of battles) forms the moral education of the sixth class.

(1) De l'Éducation publique, 1762, p.97.
(2) Ibid. p.108.
(3) Ibid. p.114.
(4) Ibid. p.115.
Chemistry, botany and anatomy continue the natural history course, and the pupils study optics, the theory of music (with the help of their own concerts), drawing, Latin and a more adult form of dancing than before; the author concludes with a warning against the belief that the entry into society's frivolous pursuits can be in any way salutary for their morals.

The seventh class now enters into the theory of subjects which have hitherto been taught as practical exercises. Grammatical and critical theories are studied, and these are in their turn followed by an excursion into metaphysics

("non pour que l'on ose mettre en question [l'] existence [de Dieu] ") (1)

but to discuss the Providence of God and the liberty of man's soul, which should form a basis for morals in the light of the natural merit of virtue and the existence of punishment and reward in the hereafter: Abbadie's Traité de la religion, S'Gravesande's Introduction à la métaphysique and Burlamaqui's Principes de droit naturel are recommended. The theory of religion establishes "les preuves fondamentales du Christianisme." (2) In physics, a discussion of the "systèmes généraux" and in mathematics the study of astronomy for navigation are supplemented by a course devoted to drawing ships and sailors. The author defends a scholastic system of argumentation, in Latin, although acknowledging that the opponents of scholasticism are right in condemning its excesses:

"L'abus des termes vides de sens, les questions frivoles ou absurdes, la déraison et l'opiniâtreté à ne se pas rendre." (3)

The pupils are also introduced to military exercises.

The last class covers a lot of ground — Christian doctrine, natural law and public law (political organization and international law) the general principles of medicine, agriculture and commerce, and

(1) De l'Éducation publique, 1762, p. 127.
(2) Ibid. p. 129.
(3) Ibid. p. 132.
a continuation of military studies. Only then does the author move from practical subjects to the study of literature - "les fleurs de la rhétorique et les charmes de la poésie" - which the pupil is by now mature enough to enjoy.

The second part of De l'Éducation publique ends with a recommendation of two means of facilitating teaching, repetition, and the habit of reading lessons aloud. The author supplies a list of suitable books to accompany each class, including moderns (such as Condillac and Voltaire) as well as ancients.

Certainly there are some similarities between passages in this work and in the Plan d'une université, as Dreyfus-Brisac points out. Some of the terminology in the two works is exactly the same. Thus, in the Plan d'une université, Diderot refers to essential and secondary learning, "connaissances essentielles" and "connaissances de convenance". The "connaissances essentielles" he defines as forming the basis for the education of everyone; the "connaissances de convenance" are essential only for those who specialise in a particular branch of learning:

"Il y a deux sortes de connaissances: les uns que j'appellerai essentielles ou primitives, les autres que j'appellerai secondaires ou de convenance.

Les primitives sont de tous les états; si on ne les acquiert pas dans la jeunesse, il faudra les acquérir dans un âge plus avancé, sous peine de se tromper ou d'appeler à tout moment un secours étranger.

Les secondaires ne sont propres qu'à l'état qu'on a choisi.

Il y a cela d'avantageux que les connaissances primitives ne doivent être qu'élémentaires et que les connaissances secondaires veulent être approfondies.

Les connaissances primitives approfondies donnent des connaissances d'état." (1)

In De l'Éducation publique a similar division is made, although into three types of learning, "connaissances instrumentales," "connaissances essentielles," and "connaissances de convenance". The author continues,

"J'appelle connaissances essentielles, celles qui ont des objets réels et nécessaires à tous les états, dans tous les temps, et auxquelles rien ne peut suppléer, parce qu'elles

(1) A-T, III, p.443.
comprendent tout ce que l'homme doit absolument savoir et faire sous peine d'être dégradé et malheureux." (1)

He then enumerates these - Religion, Morale and Physique - and continues,

"Enfin, ce qu'on nomme Études de convenance, ce n'est que ces trois mêmes choses, avec les connaissances instrumentales qui les y préparent; mais poussées plus loin, et plus ou moins approfondies selon les personnes, ou les é tats accidentels; selon les goûts ou les vues que l'on se propose." (2)

He goes into this division far more deeply than Diderot in the Plan d'une université, referring to it later in his detailed plan of the classes. (3) The terminology is the same; the emphasis of the two passages is slightly different, as if there are two authors treating of the same divisions in their own individual way: in the Plan d'une université Diderot insists on the usefulness of the essential subjects in youth, or, failing that, at an older stage, while in De l'Éducation publique the point is that without this knowledge man becomes "dégradé et malheureux".

The term "connaissances de convenance" is an unusual one and strongly suggests that Diderot is indebted for it to the author of De l'Éducation publique. There is no mention of the term in the article Connaissances in the Encyclopédie (Volume 3, by an anonymous author), nor in Diderot's article Convenance in Volume 4.

A similar identity of terms is to be found a few pages later, in the Plan d'une université, where Diderot divides each science into three distinct parts:

"L'érudition ou l'exposé de ses progrès, son histoire; les principes spéculatifs, avec la longue chaîne des conséquences qu'on en a déduites, sa théorie; l'application de la science à l'usage, sa pratique." (4)

In De l'Éducation publique we find a similar division:

"Toutes les vraies sciences ont en effet chacune trois parties très distinctes ..."

(1) De l'Éducation publique, 1762, p. 6.
(2) Ibid. pp. 9-10.
(3) e. g. Ibid. p. 78, p. 89.
I° L'Histoire, c'est-à-dire le recueil des faits relatifs à la chose, et qui servent de matériaux à l'esprit.

2° La Théorie, qui combine ces faits, en cherche les raisons et en déduit la chaîne des axiomes et des règles.

3° La Pratique qui, munie de ces secours, opère avec lumière." (1)

Again, the emphasis is different, the passage from the Plan being concerned with referring back to the previous division and putting "érudition" into the category of the "connaissances essentielles", and "théorie" and "pratique" into the specialist group:

"L'érudition ou l'historique plus ou moins étendu appartient à tous. La science ou la somme des connaissances qui la constituent et la pratique sont réservées aux gens du métier." (2)

The passage from De l'Éducation publique, on the other hand, maintains that the third stage, the practice, is the main aim of all study: it "doit être le principal et dernier but de toute étude sensée." (3)

This identity in terminology is striking. It seems to suggest that Diderot in 1773, perhaps looking at a copy of De l'Éducation publique, which he had helped through the press, felt quite entitled to use some of its terms, adapting them to his own thought, in the Plan.

Other similarities which Dreyfus-Brisac notes as positive proof that Diderot was the author of parts of De l'Éducation publique are, on closer inspection, less striking than he implies.

Both works assume, naturally enough for the time, that a child entering school will have learnt reading, writing and the elements of mathematics:

"Qu'il sache lire et prononcer proprement; écrire et orthographier couramment; former les chiffres et les nombrer; le plus petit catéchisme et les prières communes; voilà toutes les provisions qu'il faut pour entrer dans les Écoles publiques." (4)

Diderot writes in the Plan:

(1) De l'Éducation publique, 1762, pp. 16-17.
(2) A-T, III, p. 446.
(3) De l'Éducation publique, 1762, p. 17.
(4) Ibid., pp. 72-3.
"Je suppose que celui qui se présente à la porte d'une université sait lire, écrire et orthographier couramment sa langue; je suppose qu'il sait former les caractères de l'arithmétique." (1)

Both works suggest a system of bursaries to encourage the pupils in their careers, again an idea which Diderot could have preserved from his conversations with the author of De l'éducation publique. They both dwell on the importance of school discipline in very similar phraseology:

"Qu'il n'y a rien d'arbitraire ni pour les leçons ni pour les châtiments (...) Il faut que toutes les fautes et manquements soient prévus et qu'il y ait un code pénal où chacun trouve son arrêt prononcé avant que d'avoir failli." (2)

"Rien d'arbitraire ni pour les châtiments ni pour les récompenses. Point de châtiments corporels; récompenser les bons, c'est commencer la punitio n des méchants. Un petit code pénal des fautes contre la discipline, les moeurs et les études obligerait à la partialité et à la sévérité déplacées et épargnerait aux maîtres la haine des coupables punis par la loi." (3)

Again it seems that Diderot was using a copy of De l'Éducation publique to suggest certain phrases and ideas.

There are other similarities between the works. Dreyfus-Brisac has pointed out the praise of the artisan and the breadth of the views on the arts in De l'éducation publique and the Plan. Other correspondences are evident. Both works have as their aim the formation of citizens useful to the patrie. As the author of De l'éducation publique expresses it, the aim of public education is

"Qu'embrassant tous les états, elle forme tous les sujets aux vertus, au patriotism e." (4)

And as Diderot writes in the Plan,

"Il s'agit de donner au souverain des sujets zélés et fidèles, à l'empire des citoyens utiles." (5)

Such a view, however, was so common to writers on public education in the 1760s that it would be surprising if these aims were not

(2) De l'éducation publique, 1762, pp.214-5.
(4) De l'éducation publique, 1762, pp.vi-vii.
part of a work written at this time.

In both works there is an insistence on the right of the poor to benefit from education, although the point of view is different. In *De l'Éducation publique*, the author bases his argument on the belief that all men are equal in the sight of God:

"Dieu voit avec la même complaisance la chaumière du pauvre, et les lambris du riche; et la Providence suprême n'a point d'égard à nos petites distinctions de rang et de naissance dans la distribution des talents." (1)

The poor must be educated, therefore, although, looking at the common people from a position of social superiority, the author admits the danger of creating discontent among the lower orders:

"Il ne s'agit pas de les dégoûter des travaux auxquels ils se trouvent comme naturellement destinés; mais de les en rendre plus capables." (2)

Diderot's view as expressed in the *Plan d'une université* is different. It is from the position of the poor child and his parents, whose attitude he outlines with understanding:

"Loins il y d'opulence autour du berceau de l'enfant qui naît, mieux les parents conçoivent la nécessité de l'éducation, plus sérieusement et plus tôt l'enfant est appliqué. Accoutumé au spectacle d'une vie laborieuse, la fatigue de l'étude lui en paraît moins ingrate." (3)

Despite his emphasis on classical studies, the author of *De l'Éducation publique* has some time for practical, technical training to equip the pupil for a career. He insists that the pupil must learn not merely for the sake of learning but because

"Il n'est pas permis de n'être rien, ni de se promener vaguement sur les sciences et les arts (...). Il est toujours certain que chacun dans ce monde doit avoir un poste." (4)

Such sentiments are similar to those expressed in the *Plan*, where Diderot complains that

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(1) *De l'Éducation publique*, 1762, pp.159-160.
(2) Ibid. p.161.
(4) *De l'Éducation publique*, 1762, p.13.
"Rollin, le célèbre Rollin, n'a d'autre but que de faire des prêtres ou des moines, des poètes ou des orateurs; c'est bien là ce dont il s'agit!" (1)

Similar to the defence of the dignity of the mechanical arts by D'Alembert and Diderot in the *Discours préliminaire* to the *Encyclopédie*, and in the articles themselves, is a passage in *De l'éducation publique*, where, under the heading *Arts manœuvriers*, there appears the statement:

"Que l'on se donne la peine de parcourir les ateliers divers, il n'en est pas un qui ne soit digne d'attention par l'invention des machines ou par l'adresse des mains." (2)

The attitude in *De l'éducation publique* towards the empirical method in the examination of the mysteries of nature has a strong resemblance to Diderot's opinions as expressed in his early works.

Facts are the very basis of scientific examination:

"Ce sont les choses de fait qui font naître les idées. Sans la connaissance des faits, c'est une nécessité que l'on raisonne faux, ou en l'air, comme on ne le voit que trop souvent (...) plus on a de faits, plus il est aisé de juger, puisqu'on a plus de pièces de comparaison." (3)

Yet a blind reliance on facts, which may often be misrepresented or misinterpreted by inexperienced witnesses, will only mislead the experimenter:

"Dans l'histoire naturelle, il est assez permis de se défier des faits; car combien de rapports hasardés par gens qui n'ont point vu, ou qui ont mal vu; et combien d'opérations équivoques, dont d'autres essais combattent les résultats. Il faudrait tout vérifier par soi-même, ou n'en croire que des garants surfs." (4)

Yet despite these resemblances to Diderot's thought, which may have been suggested by conversations between him and the author, the differences in outlook between the author of the *Plan d'une université* and of *De l'éducation publique* are too basic to admit of Dreyfus-Brisac's theory that Diderot was mainly responsible for the anonymous work, the divergences being explained by the lapse of time and the difference in the type of work.

(2) *De l'éducation publique*, 1762, pp.56-7.
(3) Ibid. p.15.
The author of *De l'éducation publique* considers the study of the Christian religion to be of paramount importance in the education of the child. The man he wishes to form may have one of many professions, but the first prerequisite, even before the training of the citizen, is the formation of a Christian:

"Il faut que cet homme soit Chrétien et Citoyen, Magistrat, Évêque, Général d'armée." (1)

Each lesson begins with a thorough course of Christian instruction:

"Ce sera toujours la première leçon, et la leçon de tous les jours," (2) he writes in his outlines of the first class. The second class has religion as its first "science nécessaire", a religion closely tied to the observance of Church law:

"Il faudrait des instructions plus longues sur la Confession et la Communion; mais comme les parents croient avoir de bonnes raisons pour y préparer leurs enfants, les uns plus tôt, les autres plus tard; cela sort de mon plan. D'ailleurs comme on doit fréquenter son église, et connaître son pasteur, rien n'est plus décent que d'aller aux catéchismes de paroisse sur ces deux importants et redoutables sacrements." (3)

He insists on the importance of a study of both early sacred history through the text of the Old Testament, (4) and of ecclesiastical history; (5) also of an understanding of the theory of Christianity. (6) These studies form the backbone of his educational scheme, and a basis for all his moral teaching. Diderot, on the other hand, while not ignoring religion, treats it as something irrelevant to his main line of moral and intellectual training. Since his early writings such as the *Promenade du sceptique* he had rejected Christianity and Deism; in the *Rêve de d'Alembert* he gave proof of a materialistic or hylozoistic view of the universe. His statements on religion on the *Plan d'une université* are characteristic: they show him including religious teaching out of deference to Catherine the Great, but uninterested in the topic, and definitely hostile to the established church. He states his position clearly when, in the first class of

(1) *De l'éducation publique*, 1762, p.x.
(2) Ibid. p.76.
(3) Ibid. p.87.
(4) Ibid. pp. 94, 103, 113.
the second course, he grudgingly concedes to Catherine that he will include religious teaching in the curriculum, while giving an eloquent exposition of the arguments against Christianity and a solemn warning against the dangers of a priest-ridden society:

"Sa Majesté Impériale, he writes sardonically, n'est pas de l'esprit de Bayle, qui prétend qu'une société d'athées peut être aussi ordonnée qu'une société de déistes, mieux qu'une société de superstitieux; elle ne pense pas, comme Plutarque, que la superstition est plus dangereuse dans ses effets et plus injurieuse à Dieu que l'incredulité; elle ne définit pas avec Hobbes la religion une superstition autorisée par la loi (...)

Malgré les maux infinis que les opinions religieuses ont faits à l'humanité, malgré les inconvénients d'un système qui met la confiance des peuples entre les mains du prêtre, toujours rival dangereux du souverain (...) elle est persuadée que la somme des petits biens journaliers, que la croyance produit dans tous les états, compense la somme des maux occasionnés entre les citoyens par les sectes et entre les nations par l'intolérance, espèce de fureur maniaque à laquelle il n'y a point de remède." (1)

After two brief paragraphs on what is to be taught in the way of religion, Diderot moves on at once to a subject which obviously interests him more, the possibility of establishing a natural code of morals, and the necessity of demonstrating to men that virtue and happiness are identical (a problem which had concerned him ever since his translation of Shaftesbury's Inquiry Concerning Virtue and Merit in 1745). He continues:

"On pourrait terminer ces leçons par une démonstration rigoureuse, qu'à tout prendre, il n'y a rien de mieux à faire pour son bonheur en ce monde, que d'être un homme de bien, ou par un parallèle des inconvénients du vice, ou même de ses avantages avec ceux de la vertu." (2)

His reflections on the Faculty of Theology are made in the same spirit of distrust for the Church. A theological course is, he says, unfortunately necessary, because he despairs of ever bringing the mass of the people to the state of enlightened atheism which he would wish. Except among a small group of the élite, superstitions will always remain; therefore it is best for the state to accept the need

(2) Ibid. p.491.
for priests and supervise their education and subsequent actions as closely as possible:

"Je ne conserverais donc pas des prêtres comme des dépositaires des vérités, mais comme des obstacles à des erreurs possibles et plus monstrueuses encore (...) Cette faculté de théologie ne peut donc être totalement supprimée." (1)

As he has just pointed out,

"Il ne faut point de prêtres ou (...) il faut de bons prêtres, c'est-à-dire instruits, édifiants et paisibles (...) il est aisé de les avoir paisibles s'ils sont stipendiés par l'État, et menacés, à la moindre faute, d'être chassés de leurs postes, privés de leurs fonctions et de leurs honoraires et jetés dans l'indigence." (2)

A few pages earlier he made a bitter attack on all priests, whether good or bad. (3) Such passages are a far cry from the state of mind of the man who was responsible for the conception, permeated with respect for Christianity, of the work De l'éducation publique.

The authors naturally reach opposite conclusions on the question of entrusting the pupils to priests. Diderot, who had attacked celibacy as unnatural in his notes to the Essai sur le mérite et la vertu and his article Célibat, states categorically,

"Entre les maîtres point de prêtres, si ce n'est dans les écoles de la faculté de théologie. Ils sont rivaux par état de la puissance séculière, et la morale de ces rigoristes est étroite et triste. Les embarras du mariage, n'empêchent point un ouvrier de travailler, un avocat de suivre le Palais, un magistrat ou un sénateur de vaquer aux affaires publiques; ils ne seront pas plus gênants pour un maître de quartier ou pour un professeur." (4)

The author of De l'éducation publique, on the contrary, decides in favour of priests as teachers. True, since he has in mind the formation of patriots as well as Christians, he rejects the use of teachers with all allegiance to foreign powers, such as the Jesuits, but his teachers must be celibate because, he maintains,

"Il est trop difficile de porter dans une école la sérénité imposante et l'égalité d'humeur que l'instruction demande, quand on a l'âme affaissée, ou du moins partagée par les soins domestiques." (5)

(2) Ibid. p.517.
(3) Ibid. pp.510-1.
(4) Ibid. p.529.
(5) De l'éducation publique, 1762, p.196.
His teachers will therefore be members of the secular clergy, with allegiance to the state and possessing also the quality, to him essential, of religious fervour:

"Puisque la perfection des facultés de l'âme, et le développement des talents naturels, l'attachement légitime à la famille, et l'obéissance au souverain, le zèle pour le travail et l'amour de la patrie, les vertus sociales et la charité universelle, la connaissance des vérités éternelles, et la soumission due à l'église, sont autant de parties essentielles à la religion dans l'état politique, et que mon plan renferme tout cela, et n'est que cela: puisqu'en conséquence l'éducation publique étant tellement dirigée au bien général, que la religion y a par tout la première place, et que tout y rappelle à la religion (…) c'est donc au clergé à fournir les maîtres et à les payer." (1)

Another intrinsic difference in the schemes of education proposed in the two works is the authors' opinion on the teaching of Latin.

In *De l'éducation publique* the traditional central importance of Latin from the earliest lessons onwards is maintained. The reason for this is that Latin is the language of the Church and of the laws, as well as being a universal language for travellers; (2) the author does concede, however, that Greek, Hebrew and a detailed study of Latin are "études de convenance" and therefore not essential for everyone. Nevertheless, the study of Latin is so important that it will begin with the first class; (3) in fact, even before, if possible, by the method of conversation. (4) Nevertheless, the author shows some modernity when he encourages the use of Latin not for the pure delight in the literature, but for its practical advantages:

"Je n'ai jamais compris que l'on pût travailler sérieusement à enseigner à des enfants les Délices et Élées, ou soudans telles, d'une langue morte (…) Il s'agit d'entendre le latin, non pour le latin même, mais les choses utiles écrites dans cette langue, et de le parler non pour devenir prêtre ou consul, mais pour se faire entendre à des étrangers qui ne veulent que nous entendre." (5)

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(1) *De l'éducation publique*, 1762, pp. 199-200.
(2) Ibid. pp. 10-11.
(3) Ibid. pp. 79-80.
(4) Ibid. p. 73.
(5) Ibid. p. 100.
Diderot's attitude is quite different. He advises that the study of Latin should begin far later than was usual in the schools - he postpones it until the eighth class, (1) when the pupil is mature enough to absorb the language quickly and with enjoyment. With his aim of a practical education, he points out that Latin is necessary only
"aux poètes, aux orateurs, aux érudits et aux autres classes des littérateurs de profession, c'est-à-dire aux états de la société les moins nécessaires." (2)

His careful consideration of the classical authors, however, in several passages, (3) shows a love of classical literature where the author of De l'éducation publique saw only "les Délices et Éléances, ou soi-disant telles."

From these differences it becomes plain that the basic conception of education, and of teaching methods, as shown in De l'éducation publique, is untouched by Diderot's influence: superficial resemblances to the Plan may be explained as being general preoccupations of educational writers at the time (for example the concern for the formation of citizens) or as being due to Diderot's actual reading of the text as he wrote his own educational work, which was after all not intended for publication. Presumably, because of Diderot's close association with the author, he felt entitled to use a few of the phrases in his Plan: his usual habit (except in the Encyclopédie, which was a compilation of information often pillaged from Brucker without acknowledgment) was to give his source and proceed to argue with the author and expound his own ideas, as for example in the Lettre sur les aveugles with Condillac and Locke. (4)

The authorship of De l'éducation publique remains a knotty problem. Why was Diderot negotiating with Durand on the author's behalf? Why did he make suggestions for a work which expresses many opinions directly contrary to his own? Who was the author of the work, and why was it published anonymously?

(2) Ibid. p.472.
(3) e.g. Ibid. p.472.
(4) e.g. Œuvres philosophiques, Paris, 1956, pp.129-131.
Diderot's negotiation with Durand suggests that the author was inexperienced in the ways of publishing, or for some reason unable or unwilling to be directly involved in the business of publishing his book. It is not surprising to find Diderot, who was notoriously generous with his time and advice, settling affairs with Durand, an old personal friend of his. Laurent Durand had published Diderot's translation of James's Universal Dictionary of Medicine and Surgery in 1744; he had published anonymously the *Pensees philosophiques* (1746) and the *Bijoux indiscrets* (1748), and the *Memoires sur différents sujets de mathématiques* (1748); he was also one of the publishers of the *Encyclopédie*. Perhaps, despite the strong religious views of the author of *De l'éducation publique*, he too was a friend of Diderot's and benefited from his business advice. Diderot does not seem to have inserted pieces of his own writing into the work, but rather to have drawn some of his terms from the earlier work when he was commissioned to write an educational plan.

Speculation has centred on two writers, Jean-Baptiste-Louis Crévier and, more recently, Dominique-François Rivard. Until Dreyfus-Brissac's article, bibliographers followed Barbier, who in 1806 attributed the work to Crévier, on the strength of a manuscript note. E. Dreyfus-Brissac, however, "presque sans hésiter", (1) rejects Crévier because of such statements in the work as

"La morale humaine n'est point le christianisme." (2)

"La chimie ne présente (...) à l'esprit inattentif, qu'un homme sale auprès d'un fourneau." (3)

"Voyez, comparez et choisissez."

"Sine fictioni didici, sine invidia communico, et honestatem non abscondo." (4)

"Il y a même une sorte de physique de l'âme en tant qu'unie au corps." (5)

(2) *De l'éducation publique*, 1762, p.43.
(3) Ibid. pp.50-1.
(4) Ibid. p.235.
(5) Ibid. p.27.
He considers these remarks to be the hallmark of Diderot's thought, and unlikely to have been written by a devout Christian such as Crévier. Certainly the suggestion that Christianity may not provide the only morals is very odd coming from a devout person. The rest of the book, however, presents Christianity as being of central importance to the educational plan. It is by no means convincing to attribute the other sentences to Diderot.

Crévier (1695-1765) was a teacher and interested in education. He held the post of professor of Rhetoric at the Collège de Beauvais for over twenty years. His works were mainly in the field of History - from 1750 to 1756 he published the Histoire des empereurs romains depuis Auguste jusqu'à Constantin, and he also continued the Histoire romaine of Rollin, whose pupil he had been. About the time of the publication of De l'Éducation publique he shows signs of interest in education: in 1760 he had produced his Remarques sur le traité des études de Rollin, and in 1763 he produced anonymously the Difficultés proposées à M. de la Chalotais, sur son Essai d'éducation nationale. The ideas expressed in those notes to La Chalotais's Essai make it unlikely that he would be collaborating at the same time in a work with Diderot, which showed such a different attitude.

Some of Crévier's ideas are, it is true, similar to those of the author of De l'Éducation publique. He is imbued with respect for the Christian religion: he dismisses as lacking in discernment and intelligence anyone who could maintain that

"le respect et l'amour de la religion, n'est pas un article capital dans le plan d'une éducation nationale; que cette étude n'est pas la plus considérable, la plus importante, la plus essentielle, que les jeunes gens ne doivent pas être instruits dans la morale et dans la doctrine évangéliques dès les premiers crépuscules de la raison." (1)

So, in his Première différence he objects to La Chalotais's plan to deprive the common people of the chance to learn to read and write:

"Je plaide ici principalement la cause du peuple, la cause du paysan, la cause du pauvre." (2)


(2) Ibid. p.12.
he says, not out of humanitarian motives, but for the sole reason that they should be able to read the catechism and the Bible.

His second objection to La Chalotais is that his plan of religious training is inadequate, and he proceeds to draw up a much more solid programme of reading than appears in De l'éducation publique, a reading of the Apostles and a complete study of the Apocalypse. (1) He has the constant preoccupation to impress upon the pupils the corrupt nature of man, and the effects of original sin. There does exist a natural law, he concedes, but it is in no way independent of Christian revelation:

"Dieu (...) a gravé sa loi dans le fond de nos coeurs; mais (...) cette loi ne forme point une loi indépendante de la révélation; (...) dans l'état de la nature corrompue, l'homme pécheur ne peut observer comme il faut la loi naturelle, et rendre à Dieu (...) un culte qui lui soit agréable, sans la foi en Jésus-Christ." (2)

Crévier refers frequently to Pascal and Nicole as having the correct view of man's nature as being filled with "l'effroyable corruption", injustice, vanity, stupidity, brutality and misery. It seems hardly likely that Crévier could have been responsible for any of De l'éducation publique, where it is stated that "La morale humaine n'est point le Christianisme." (3)

His third and fourth objections to La Chalotais are concerned with the difficulty of training good teachers, and especially of producing adequate text-books, which he considers La Chalotais to have overlooked. His fifth difficulté contains a severe refutation of sensationalism, with uncompromising disagreement with the theories of Locke, Buffon, Condillac and Voltaire, all "prétendus philosophes" (4) who have gone astray. "Quels auteurs et quels principes", he exclaims in horror. Voltaire especially he condemns as being false and anti-Christian, filled with venom and subject to "écartes sans nombre." (5) This being the case, it would be very odd if he were

(2) Ibid., pp. 23-6.
(3) De l'éducation publique, 1762, p. 43.
(5) Ibid., p. 57.
the author of a work which recommends as reading for young pupils
Locke, (1) Buffon, (2) Condillac, (3) and Voltaire. (4)

Crévier's sixth difficulty dwells on the importance of teaching
experience for the educational theorist. La Chalotais, he suggests,
presents contradictory pictures of the child's mind, because he has
not himself observed children.

This work of Crévier's, and the anonymous work so often attributed
to him, seem certainly to be from different pens. Barbier's mention
of a note manuscrite is slight evidence against the difference in
attitude of the two works.

Dominique-François Rivard (1697-1776) is suggested by Dreyfus-
Brisac (5) as a far more likely candidate for the authorship of De
l'éducation publique, but he gives no reasons for his choice, merely
adding, "il serait trop long de dire ici pourquoi." Like Crévier,
Rivard seems to have had no apparent reason for needing Diderot's
help in the publication, having published his works for thirty years,
nor is there any mention of him in Diderot's Correspondance. Diderot
does mention him with respect, however, several times. In the
Réfutation d'Helvétius, he laments the failure of his attempt to replace
in the public schools the old scholastic teaching of morals by a new
study of law:

"Le même homme de jugement, M. Rivard, qui introduisit dans
nos écoles publiques l'étude des mathématiques et substitua
les questions à l'argumentation, s'était proposé d'enseigner,
à la place de la mauvaise morale scolaïque, de bons éléments
du droit public et du droit civil. La chose allait s'exécuter,
lorsque la Faculté de droit intervint, prétendant qu'on
empêchait sur son district. Qu'en arriva-t-il? Que le droit
public et le droit des gens ne furent enseignés ni dans nos
collèges, ni sur les bancs de la Faculté." (6)

In the Plan d'une université he refers to "un de mes anciens maîtres"
(7) who it seems fairly certain is Rivard (8) and praises his books

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(1) De l'éducation publique, 1762, p.152.
(2) Ibid. p.110.
(3) Ibid. p.152.
(4) Ibid. p.151.
(5) E. Dreyfus-Brisac, 'Petits problèmes de bibliographie pédagogique',
Revue internationale de l'enseignement, XXIV, July-Dec., p.297.
(8) See below, p. 230.
on the first principles of mathematics. These he recommends as textbooks for the first class; (1) later he recommends Rivard’s Traité de la sphère et du calendrier for the third class. (2)

Since Diderot was at some time at Beauvais, it is possible that he should shepherd the work of one of his former teachers, whom he avowedly admired, through the press.

However, on examining Rivard’s works, it is disappointing to find that he was only a very moderate reformer; the rest of his educational writings throw no light whatsoever on De l’éducation publique.

As Diderot noted, Rivard was responsible for the introduction into the University syllabus of the teaching of mathematics. (3) His profound interest in religion is shown by his publication, in 1746, of a Latin edition of the New Testament; his projected edition of the whole of the Bible never appeared. He published mathematical books:

- Éléments de géométrie, avec un abrégé d’arithmétique (Paris, 1732);
- Éléments de mathématiques (1740); Abrégé des éléments de mathématiques (1740); Traité de la sphère (1741); Traité de némocnique, ou l’art de faire des cadans (Paris, 1742); Abrégé du traité de la sphère et du calendrier (1743); Tables de sinus, tangentes et sécantes (Paris, 1743);
- Éléments de trigonométrie rectiligne et sphérique, avec des tables des sinus, des tangentes, des sécantes et des logarithmes (Paris, 1743); Traité du calendrier (1744); Abrégé des éléments de géométrie (Paris, 1747);
- Traité d’arithmétique (1747); Sections coniques démontrées par synthèse (1757); Examen des systèmes du monde (1765); Système de Logemontanus, disciple de Tycho (1766).

He also wrote numerous educational works, concerning himself especially with the methods of teaching pupils reading and the elements of Latin: Instructions pour la jeunesse sur la religion et sur plusieurs sciences naturelles (Paris, 1750); Éléments de grammaire française à l’usage des petites écoles (Paris, 1760); Éléments de la grammaire française, à l’usage des enfants qui apprennent à lire, et l’method naturelle pour apprendre à lire, en deux parties (Paris, 1760);

(2) Ibid. p.460.
The work in which he sets out most fully his views on the university and its possible improvement is the Réflexions sur les prix de l'université..., a work of 110 pages, published anonymously, which he himself dates as "fait au mois de juillet 1765." (1) Despite his deep respect for the University of Paris, where, after all, he taught for over forty years, he proposes quite a few reforms within the structure of the University system of his time. His aim is to educate the pupils usefully, to become good citizens well-equipped for the career they will pursue. The present course, he complains, covers far too much ground, whereas what is needed is a practical course of instruction:

"Une bonne partie de la vie d'un homme suffirait à peine pour achever la tâche qu'ils exigent des élèves dans l'espace de huit ou neuf années, dont les premières doivent être comptées pour peu, à cause de la faiblesse de leur corps et de leur esprit. Qu'arriverait-il si la plupart, des ministres de l'église, des magistrats, des marchands, des commerçants et autres sovaient quantité de sciences ou d'arts qui ne les regardent pas? Ils ne laisseraient souvent les devoirs de leur état." (2)

For this new education, a new method is needed: this is a reform of the system of prizes, which Rivard insists will cause a proper spirit of emulation, the only way to encourage pupils: "L'émulation est si nécessaire dans les études," he begins his work, "que sans elle on n'y peut presque faire aucun progrès." (3) He criticises the present system of competition between the various colleges of the University,

(2) Ibid. p.ix.
(3) Ibid. p.1.
for the same reasons as Diderot does in the Réfutation d'Helvétius:

(1) firstly, the main body of students despair of ever gaining a prize, knowing that they will be awarded to the best few, and are therefore not eager to work at all; secondly, the masters tend to spend their time teaching only the best pupils, in order to bring glory to their own college. Rivard's solution is that examinations should be established within the colleges, instead of between them. These will deal, at all levels, with a study of the ancients and, most important of all, of the Christian religion. (2)

A second method of improving the University is the composition of textbooks for the philosophy class, by the professors (because the dictation of subject-matter is a waste of time and leads to inaccuracy, XX-XXV); and of simple texts in Latin for the lower classes (la cranaire) to replace the study of the Ancients, which beginners find so difficult (XXVII-XXIX).

Some small innovations are to be made in the subject-matter of the lessons, always with regard to their practical utility: in the philosophy class, some scientific training:

"On peut mettre quelques principes et observations de medicine pour la conservation de la santé et pour son rétablissement dans les maladies et les inconveniences les plus communes, certains remèdes simples, et ceux qui sont les plus efficaces tirés de la botanique et de la chimie." (XXIV)

Also the rudiments of natural and civil law may be added, "les préceptes du droit naturel et même les lois du droit civil", which "peuvent beaucoup servir à se conduire avec sagesse et avec prudence dans le cours de la vie, et à inspirer de l'éloignement pour l'injustice, en un mot à former le bon citoyen." (XXVI)

This suggestion seems to be what Diderot was referring to in the Réfutation d'Helvétius. (3)

Rivard here suggests the establishment of a new training-school for teachers, referring the reader to his L'êmoire sur la nécessite d'établir dans Paris une maison d'institution pour former des maîtres (1762), in which he had made practical proposals, such as the use of the Jesuites' funds and buildings for the purpose. (4)

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(2) Réflexions sur les prix de l'Université, 1765, XI-XIX.
(3) See above, p. 173.
(4) L'êmoire sur la nécessite ..., pp.5-6.
Rivard ends his Réflexions with a summary of his suggestions (XLVII-XLIX) and some remarks on the importance to the state of a good educational system, which brings both "le bonheur de la société" (XLIII) and "la gloire de l'état". (XLVI).

The moral which Rivard wishes to instil into his pupils cannot be separated from Christian morals. He expounds this at length in his Mémoire sur la nécessité d'établir dans Paris une maison d'institution:

"Il faut leur faire connaître la noblesse qu'il y a (…) à être bienfaisant à l'égard de tout le monde, et a préférer l'utilité publique à ses intérêts particuliers."

"Mais il faut les prévenir que toutes ces maximes réduites en pratique, quoique bonnes en elles-mêmes, ne sont cependant que de fausses vertus, si elles ne sont rapportées à Dieu." (1)

In the Réflexions, he insists on "la vertu chrétienne, car il n'y a qu'elle qui aille à la source du mal." (XLVII)

In the Réflexions, as has been seen, Rivard is proposing a moderate reform within the structure of the University course, quite different from the broad programme, the "vaste plan" (2) of the work De l'éducation publique, which adds modern history, chemistry, medicine, agriculture, commerce, natural and public law, and so on, to the traditional study of the classics.

Rivard's style is repetitive, coming back and back again to the same subjects in an attempt to drive his point home: in the Réflexions he frequently refers to and summarises his other works on education, the Recueil de mémoires touchant l'éducation de la jeunesse and the Mémoire sur la nécessité d'établir dans Paris une maison d'institution pour former des maîtres. (3) The author of De l'éducation publique, on the other hand, proceeds in quite a different way, with never a mention of Rivard.

Rivard recommends a very small number of writers, notably Nicole, whom he praises enthusiastically:

"Les essais de morale de L. Nicole seraient peut-être ce qui conviendrait le mieux, tant pour le fond des choses, que pour la force du raisonnement. Non seulement ils s'y instruirraient

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(1) Mémoires sur la nécessité …, pp. 15-16.
(2) De l'Éducation publique, 1762, p. 68.
(3) e.g. Réflexions sur les prix de l'université, 1765, XXIV.
de la morale chrétienne et de l'esprit de la religion, mais ils y apprendraient à penser et à raisonner juster; ce qui est un point essentiel, la justice étant la plus estimable des qualités de l'esprit; ils auraient encore lieu de se former à traiter une matière avec ordre et avec netteté; parce que les ouvrages de K. Nicole sont des modèles admirables dans ce genre." (1)

The author of De l'éducation publique, however, although praising a large number of writers on morals and religion, Fleury, Bossuet and Pascal among them, makes no mention of Nicole by name or of his essays on morals; he merely recommends the Logique, ou l'Art de penser de Port-Royal, (2) which was edited by Arnauld and Nicole.

Also, Rivard's views on the Copernican system as expressed in the Réflexions sur les prix de l'Université and in his Examen des systèmes du monde (1765) differ from those in De l'éducation publique. Despite the fact that most astronomers of the time accepted the Copernican system, Rivard had his reservations. He accepted some of Copernicus's theories, such as the rotation of the earth on its axis, but not its annual movement around the sun which, he says in the Réflexions,

"non seulement est incertain, mais que l'on peut regarder comme faux, nonobstant l'approbation que lui donnent presque tous les astronomes modernes." (3)

He was sufficiently interested in this topic to return to it in his Troisième addition to the Réflexions, where he presented a mathematical proof which, he claimed, proved that the earth did not revolve around the sun. Furthermore, he wrote an Examen des systèmes du monde (4) in which he examined the whole question and arrived at the same conclusions. The author of De l'éducation publique, however, regards the Ptolemaic system as out-of-date and the Copernican system as correct:

"La sphere armillaire, qui est l'ancien système du ciel, de Ptolémée, n'est plus d'usage en physique; pourquoi s'obstinerait-on à la montrer?" (5)

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(1) Réflexions sur les prix de l'université, 1765, XXV.
(2) De l'éducation publique, 1762, p.126.
(3) Réflexions sur les prix de l'université, 1765, XXIII.
(4) 1765.
(5) De l'éducation publique, 1762, p.88.
He has no reservations about the Copernican system:

"C'est ici le lieu de recourir à la sphère de Copernic, sans se lasser de l'expliquer, jusqu'à ce qu'il ne reste plus de nuage", he says, in the programme for the third class. This seems to be a definite difference in opinion, although it was still usual to present the various systems as mere hypotheses. (1)

An examination of the educational works of Crevier and Rivard has shown that it is by no means evident that either of them had anything to do with the composition of De l'éducation publique. If Rivard was responsible for the work, it was a very different Rivard from the one shown in his other educational writings appearing about that time, and a study of these throws no light on De l'éducation publique. For the purposes of this study of Diderot's educational ideas, it is important to note that Diderot was, as early as 1762, interested enough in education to see this work through the press. Despite his differences from its author, he was to draw on it later for some parts of the Plan d'une université pour le gouvernement de Russie.

(1) e.g. J.-J. Rousseau, Mémoire à M. de Lally, Oeuvres complètes, Pléiade, Paris, 1959-69, IV, p. 30.
Chapter X
RUSSIAN PLANS FOR EDUCATIONAL ESTABLISHMENTS IN THE EIGHTEENTH CENTURY

Diderot's Plan d'une université, written at Catherine the Great's request, was not of course produced in an administrative vacuum. After some unsystematic and largely unsuccessful educational reforms by Peter the Great and Elizabeth, the 1760s in Russia produced a number of schemes for state education commissioned and sometimes even partly written by Catherine. Diderot was one of many writers, Russian and foreign, whom she asked to draw up plans, only to disregard them later.

The eighteenth century in Russia saw the initiation of state plans for education which, although often isolated, unsystematic and unsuccessful, were proof of a new concern to form worthy members for Russian society. The qualities which characterised a worthy member of society varied as times and rulers changed; the unifying ambition of the educational organisers was to produce educated men who could in various ways equal the accomplishments of Western Europe.

Peter the Great's ambition was to rival the success of the West in the field of technology. He wished to build up first and foremost a Russian navy, composed of trained men. Before him, in Muscovite Russia of the seventeenth century, the Church had control of the educational system and there were no lay schools. There were for that matter only a few Church schools, concerned with training teachers and churchmen, and two Academies, the Kiev Academy (a theological school founded in 1627) and the Slavono-Greco-Latin Academy, founded in 1687. This latter academy was founded on the initiative of the versatile churchman Simeon Polotskii, "poet, dramatist, translator, pamphleteer, and diffuser of enlightenment in Russia." (1) It was actually established by the state, not the Church, and did include secular subjects, but was in fact designed to produce not technical experts, but learned men useful to the Church—translators, editors of books, teachers and (in the eighteenth century) priests. It was responsible for the censorship

of religious books and the struggle against heresy. In its early years, Old Slavonic, Latin and Greek only were taught, the texts normally being in Greek and Latin; later German, French, theology and medicine were introduced. The teachers relied on scholastic methods, the reading of set texts, dictation by teachers, and disputations. In the eighteenth century, with the appearance of the universities, the Academy's role was to change so that its main aim was the training of churchmen, and its most important subjects theology, rhetoric and philosophy (1).

Such a system was of no use to Peter the Great, with his desire to overtake the West in technical achievements. He admired Western culture solely from an utilitarian point of view: how could he learn from the West to produce an efficient army and navy? Accordingly, he set out to form training schools based on European models for his men. On January 14th, 1701, he founded his first lay school in Moscow, the School of Mathematical and Navigational Sciences. This was to form specialists in military and naval affairs, shipwrights, and land-surveyors. Pupils were to be from twelve to seventeen years old, and drawn from all classes of society except the serfs. Subjects were studied from a practical point of view, and there were three "schools" or levels: the "Russian school" for reading, writing and basic grammar, the "arithmetical school" for arithmetic, geometry and trigonometry, and the "special classes" for geography, astronomy, land-surveying and navigation. In 1715 this third "school" was moved to Saint-Petersburg to become the Naval Academy (2). The whole scheme was greatly under the influence of the English (whom Peter had acknowledged as useful teachers by going to work on the docks at Deptford) - the instruction was to be given in English and English teachers were appointed (3). Peter realised, however, that this was not enough. Lower educational establishments were needed to prepare pupils for the School, so he founded the "cipher schools" which were to be taught by successful pupils from the School of Mathematical and Navigational Sciences, which thus became the first Russian teachers' college. The cipher schools, free and compulsory for nobles, according to the decree

(2) Ibid. Vol. IV, article Shkola matematichnykh i navigatskich nauk.
(3) P. Alston, Education and the State in Tsarist Russia, California, 1969, p. 4.
of 23rd February 1714, which may be considered to be the first Educational Act of Russia, were set up in many provinces for the education of young men of all classes from 10 to 15 years old. Reading, writing, arithmetic and the elements of geometry were taught (1). In his effort to use his nobles to work for him, Peter made military and civil service compulsory for all members of the nobility, and in 1714 schooling from the age of twelve was made a compulsory prerequisite for service; thus in effect all nobles should have had education from this age. The cipher schools, intended merely as a preparation for technical and military training, and not as a system of education for the nation as a whole, were largely unsuccessful. There were never in existence more than twenty-seven at one time. Many of the pupils simply ran away. In 1727, only 2.5% of the pupils remaining were of the nobility. Future clerics, soldiers and officials from the classes below the nobility formed the rest (2).

So it happened that the Church schools came back as the main source of lower education, sketchy as it was. Peter reorganised them in his Church Statute of 1721, requiring each diocese to maintain a school out of its own resources. The decline of the cipher schools was accelerated by the transfer of pupils belonging to the clerical estate to these Church schools.

Some of Peter's other establishments were more successful, although like the cipher schools they had narrow aims and lacked system. Later in his reign, he came to recognise the need which Russia had for experts in law and administration, as well as technology. Still imitating European establishments from utilitarian motives, he therefore created the Academy of Sciences (1725) and added a University and a "Gymnasium" in 1726. The Academy of Sciences was formed in Saint-Petersburg for work in physics, mathematics and, to a far lesser extent, history. The organisation of the French Academy, along with the influence of Leibniz and Wolff, played a large part in its conception. Peter was at first forced to use foreign teachers; in order to produce Russian members he formed a training school (gymnasium) and a university.

(1) Pedagogicheskaya Entsiklopediya, Moscow, 1964–8, Vol. IV, article Tsifirnye shkoly.
(2) P. Alston, Education and the State in Tsarist Russia, California, 1969, p. 5.
The Academic Gymnasium, the first secular secondary school in Russia, had some early success. It consisted of two sections: the "German school" of three years and the "Latin school" of two years. The pupils, drawn from all classes, were taught languages, history, geography, mathematics and natural history. From 112 pupils in its first year its numbers decreased steadily, especially after the establishment of the Cadet Corps in 1731.

The Academic University, formed at the same time, was like the Gymnasium neglected by the members of the Academy, who were more interested in research than teaching. Naturally, it suffered from the dwindling of the numbers in the Gymnasium. Despite a few eminent graduates, such as Lomonosov, it "practically did not exist and was a fiction." After 1747, however, it became more useful, teaching ancient and modern languages, philology, mathematics, physics, chemistry, geography and history. From 1753 to 1765 it was directed by Lomonosov, who formed a set of regulations and organised it into three faculties, philosophy, law and medicine.

After Peter the Great's reforms, the educational institutions moved towards a growing monopoly on education and its attendant privileges by the nobles. Many of the provincial nobles of course, remained uncultured and reluctant to gain an education, but the noblemen of Moscow and Saint-Petersburg longed to shine in society like their elegant models, the French. They demanded the right to serve only as officers, instead of rising through the ranks, and so Anna formed the first korpus kadet (later known as the kadetskii korpus) or cadet school in Saint-Petersburg in 1731, for the sons of noblemen. The character of the Cadet School shows the change in attitude towards Western culture since Peter's times: the Russians were still anxious to benefit from their European neighbours, but concentrated now more on the graceful arts of social behaviour - a utilitarian aim for social advancement at the Court, but quite a different approach from Peter the Great's technological interest. In 1733, among the 233 pupils of the Cadet

(1) N. Hans, History of Russian Educational Policy, 1701-1917, London, 1931, p. 16.

School, German, French, dancing, Music and fencing were the most popular subjects; geography and jurisprudence the least. (1) Military exercises were restricted to Saturdays, so as "not to interfere with other sciences." (2) Despite its name the Cadet School prepared pupils for society rather than for military service.

The constitution of the University of Moscow (1755) and its gymnasium illustrates the increasing separation of the classes under the educational system. Although founded, according to the plans of the low-born scholar M. V. Lomonosov, who tried to make the University open to all classes equally, it gave many privileges to the nobles. Its finances were arranged by Ivan Shuvalov, an aristocrat and friend of Voltaire's, who was opposed to Lomonosov's hopes for equality and actually wished to admit only nobles. By the decree of the 24th of January, 1755, the university accepted students from all classes, even serfs, to its three faculties of law, medicine and philosophy; but its preparatory school, the Moscow Gymnasium, had a special class for the nobles, separate from the commoners. Here the nobles had a choice between four three-year courses, Russian language, Latin, "first foundations of science" (arithmetic, geometry, geography and philosophy) and foreign languages. (3) The emphasis was on conversational French. The commoners in their separate classes studied technical subjects and the arts, following a far more rigorous plan of study. Many of the nobles, however, despite these privileges, were still not eager to benefit from their chance of education, because they were used to starting their state service as early as possible in order to gain seniority and quick promotion; a university education in academic subjects which did not immediately further them in the service seemed useless and indeed below their dignity, worthy only of the raznochintsy of men from various social classes below them. The University of Moscow had more success than the Academic University of Saint-Petersburg, but failed to produce a professional class from the nobles. Like the

(1) W. B. Lincoln, 'Western Culture Comes to Russia', History Today, October 1970, p. 680.
(2) P. Alston, Education and the State in Tsarist Russia, California, 1969, p. 8.
(3) P. Dukes, Catherine the Great and the Russian Nobility, Cambridge, 1967, p. 27.
other university, it suffered from lack of students: in 1765 there was only one undergraduate in the Faculty of Law, and during Catherine's reign only one student gained a medical degree. (1) The recalcitrant attitude of many nobles needed to be broken down by a widespread educational system, instead of the isolated foundations which took place in the first half of the eighteenth century.

Even a suggestion for a complete system of schools exclusive to the nobility failed. Shuvalov presented a scheme to the Senate in 1760 in which he planned elementary provincial schools, gymnasia and universities in the towns, for the young nobles. But his plans were not put into operation. (2)

Catherine the Great, who came to the throne in 1762, was concerned, like Peter the Great, to establish a national system of education for the nobles. Like the other Russian rulers, she depended on the support of the nobles; she had actually been raised to power with their help. Her attitude to education, however, was quite different from Peter's, showing the change in the Russian attitude to the West in the previous fifty years. Catherine was in her early days inspired by the ideals of the Enlightenment, by her admiration for Voltaire and the Encyclopedists, and was therefore anxious to accomplish the moral education of her citizens. Not for her the utilitarian plans of Peter the Great for building up his army and navy and forcing the nobility to serve: she had "grandiose dreams of creating a new breed of human beings through the introduction of a new system of complete education." (3) Her early educational plans were based on four main principles: the combination of moral principles with general and professional training; the elimination of the class element from education; the introduction of schools for girls; and the enforcement of obligatory attendance by male pupils. (4) She was advised by Ivan Betskoi, the educational theorist.

(1) P. Alston, Education and the State in Tsarist Russia, California, 1969, pp. 10-11.
(2) P. Dukes, Catherine the Great and the Russian Nobility, Cambridge, 1967, p. 28.
(3) Ibid., pp. 189-90.
(4) Ibid., p. 191.
Betskoi interested himself in many facets of educational theory. His educational plans were translated into French by N. - C. Clerc under the general heading, Les plans et les statuts des différents établissements ordonnés par Sa Majesté Impériale Catherine II pour l'éducation de la jeunesse et l'utilité générale de son empire, Écrits en langue russe par Mr Betsky et traduits en langue française, d'après les originaux, par Mr Clerc. On his return from Russia in 1774, Diderot took the manuscript of this collection of writings to Holland, and in 1775 they were printed by Rey at Amsterdam. (1)

In his writings, Betskoi laid down plans for the education of foundlings, the Academy of Arts, the Cadet Corps and the education of women. He stressed the need for moral and intellectual training: his aim was to produce "enlightened and humane landowners, merchants, industrialists, artisans." (2) He says in his General Plan for the Education of the Youth of Both Sexes,

"Tous les biens et tous les maux de la société viennent de la bonne ou de la mauvaise éducation; ce principe est évident, incontestable.
On ne réussira jamais à en donner une bonne, qu'en remontant à ses principes fondamentaux. Ces principes sont le bon exemple, la bonté morale, les vertus humaines et patriotiques, l'amour du travail, les connaissances relatives à l'âge, au goût naturel, au développement des facultés de l'enfant." (3)

It is no wonder that Diderot made friends with him in Russia and even allowed some of his own ideas to be quoted in the introduction of the French translation of Betskoi's works.

All Betskoi's plans were for boarding-schools, where, to avoid corruption from the outside world, the pupils were almost completely isolated from their families from the age of six for twelve to fourteen years. He explains in his General Plan,

(1) See below, p. 278.
(3) Plans et statuts, Amsterdam, 1775, Vol. II, p. 3.
"Nous voulons que, pendant cette intervalle de temps, ils n'ayent aucune communication avec qui que ce soit du dehors; leurs parents même ne pourront les voir qu'à certains jours marqués, dans l'intérieur des établissements, mais en public(...) Rien ne serait plus dangereux, plus funeste aux jeunes gens des deux sexes, que la liberté de converser avec qui ils voudraient, et de fréquenter indifféremment toutes sortes de personnes, pendant le cours d'une éducation spécialement instituée, pour ne mettre sous leurs yeux que de bons exemples, que de modèles d'honnêteté et de décente." (1)

They were to be trained without coercion and corporal punishment, with a regard for their individual temperament:

"Qu'on banisse l'air sévère et la voix impérieuse de gouverneurs et de précepteurs; qu'on y substitue la douceur et l'attention à se mettre à la portée des enfants(...) (2)
Une remarque que l'on fait rarement, et qui n'est pas moins vraie, c'est que les enfants ont dans chaque âge, des qualités, des pensées et des conversations différentes. (3)

He gave Catherine in 1763 his General Plan for the Education of the Youth of Both Sexes. Her most successful embodiment of these ideals of Betskoi's was her foundation of the Smol'nyi Institute in Saint-Petersburg in 1764. This was the first state educational establishment for girls in Europe. The school accommodated two hundred girls (the daughters of nobles) from the age of six to the age of eighteen. The curriculum was divided into four classes, according to age. From six to nine the girls studied Russian, two foreign languages, arithmetic, drawing, dancing, music and needlework; from nine to twelve they continued these subjects with the addition of history and geography; for the next three years they read historical and moral works and learnt the elements of architecture and heraldry; from the age of fifteen to that of eighteen they concentrated on social graces and deportment. Throughout, the inculcation of religious belief was very important. (4) In 1765, a second institution, the Novodevichii, was attached, for the education of the daughters of the

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(2) Ibid. p.41.
(3) Ibid. p.51.
bourgeoisie. They learnt Russian, one foreign language, arithmetic, dancing and music, but concentrated mostly on domestic training and needlework. Despite its high ideals and the care with which Catherine supervised the Smol'nyi Institute, it had no great effect on the educational system as a whole: by its various nature it was too exclusive to form any basis for the education of the Russian people.

Besides her foundation of the Smol'nyi, Catherine showed her interest in educating both the nobles and the common people by other suggestions in the early years of her reign, although these were generally not put into practice. In 1765, she commanded an enquiry into the situation of the Moscow University, which since its creation ten years before had not prospered. The professors wanted salaries to be raised, and success in the university examination to be compulsory for entrance into the state service. Nothing was done to remedy the situation however. (1)

About 1766, Catherine again instituted enquiries which had no practical result: she commissioned an assorted group of advisers, G. F. Miller (a German historian), G. N. Tetlyov (a courtier), D. Dumaresq (a British educational theorist), P. Diltley (a professor at Moscow University) and T. Von Klingashtet (an editor) to draw up a plan for state education. With Catherine's guidance, they produced far fuller schemes than Betskoi had done. In one, they planned to institute four types of gymnasium, advanced, military, civil and commercial, to be attended by pupils from all classes except the serfs from the age of five to the age of eighteen. All gymnasia were to be similar in respect of the first eight years of training, after which the pupils were to specialise. In another plan, they recommended compulsory elementary education between the ages of six and fourteen for those who were not of the nobility. For unknown reasons Catherine did nothing to put these suggestions into practice. (2)

Nevertheless, she continued to be interested in education. The Legislative Commission, which she formed in 1767 with the ambitious

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(2) Ibid. p.191.
plan of reforming the nation's laws, devoted some discussion to
educational plans and problems. In this the Academy of Sciences
played a large part. They promised to submit a plan (which was
probably completed and used by the subcommittee on education (3)).
Their aim was to increase the number of schools in Russia, establishing
elementary schools in every town and village.

Since the Commission contained elected members from all regions
and all classes of Russian society, it left a valuable record of the
educational ideas of people throughout Russia at the time. The
peasants, of course, were not so well-represented as the bourgeoisie
(who were preponderant in numbers (2)) or the nobles, who had the
most influence, but they did for the first time in Russian history
have a chance to elect some deputies for a Commission. (3) Catherine's
Commission contained representatives from the central government
institutions, together with deputies from six social groups: nobles,
townsmen, quasi-free peasants (odnodvortsy), state peasants, tribesmen
and the Cossacks. (4)

P. Dukes gives a full account on the debates on education in the
Legislative Commission. (5) The notable point is the comparative
lack of interest in education shown by the deputies. Catherine seems
to have been far more concerned with the problem than her subjects ever
were. The nobles were, judging by the debates, the class most interested
in education, partly no doubt because education was a prerequisite for
them for state service, but they themselves were often uneducated (15%) of
the nobles who elected the deputies were illiterate, and many wrote
ungrammatically. (6) Deputies testified to the low cultural standard
among nobles, townspeople and peasants. The remedy suggested was, of
course, more schools. It is notable that now, after years of coercion

(1) P. Dukes, Catherine the Great and the Russian Nobility, Cambridge,
(2) Ibid, p.55.
(3) Ibid, p.60.
(4) Ibid, pp. 59-60.
by the rulers, the nobles finally showed themselves more eager to gain education, instead of scheming to avoid it. They seem finally to have realised that they needed education to succeed in the services.

Their interest in education extended no further than their own class, however. They suggested new Cadet Schools, especially in Little Russia and Moscow, whose nobles considered themselves discriminated against. Deputies from various regions wanted local schools for girls as well as boys, and academies and universities. These new schools were to be designed to prepare young nobles for the services. Their suggestions for a curriculum show little more sophistication than those of Peter the Great's time: religion, reading, writing, arithmetic, geometry, trigonometry, French, German, drawing, fencing, gunnery and fortification. There was only talk of subjects "concerning society" or for the good of society, with no elaboration.

The townspeople, like the nobles, wanted an education for their class to equip them for worldly success in their own sphere. The townspeople of Archangel, in the most detailed plan of this class, suggested such subjects as the composition of commercial letters, arithmetic, knowledge of foreign weights and measures, book-keeping, mercantile geography, foreign languages, commercial law (Russian and foreign) and navigation. (1)

The peasants were also to be included in the educational reforms, although the separation of classes was still to be rigid. Some nobles opposed any education of the peasants at all, but various schemes were put forward by nobles, bishops and the peasants' own representatives. Again, the aims were utilitarian - educated peasants would be more productive, the landowners suggested, and soldiers more efficient if they knew something of military matters. Education would also teach the peasant his duty towards God, the ruler, the country and the landlord, ensuring a stable state. (2) Some deputies argued in favour of Church control of the peasants' elementary schools; others preferred lay teachers.

A subcommittee was formed from the Commission which produced a scheme entitled "The Institution of Lower Schools in Towns and Small Towns." This was significant for its stipulation of compulsory

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(1) P. Dukes, Catherine the Great and the Russian Nobility, Cambridge, 1967, p. 207.

(2) Ibid, p. 208.
education, and of some financial relief for those too poor to pay fees. The teachers were to be churchmen, supervised by a layman who was to make a report on the schools to Catherine. An elementary religious and practical education was envisaged: study of the catechism, arithmetic, geography and some history. (1)

The recommendations of the Legislative Commission of 1767 bore little fruit in educational or other matters. The official reason for this was the outbreak of the Turkish war, which compelled Catherine to disband the Commission, but other things, such as the lack of legal experts and the general hostility which Catherine encountered among the nobles to her more liberal proposals, were contributing factors. She herself was still anxious for wide educational reforms, despite the nobles' selfish and utilitarian demands, as she showed by the interest with which she welcomed Diderot and listened to his suggestions in all fields. The Pugachev rebellion, however, beginning in the same year as Diderot's arrival in Russia and lasting for two alarming years, shock Catherine and made her feel forced for her own preservation to ally herself more closely with the nobles. She abandoned any idea of the abolition of serfdom, and in general became far more cautious in her policies. Diderot's suggestion for educational reform, therefore, although only one of enlightened efforts in the 1760s and early 1770s, was as little likely to have any lasting effect on Russia's educational system as those of the Legislative Commission.

Diderot spent the winter of 1773-4 in Saint-Petersburg, drawn there by Catherine the Great's generous purchase of his library and his constant desire for the enlightenment of mankind. His journey to Saint-Petersburg and his stay there are well-documented. Tourneux's account still remains the most detailed. (1) Roth presents a collection of the relevant letters from, and about, Diderot, with an accurate commentary on the events. (2) Vernière supplies a background study. (3)

By his conversations with Catherine the Great, Diderot hoped to impress upon her the need for greater liberality in her political outlook and, in the field of education, the usefulness of an organised system of schooling which was to be open to everyone. In the Mémoires pour Catherine II there are to be found many ideas on education which were to be fully expressed and systematised in the Plan d'une université pour le gouvernement de Russie, which Diderot wrote for Catherine on his return to France in 1775. Diderot's decision to visit Russia was not a sudden whim. During the past eleven years, Catherine had shown an interest in the philosopher which he cordially returned, despite his firm objection to the institution of despotism.

His attitude to the whole question of monarchy and despotism needs clarification at this point. Unlike most of his contemporaries, Diderot rejected not only the bad ruler, the tyrant, but the very idea of absolute monarchy. To most of the philosophes, especially Voltaire, it seemed that the monarch must be the best protection against the excesses of the nobles, many of whom at this time were doing their utmost to preserve or restore their feudal rights. Although Louis XV proved disappointing, reformers placed their hopes on an alliance with the crown in the person of Louis XVI. Diderot, however, was so alive to the possible abuse of power by the king that he wished to avoid all such risks by replacing the monarchy with a democracy.

(2) G. Roth, Correspondance, Paris, Vol. XIII.
Some of his most eloquent pages are written, reasonably enough, against the extreme abuser of power, the tyrant. As early as the Essai sur le mérite et la vertu he points out the iniquity and consequent misery of Nero, who tyrannised over Rome. (1) His article Tyran in Volume XVII of the Encyclopédie (1765) defines the eighteenth-century use of the word as

"non seulement un usurpateur du pouvoir souverain, mais même un souverain légitime qui abuse de son pouvoir pour violer les lois, pour opprimer ses peuples, et pour faire de ses sujets les victimes de ses passions et de ses volontés injustes, qu'il substitue aux lois." (2)

Diderot goes on to picture the misery of the tyrant: "Les soupçons, les remords, les terreurs l'assiègent de toutes parts." In the Essai sur les règles de Claude et de Néron, he repeats his horror of tyrants and his belief in their self-inflicted sufferings. (3)

Such a horror is hardly unexpected; his attitude to the well-meaning, enlightened despot, is less clear-cut. His early writings indicate that he admits monarchy as a suitable means of government, although it may be prudence rather than conviction that makes him reject regicide as illegitimate. Thus, in the Essai sur le mérite et la vertu, he adds to Shaftesbury's acceptance of regicide a cautious note condemning the killing of a monarch, however great his crimes, with an appeal to Scriptures which makes one suspect his sincerity:

"Si ce tyran est roi par sa naissance, ou par le choix libre des peuples, il est de principe parmi nous, que, se portât-il aux plus étranges excès, c'est toujours un crime horrible que d'attenter à sa vie. La Sorbonne l'a décidé en 1626. Les premiers fidèles n'ont pas cru qu'il leur fût permis de conspirer contre leurs persécuteurs, Néron, Dèce, Dioclétien ...: Obedite praepositis vestris etiam discolis, et subjacet eis." (4)

Diderot's addition to this quotation from Hebrews(5) of "etiam

(2) A-T, XVII, p.302.
(3) A-T, III, pp. 84, 292.
(4) A-T, I, p.74 note i.
(5) Hebrews, 13, 17.
discolis" (which does not appear in the original) is a fairly sure indication that he is writing tongue-in-cheek.

In the article AUTORITÉ POLITIQUE, similarly, although insisting that the king rules by the will of the people ("Le prince tient de ses sujets même l'autorité qu'il a sur eux") (1) and may forfeit his right to rule by tyrannical behaviour, his conclusion is prudent in the extreme and forbids rebellion: the people is advised

"de n'opposer au malheur qu'un seul remède, celui de l'apaiser par leur soumission, et de flechir Dieu par leurs prières: parce que ce remède est le seul qui soit légitime, en conséquence du contrat de soumission juré au prince anciennement." (2)

Despite his circumspection Diderot was violently attacked by the Mémoires de Tréoux. Later, although never giving any proof of an incitement to revolution, his attitude hardens into one of positive distrust for the monarchical structure, however enlightened the ruler may be. In his Réfutation d'Helvétius, which he prepared in the few months before he left Holland for Russia, he stated his undeviating opposition to all despotic government:

"Le gouvernement arbitraire d'un prince juste et éclairé est toujours mauvais. Ses vertus sont la plus dangereuse et la plus sûre des séductions: elles accoutument insensiblement un peuple à aimer, à respecter, à servir son successeur quel qu'il soit, méchant ou stupide (...) Un des plus grands malheurs qui put arriver à une nation, ce seraient des trois régnes d'une puissance juste, douce, éclairée mais arbitraire: les peuples seraient conduits par le bonheur à l'oubli complet de leurs privilèges, au plus parfait esclavage." (3)

Perhaps his dislike for the absolute monarch was heightened by his attitude to Frederick the Great, his hâte noire, whose unscrupulous cunning tended to make Diderot identify the man with the institution and reject both accordingly. His description of Frederick to Madame d’Épinay is one of the many passages in which Diderot reveals his contempt for Frederick:

"Ce roi est certainement un grand homme; mais quinteux comme une perruche, malfaisant comme un singe, et capable en même temps des plus grandes et des plus petites choses." (4)

(2) Ibid. p.399.
(3) A-T, II, p.381.
(4) 9th April, 1774; Roth, XIII, p.238.
Diderot's *Pages contre un tyran*, which he had just written when he arrived in Russia, and his *Principes de politique des souverains*, which he planned in Saint-Petersburg (1) may therefore be seen more as prompted by animosity towards Frederick than stemming from a deep-seated conviction against all absolute monarchy: otherwise his friendly attitude to Catherine would be very surprising. As it is, he seems to have regarded Catherine certainly not as a tyrant, but as the representative of an enlightened despotism which must have its good points, being the most powerful instrument for reform in Russia. Obviously Diderot did not expect to abdicate her own power, but to use her influence to reform the state: in the *Essai historique sur la police* Diderot draws her towards constitutional rule by suggesting the establishment of a permanent commission to help in her administration. The absolute monarchy may be good for something, Diderot seems to concede, if only to initiate reform and establish the gradual modification of its own power. He wants Russia to pass from "un gouvernement despotique, la ruine d'une nation," to "un gouvernement monarchique", (2) which holds none of the risks of despotism.

Thus Diderot was able to be on friendly terms with Catherine the Great. In 1762, three months after Catherine's accession, she offered Diderot full protection if he cared to continue in Russia the production of the *Encyclopédie*, which had been officially suppressed in France in 1759. She authorised Count Shuvalov to send her invitation through Voltaire, on the 20th August, 1762. (3) Diderot, who had long been resisting the temptation offered by Voltaire to carry on the *Encyclopédie* outside France, refused politely. As he pointed out to Voltaire, despite the official ban, clandestine printing was continuing quite freely; anyway, the manuscripts for the *Encyclopédie* belonged not to him but to the booksellers, and he would be disloyal to ignore this. (4) In a letter to Sophie Volland, reporting his refusal, he explains himself more clearly, showing that he saw the offer as a risk of corruption, a temptation to betray his friends and his country in return for rewards from a foreign power:

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(3) Roth, IV, p.174.
(4) 29th September 1762; Roth, IV, pp.175-6.
"J'ai oublié de vous dire que j'ai reçu, il y a une quinzaine de jours, par le prince Gallitzin, une invitation de la part de l'impératrice régnante de Russie, d'aller achever notre ouvrage à Pétersbourg. On offre liberté entière, protection, honneurs, argent, dignités, en un mot tout ce qui peut tenter des hommes mécontents de leur pays et peu attachés à leurs amis, de s'expatrier et de s'en aller." (1)

From the inaccuracy of his report (Shuvalow, not Gallitzin, was the intermediary, and Riga was the only place mentioned) it seems that Diderot paid little attention to Catherine's suggestion.

In 1765, Catherine found a more honourable way of helping Diderot. The necessity of providing for his daughter's education impelled Diderot to think of selling his books. His friend Grimm, on the 10th February, wrote to Catherine's chamberlain, General Betskoi, suggesting that the Empress should buy them. Negotiations were carried on with success. On the 16th of March Betskoi replied favourably. Catherine was to buy Diderot's library for 15,000 livres, on condition that he kept it for his own use until she wanted it. She also granted him payment of 1,000 livres each year for the rest of his life, for his duties as her "librarian". (2)

Out of gratitude for Catherine's generosity, Diderot did various services for her over the next few years. He acted as her agent in the purchase of works of art, and he recommended people he considered suitable to work for her in different capacities. For instance the sculptor Falconet, thanks to Diderot's influence, went to Russia in 1766 to carry out his commission for a statue of Peter the Great. Diderot's choice of La Rivière as economics adviser to Catherine (3) was less successful; in 1767 he was sent to Russia, only to be asked very soon to leave because of his arrogance and the audacity of his suggestions, which the Empress found quite unacceptable. Thus Diderot was in contact with Catherine for the next few years. She urged him to visit her in Russia, but he resolutely refused until finally, in 1773, he could find no more convincing excuses. His affairs in France were settled, his daughter being married and the Encyclopédie finished. He could combine a gracious gesture of thanks with the more practical purpose of converting the Empress to his views. Diderot realised that

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(1) 3rd October, 1762; Roth, IV, p.185.
(2) See Roth, V, pp.25-30.
(3) See Roth, VII, p.84.
he might be put into an awkward position and look as if he was visiting Russia only to beg for more favours.

"Je n'ai rien voulu d'elle", he wrote on the 9th April 1774. J'ai voulu fermer la bouche aux malveillants de son empire qui disaient que j'étais venu solliciter de nouvelles grâces sous prétexte de remercier des anciennes." (1)

In fact, as Roth points out, Diderot had received money from the Empress - 3,000 roubles - although he did not intend to use them for himself; and he was not too proud to accept various presents from her.

At the age of 59, in June 1773, Diderot set out reluctantly on his pilgrimage to Catherine II. He spent two months in Holland, at The Hague, where he worked on the Paradoxe sur le comédien, a revision of the Neveu de Rameau and his Réfutation d'Helvétius. As his comments on De l'homme show, he was at this time much interested in the psychology of education; his interest was to be reflected in the conversations with Catherine, where he showed the necessity for a public system of education, sketching details of lessons and the organisation of the pupils' time. He left The Hague in August, avoiding Frederick the Great by passing through Dresden, and arrived in Saint-Petersburg on the 8th October (2). His arrival was marred by Falconet's lack of hospitality; there was no room in his house for Diderot, despite his earlier promises, and Diderot was obliged to depend on the chamberlain Naryshkin, who had escorted him from The Hague. He stayed with him for the next five months. It was in the second half of October, after a visit to the girls' school at the Smol'nyi Institute, (3) that Diderot's famous conversations with Catherine began. (4) These took place, according to Diderot, about three afternoons a week, between two and five or six o'clock. (5) For over a hundred years, until Tourneux's Diderot and Catherine II appeared in 1899, the substance of these conversations was not revealed. It was known, however, by Diderot's own testimony, that some record of them had been made and kept in Russia. In the Plan d'une université Diderot mentions the

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(1) Roth, XIII, p.226.
(3) See above, p.243-44.
(4) See Roth, XIII, p.74.
(5) To his wife and daughter, 30th December, 1773; Roth, XIII, p.142.
These papers have a strange history. They somehow found their way from the Winter Palace Library, where Catherine kept them safe from inquisitive eyes, into the private collection of A. S. Norov (1795-1869) who in 1869 returned them to the Royal Collection. There they remained unknown to the public until, in 1881, the Tsars' librarian, Alexander Grimm, revealed them to one of the editors of Diderot's collected works, Maurice Tourneux. (2) In 1899, after a delay which is perhaps explained by Tourneux's unwillingness to compromise Grimm, Tourneux's Diderot et Catherine II appeared - the conversations transcribed, and grouped according to Tourneux's choice under various headings such as Pédagogie, Économie politique and so on. The classification is often inappropriate, and there are many textual inaccuracies. It was on this edition that critics had to rely after the 1917 revolution, because the original manuscript again disappeared. It was not until 1952 that S. Kuz'min announced their rediscovery in the library of the Winter Palace. (3) Vernière, in his edition of the papers which he entitled Mémoires pour Catherine II, corrects the many textual mistakes for which Tourneux was responsible, and insists in his introduction on the true nature of the Mémoires. They must be regarded, he writes, not as the fruits of a collaboration between Catherine and Diderot, not indeed as a record of the conversations, but as Diderot's original notes, prepared in advance on a certain subject, read aloud to Catherine, followed by a discussion, and finally rearranged and corrected by Diderot. Such a view of these writings as mémoires is far more compatible with their actual nature, since Diderot tried to use them to expound his own ideas and convert Catherine to his way of thinking. (4)

Despite Diderot's great hopes of bringing Catherine further along the road to enlightenment, the Empress was little influenced by his bold projects for the reform of the administration of Russia which he proposed in the Mémoires. After the failure of the Legislative

Commission, which Catherine formed in 1767 to examine the question of reform, the Empress had become discouraged by the lack of response to her own desire for reform. As P. Dukes points out, (1) the failure of the Nakaz was no doubt due to the reactionary nature of the nobility rather than that of Catherine, who at this stage, in the early years of her reign, was genuinely interested in a certain liberalisation. When Diderot arrived, however, the position had changed. Six years had elapsed since the Legislative Commission had been summoned and dismissed, six years in which Catherine became older and more jealous of her power. She had been shocked by La Rivière's far-reaching proposals for economic reform; as she said bitterly to Voltaire,

"Il nous supposait marcher à quatre pattes et, très poliment, il s'était donné la peine de venir de la Martinique pour nous dresser sur nos pieds de derrière." (2)

Now, in 1773, after her alarm at the Pugachov rebellion, Catherine was less likely than ever before to listen to plans of economic and social reform. True, she found Diderot a charming person,

"Je trouve à Diderot, she wrote to Voltaire while Diderot was in Saint Petersburg, une imagination intarissable; et le range parmi les hommes les plus extraordinaires qui aient existé." (3)

And a few weeks later,

"C'est une tête bien extraordinaire que la sienne; la trempe de son cœur devrait être celle de tous les hommes." (4)

Yet she finally, in their conversations, placed a ban on all political topics, claiming, according to one version, that Diderot did not have sufficient grasp of the practical problems involved. He could theorise brilliantly:

"M. Diderot, she said according to Tourneux, j'ai entendu avec le plus grand plaisir tout ce que votre brillant esprit vous a inspiré; mais, avec tous vos grands principes que je comprends très bien, on ferait de beaux livres et de mauvaise besogne. Vous oubliez dans tous vos plans de réformes la différence de nos deux positions: vous, vous ne travaillez que sur le papier qui souffre tout; il est tout uni, simple, et n'oppose d'obstacle ni à votre imagination, ni à votre plume, tandis que moi, pauvre impératrice, je travaille sur la peau humaine qui est bien autrement irritable et chatouilleuse." (5)

(1) P. Dukes, Catherine the Great and the Russian Nobility, Cambridge, 1967, Chapter VI.
(3) 7/18 January, 1774; Roth, XIII, p.150; Voltaire, Correspondence, ed. T. Besterman, Geneva, Vol.LXXVII, no. 17664.
(4) 19/30 January, 1774; Roth, XIII, p.159; Voltaire, Correspondence, ed. T. Besterman, Vol.LXXXVII, no. 17683.
Later, she complained to the Comte de Ségur of Diderot's "impraticables théories." (1) This account, in contrast with Tourneux's version, shows that she was more sensitive to Diderot's feelings than one would have expected: she suspected that he looked down on her as "esprit étroit et vulgaire"; it seems to suggest that Diderot himself was responsible for the disappearance of political subjects from their conversations.

Diderot's attitude to Catherine the Great is also ambivalent. He seems to have admired her personally while disapproving of her position as despot of Russia. He referred frequently to her charm and great intelligence. One cliché which he constantly used of her, and which in fact displeased Catherine, was "C'est l'âme de César, avec toutes les séductions de Cléopâtre". (2) When he addresses Catherine, he deals in extravagant praise, no doubt partly for tactical reasons.

In the Mémoires he tells her she possesses

"la force avec la douceur, le mépris du péril et de la vie, la pénétration qui, à tout moment, me gagnait de vitesse, avec un jugement sain; la dignité avec l'affabilité (...) la chaleur de l'âme, même son impétuosité, avec la patience et la modération; l'amour du bien avec cette constance qui ne se décourage pas et qui sait attendre le moment du succès; les grandes vues, avec cette modestie singulière qui en abandonne le mérite aux autres et qui ne se réserve que celui de l'approbation." (3)

Even in his private correspondence from Saint-Petersburg, in which of course it could still be unwise to set forth any harsh criticism of the Empress, but in which he is not obliged to praise her, Diderot spontaneously expounds on her kindness and other good qualities: "Elle aime éperdument la vérité", he writes to his wife and daughter, (4) and he refers to her in a letter to Sophie Volland as "cette grande et aimable souveraine." (5)

Despite his reluctance to visit Russia, Diderot in fact spent five months there on good terms with Catherine the Great; he left

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(1) Roth, XIII, p.124.
(2) 30th March, 1774; Roth, XIII, p.209.
(4) 30th December, 1773; Roth, XIII, p.144.
(5) 30th March, 1774; Roth, XIII, p.209.
Saint-Petersburg on the 5th March, 1774, having written a farewell letter to the Empress concerning his gratitude for all her kindnesses. (1)

In this he recalled his conversations with her:

"Toute ma vie, je me féliciterai du voyage de Petersbourg. Toute ma vie, je me rappellerai ces moments où Votre Majesté oubliait la distance infinie qui me séparait d'elle et ne dédaignait pas de s'abaisser jusqu'à moi pour me dérober ma petitesse."

He mentioned with regret the project for a Russian Encyclopédie, which seemed to be less and less likely as Betskoi proved a difficult person to negotiate with:

"L'Encyclopédie ne se refera pas, et ma belle dédicace restera dans ma tête; car quelle apparence que votre Sphinx (...) nous nous arrangions mieux à la distance de huit cent lieues?"

In fact, as Diderot predicted the scheme came to nothing. (3)

In this farewell letter, Diderot also mentioned his commission to supervise the publication in French of Betskoi's educational work, the Plans et statuts des différents établissements ordonnés par Sa Majesté Impériale Catherine II pour l'éducation de la jeunesse et l'utilité générale de son empire. (4)

"Ces trois mois", Diderot promises of his projected stay in Holland on his way home,

"seront employés à publier les règlements de ce grand nombre d'établissements dont la création sera aussi honorable à votre règne que la durée en serait utile à votre empire."

Diderot in fact did see to the publication of the French version, translated by his friend Clerc, (5) in 1775. He seems to have taken a special interest in Betskoi's work, adding a short note at the end, Addition de l'éditeur, M. D........, in which he praises Betskoi and Catherine highly:

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(1) 22nd February, 1774; Roth, XIII, pp. 198-201.
(2) Betskoi.
(4) For Betskoi's educational theories see above, p. 241-4.
(5) Nicolas-Gabriel Clerc, doctor to the Empress and to the Cadet Corps in Saint-Petersburg.
"Lorsque le temps, et la constance de cette grande souveraine
les [les établissements] auront conduits au point de
perfection dont ils sont tous susceptibles et que plusieurs
ont atteint; on visitera la Russie pour les connaître, comme
on visitait autrefois l'Égypte, Lacédémone et la Crète; mais
avec une curiosité qui sera, j'ose le dire, et mieux fondée
et mieux récompensée." (1)

Diderot also allowed Clerc in his introduction to the Plans et statuts
to reproduce a passage from Diderot's Mémoires pour Catherine II, with
an anonymous reference to Diderot as

"un homme de bien, justement célèbre, que la reconnaissance
a améné de huit cent lieues au soixantième degré, à l'âge de
soixante ans au pied du trône de sa bienfaitrice." (2)

The section which Clerc quotes here consists of Diderot's praise of
a hardy upbringing and his reminiscences of his own childhood. (3)
Perhaps Diderot's interest in this work of Betskoi's encouraged him
to compose his own plan for the improvement of Russian education, the
Plan d'une université pour le gouvernement de Russie.

This was suggested by Catherine to Diderot (as she suggested
educational topics to Betskoi.) She wrote to Grimm on 27th February
1775 to ask him and Diderot to compose an educational plan for her. (4)
Grimm sent his Essai directly to Catherine, but Diderot sent his plan
for Grimm to pass on. She acknowledged the Essai in June, but the Plan
not until November. According to Diderot, Grimm was responsible for
the delay. (5) Diderot sent another copy to Catherine, which she
acknowledged in January 1776:

"I received a thick book from Denis Diderot, and will read
it when the matter concerning universities is placed on the
agenda." (6)

(4) Sobranie sochinenij Deni Didro, ed. A. I. Molok, Moscow-Leningrad,
(5) 6th December, 1775; Roth, XIV, p.172.
266; Roth, XIV, p.184.
It was believed that Grimm's plan had been lost, and because of the confusion both the Essai and the Plan were long attributed to Diderot. Tourneux followed the tradition, and it was not until P. Oustinoff's article in the first volume of the Diderot Studies (1) that the Essai was restored to its rightful author, Grimm. Diderot, therefore, contrary to the traditional belief, composed only one educational plan for Catherine, the Plan d'une université, which he wrote some time in 1775.

(1) P. Oustinoff, 'Notes on Diderot's Fortunes in Russia', Diderot Studies, I, 1949, pp.121-42.
Chapter XII
THE MEMOIRES POUR CATHERINE II

In the Mémoires Diderot's main task was to try to bring Catherine to a more liberal conception of government, to use their mutual liking to bring her towards enlightenment, despite her caution which led, as we have seen, to her placing a ban on political topics. As P. Vernière points out, over a third of the Mémoires is concerned with education. Diderot's most important preoccupations are the need to suit the type of education available to the society in which the pupil will have to live (XXVII - De l'éducation particulière, and IV - Sur l'importance d'un concours même aux premières places d'un Empire); and to examine the practical arrangements necessary for a sound system of schools for both boys and girls (XVI and XVII - Sur la maison des jeunes filles, XXV - Des écoles publiques, XXX and XXXI - De l'éducation des enfants trouvés, and XLIII - De l'école des cadets.)

Diderot was not alone in seeing the conflict between the values instilled by educators, the love of virtue and truth, and the actual standards of a frivolous society, which expected its most accomplished members to be wily and cynical. Prévost had expressed the dichotomy when he pointed out the disadvantage at which one will find oneself in French society by observing the old-fashioned values which one has been taught,

"l'amour pour la vérité, (...) l'horreur pour le moindre artifice, et ce goût antique d'honneur et de vertu, que ni les espérances ni les craintes n'altèrent jamais." (2)

If one is to survive, one is driven to being as cunning as the other members of society:

"Qui oserait, par exemple, se piquer de fidélité pour un ami, si sa fortune courait le moindre risque à lui paraître attachée? (...) Pourquoi aurait-on plus de droiture, plus de fidélité, plus de désinteressement que ceux avec qui l'on vit? On serait donc exposé continuellement à leur être dupe! On aurait le sein ouvert à tous leurs coups! On ne pourrait jamais se défendre avec des armes égales! Tels sont, mon cher Marquis, les principes du plus grand nombre des Courtisans;" (3).

(2) Prévost, L'homme de qualité à son élève, Mémoires d'un homme de qualité, Book X, Amsterdam, 1756, Vol. V, p.79.
(3) Ibid. p.80.
Such a situation obviously creates problems when a writer comes to consider educational reforms. Must the educator continue to teach the impractical values of truth and sincerity, or must he adapt his teaching to equip his pupil against the corruptions of society? Helvétius, as we have seen, (1) suggests that society must be reformed before any educational plan can be drawn up. Otherwise, education does not fulfil its function of training the pupil to fit into society. Once merit, and not servile flattery, is rewarded, then the educationalist can go ahead freely to consider the best way to train his pupils to moral rectitude.

Rousseau was also concerned with this problem. He would have liked the pupils to be educated as a part of society, since man is now inescapably a social being and has a duty to fit in with society. Yet, as he said in *Emile*, society is corrupt, there is no longer any patrie, and so the concept of the citoyen is lost. In his educational writings, therefore, such as *Emile*, he is forced back to the system of domestic education, in which *Emile* must be carefully secluded until he has formed his values. Rousseau will make no compromise with the moral corruption of society. (2)

Diderot in his *Mémoires pour Catherine II* inclines to Helvétius's opinion, that society must be reformed and then a suitable system of public education instituted. He does not see society as radically corrupt, as Rousseau does, but merely needing some alteration in its system of rewards: in Russia especially, a young society with, Diderot thought hopefully, an enlightened ruler, corruption can be eliminated, places awarded according to merit, and the educational system arranged accordingly:

"avant qu'il se soit écoulé vingt ans, la face de l'Empire sera changée. La Russie aura des pères et des mères instruits. Ces pères et mères donneront à leurs enfants la même instruction qu'ils auront reçue. L'esprit de la bonne éducation, soutenu par les émigrations continues de ces deux séminaires, (3) se perpétuera d'âge en âge, et se répandra dans tous les états.

(1) De l'Esprit, Chapter XVII.
(2) For Rousseau's views, see above, p. 183-4.
(3) The Cadet School and the Smol'nyi.
Toute la nation, en s'éclairant, se civilisera, et la capitale présentera le même spectacle que Londres ou Paris; peut-être même avec des avantages propres à l'institution primitive et nationale." (1)

Early in the Mémoires, in the section entitled Sur l'importance d'un concours même aux premières places d'un empire, Diderot insists that what is needed by "l'éducation particulière" is a national basis, and presents with disapproval the typical attitude of an aristocratic mother, who sees that a sound intellectual and moral training is quite unnecessary; her child will automatically, even if he is stupid, because of his birth qualify for the army or the church. She tells her son's tutor that

"Mon fils apprendra de vos mathématiques, de votre latin, de votre grec, de votre physique, de toutes vos sciences, ce qu'il pourra; qu'il se porte bien, qu'il ait de la grâce, qu'il parle avec esprit, qu'il plaise dans le monde, qu'il soit aimable et amusant; c'est tout ce que je vous demande pour l'aîné. Le cadet pourrait bien être un sot, malgré vous. Eh bien! l'abbé, nous en ferons un militaire, ou un ecclésiastique; au pis aller, il aura la charge du président, son oncle." (2)

And she repeats her conviction that her sons' wealth will be of more use to them in society than a good education:

"Mes enfants seront riches; et je ne sens pas la nécessité de toutes ces connaissances qui ne sont d'aucune ressource avec les femmes et dont ils pourront toujours se passer." (3)

As Diderot comments sardonically at the end of this passage, society being in the corrupt state it is,

"Ce qu'il y a de très plaisant, c'est que c'est l'abbé qui a tort, et la mère qui a raison." (3)

The only way to remedy the situation, he insists in the section Sur la tolérance, is to support education by a "base nationale et publique." (4) This can be done only by establishing the system of competition, le concours, which is the true way of encouraging talent and eliminating the mediocre. This he suggests in mémoire XXIV, De la commission et des avantages de sa permanence, where he says

(2) Ibid. pp.48-9.
(3) Ibid. p.49.
(4) Ibid. p.102.
"Peu d'avantages à l'éducation particulière sans une base nationale. Nulle base nationale à l'éducation particulière; nulle récompense au talent et à la vertu, nulle ressource pour ôter à l'or son attrait et sa puissance sans le concours, même aux places les plus importantes." (1)

After these brief indications of his views, Diderot in XXVII (De l'éducation particulière - Défaut de base à cette éducation - Concours aux places, remède à ce défaut) spends several pages in a detailed discussion of the problem. He warns the Empress that, however good the educational system she installs in Russia may be, it will suffer from the same divorce from society as in France, if society itself is not better arranged. He says of the French:

"on nous élève assez bien; nous ne manquons ni d'instituteurs ni d'instruction. Lais à quoi nous sert cette éducation? (...) à être plus ou moins agréables en société; à obtenir la préférence sur un rival auprès d'une femme (...) à boire des vins délicieux; à faire des voyages de campagne charmants; à être payés à la longue de la fatigue et même de la bassesse d'une cour assidue de dix ans, par une place que l'on ravit au mérite." (2)

Such empty pleasures are no incentive for men of true ability. Great men such as Corneille, Racine, Voltaire, Boileau, La Fontaine, Montesquieu, D'Alembert, Helvétius, Rousseau, although impelled to produce great works by the fire of their natural genius, their fureur naturelle, might have developed to be even greater if society had offered them suitable rewards. He repeats his theme, excluding the societies of Athens and Rome from his condemnation, that everywhere, "l'éducation particulière a manqué de base nationale". (3) The only solution is make all the high places open to fair competition. Perhaps this may seem impractical, concedes Diderot but, he adds persuasively, it is at least "une belle chimère." (4) Such a system, he continues, does in fact work on a small scale in France, in the Law Faculty of the University, where competitors for a post are examined fairly on a wide range of legal topics. Diderot admits that, men not being perfect, there is sometimes some favouritism shown when contenders of similar qualifications are involved, but the outcome is satisfactory; it is always "un homme de mérite" who is awarded the place. Moral integrity as well as ability are taken into

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(3) Ibid. p.163.
(4) Ibid. p.164.
account because, Diderot points out, "un homme très instruit peut être un tres méchant homme." (1) By this competition, all men are encouraged to aspire to intellectual and moral heights, because everyone says to himself:

"Il n'est pas seulement question d'être un habile homme, il faut encore être un honnête homme." (1)
The result of this reform will be to benefit the state, because the best places will be occupied by those with the greatest talents. Diderot maintains that, the common people being far more numerous than the nobility, there will necessarily be far more geniuses of common extraction than of aristocratic birth:

"Il n'y a qu'un palais dans un royaume; autour de ce palais, il y a cent mille maisons. L'âge de l'homme, et pour une foi qu'il a rencontré le côté du palais, cent mille fois il est tombé à côté." (2)

When such people are given the chance to hold public office,

"Une longue suite d'hommes honnêtes et instruits se succéderont dans toutes les fonctions publiques de l'Empire." (3)

Posts will no longer be awarded because of bribery and influence, but because of merit. Diderot concludes the mémoire by applying this principle to the educational establishments set up by Catherine II, in which competitions by examination will determine admission:

"Mais quelle source d'émulation pour vos écoles particulières, pour les enfants dont Votre Majesté fait spécialement l'éducation, quelle honte pour eux, si plusieurs places auxquelles ils pouvaient prétendre, leur étaient enlevées par l'enfant d'un particulier obscur et ignoré!" (4)

Such a scheme is obviously of the first importance to Diderot in any educational reform, although he ends with typically cautious deference to the Empress's views:

"Quand ce ne serait qu'une belle rêverie, Votre Majesté sourira, et le rêveur, qui n'a d'autre prétention que de confier à Votre Majesté ses pensées honnêtes et folles, aura toute la récompense qu'il en espère." (4)

(2) Ibid. p. 167.
(3) Ibid. p. 169.
(4) Ibid. p. 170.
When, in the Mémoires pour Catherine II, Diderot actually turns his pen to the details of public education, his thought is most fully expressed in the two sections entitled Des écoles publiques (XXV) and De l'école des cadets (XLIII). Here he discusses the educational institutions existing in Russia at the time, with suggestions for their improvement. In shorter sections he touches on separate problems, relating to the education of girls (XVI and XVII) and of foundlings (XXX and XXXI).

In the mémoire Des écoles publiques (pp. 129-44) Diderot sketches out a curriculum which was later to be expanded in the Plan d'une université pour le gouvernement de Russie. Early in this article he recognises that his subject is of crucial importance to the development of Russia, and he modestly admits his own inadequacy to deal fully with all the problems involved in the establishment of a public education system:

"Peu s'en faut que je ne m'arrête tout court, tant elle me semble au-dessus de mes forces," (1)

However he proceeds with his subject, pointing out, as he will in XXVII, (p. 167) that geniuses appear, not only in the upper reaches of society, but also among the common people. Indeed, here he goes further, suggesting that the circumstances of a life of poverty are more conducive to the development of genius than the luxury of a noble upbringing. The necessary austerity of lower-class life indicates to Diderot that the poor child is not corrupted by over-indulgence, and more likely to strive humbly for learning in an effort to console himself for his lack of material comforts:

"Ils se tourmentent; ils travaillent; ils se hâtent de sortir de leur obscurité, l'unique moyen d'obtenir les aisances de la vie qui leur manquent, ou de s'en consoler par la considération générale, l'estime de leurs semblables, et la conscience de leur valeur."

Thus the lower classes are of great importance to the state in producing valuable men, hard-working as well as talented, who will use their gifts to the full:

"Les basses conditions de la société seront donc dans tous les empires la pépinière des moeurs, des connaissances, des talents, de la gloire et de l'illustration présente et à venir de leurs nations." (1)

Although conceding that an upper-class upbringing which makes the most of the privileges of its class does, of course, have its advantages, Diderot presents very strongly to Catherine the importance of giving educational opportunities to the poor. These suggestions are a logical development of the views expressed in the Refutation d'Helvétius, where Diderot saw man as educable but not entirely to be formed, as Helvétius would have it, by the sum of his experiences. Diderot thinks that two things, natural talent and a good education, are necessary to produce a man of genius. Thus, at least one school must be founded in every city. Education must be made compulsory for the members of all ranks of society (p.130). Diderot divides the pupils into three groups, pensionnaires, boursiers and externes. (2) Firstly, the pensionnaires. These are children of well-to-do parents, who do not however have the time or inclination to supervise their education themselves. They must pay equal fees and be disciplined with equal impartiality whatever their rank: Diderot suggests, instead of punishment inflicted by the school-master, a system of justice meted out by the pupils themselves. No private tutors are to be allowed. Secondly, the boursiers. The bursaries are for poor children, and are to be provided by the Empress or the nobility, who should not however be able to award the bursaries themselves for fear of unjust favouritism. The financial need of the contestants for the bursaries must be officially proved, so that rich parents may not take advantage of the system.

These two classes of pupil are both to be boarded at the school: the third group, the externes, live at home because their parents clothe, feed and care for them. Diderot suggests a uniform so that these day-pupils may not be able to take time off illegitimately.


(2) He refers to this scheme more briefly in the Plan d'une université (A-T, III, p.525); and in the Observations sur le Nakaz contents himself with naming the different categories: "Je ne connais aucun peuple qui ne puisse avoir des écoles publiques de dessin, des collèges, où il y ait pensionnaires et externes, pensionnaires et boursiers." (Oeuvres politiques, Paris, 1963, p.427).
He now goes on to general remarks on the organisation of the schools. There must be holidays, either each week, or for a month and a half each winter; the schools must be designed to be comfortable in all seasons.

The next main question is the upkeep of the teachers, whether they should be paid by the state or by the parents. (1) The solution to this, says Diderot with typical flexibility, will vary according to the circumstances. Normally, the well-to-do pupils, the pensionnaires and the externes, will pay their teachers, thus rewarding merit and encouraging them to improve, because they will earn money according to the number of pupils they attract. Where they are only one or two schools in the capital, the state should be responsible for the salaries. Schoolteachers should be supplied from the young men sent to Leyden or Leipzig to complete their education under a suitably enlightened supervisor. (2) They may be married or not, they may live at the school or not, as they wish. (3)

Diderot now touches on a complaint of his against the current system of education which he was to expand in the Plan, the uselessness to most pupils of a study of the dead languages. Diderot, despite his love of the classics, (4) could see the practical disadvantages of concentrating on Greek and Latin when the pupils should be learning to be better equipped for the part they were to play in eighteenth-century society. He refers sadly to the disappointment of his hopes that the expulsion from France of the Jesuits (eleven years earlier, in 1764) could mean a reform of the outmoded curriculum of the collèges. What he suggests for Catherine's public schools is a basic intellectual and moral training - "la pure et simple instruction scientifique et morales" (5) - there are to be none of the frivolities of music, dancing and theatrical exercises with which the Jesuits, with their love of pomp and ceremony, wasted their pupils' time. Diderot replaces these by public exercises in translation, attended by both pupils and parents, which will foster the spirit of emulation in pupils and teachers alike.

(3) Cf Ibid., p. 530.
Unlike Rousseau, Diderot sees only the good side of encouraging the competitive spirit. Rousseau in Book II of *Emile* inveighs against the moral damage done by such a method of education. He complains that educational systems have always relied on

"l'émulation, la jalousie, l'envie, la vanité, l'avidité, la vile crainte, toutes les passions les plus dangereuses, les plus promptes à fermenter et les plus propres à corrompre l'âme." (1)

Later he reinforces this point, explaining that only the pupil's competition with his own former achievements, not against others, is a valuable means of moral training:

"Du reste jamais de comparaisons avec d'autres enfants, point de rivaux, (...) seulement je marquerai tous les ans les progrès qu'il aura faits (...) Je l'excite ainsi sans le rendre jaloux de personne; il voudra se surpasser, il le doit; je ne vois nul inconvenient qu'il soit émule de lui-même." (2)

This is of course for Rousseau's "domestic" education, and Rousseau does not wish to introduce social feelings as yet, because he wants to keep *Emile* in nature for the time being. But there is a hint in the *Rêveries* that he admired a sort of emulation at Sparta:

"Je ne vois jamais sans attendrissement et vénération ces groupes de bons vieillards qui peuvent dire comme ceux de Lacédémone:

Nous avons été jadis
Jeunes, vaillants et hardis ...
[Nous le sommes maintenant
A l'épreuve de tout venant (the men) ...
Et nous un jour le serons,
Qui bien vous surpasserons", (the children) (3)

Diderot, on the other hand approves of emulation without qualification. In the *Réfutation d'Helvétius* there is a passage in which he discusses the matter: (4) he has nothing to say against the morality of encouraging emulation; his complaint is of the misuse of this method in the public schools of France. He quotes Helvétius's statement that

"L'émulation est un des principaux avantages de l'éducation publique sur l'éducation domestique."

This is not so, in France, comments Diderot, although it should be.

(2) Ibid. p.453-4.
What actually happens is that the four or five most able pupils distinguish themselves immediately and are encouraged at the expense of the rest of the class, to the utter discouragement of the less gifted pupils. The whole system of public education is wrong, continues Diderot, and must be changed:

"Que faire donc? Changer, du commencement jusqu'à la fin, la méthode de l'enseignement public." (1)

In the Mémoires pour Catherine II Diderot again points out that, although the public schools are apparently based on emulation, in fact most of the pupils have no chance for any reasonable competition:

"On croirait qu'il y a beaucoup d'émulation dans les écoles publiques; il n'y en a point. Il n'y en a point entre les maîtres, que le public ne voit jamais, et qui se soucient fort peu que leurs enfants profitent ou non. Il n'y en a point entre les élèves, qu'on ne voit pas davantage. D'ailleurs trois ou quatre sujets supérieurs découragent tous les autres et les condamnent à l'ignorance et à la paresse." (2)

His remedy is to encourage all the pupils to compete against each other, moving the outstanding ones to a higher class as soon as possible, in order not to discourage their duller class-mates.

Diderot now proceeds to describe the three stages of his proposed educational course. The first, the "premier degré", is reached by all pupils however little talent they possess. This is an elementary course in reading, writing and arithmetic. As basic texts Diderot suggests the Catechism for both reading and writing, followed by the reading of

"quelques bons ouvrages élémentaires d'une morale claire, pure et simple." (3)

Arithmetic is to consist of

"les quatre règles; les fractions; la règle de trois, et le calcul par les jetons."

This is the only part of the course which is to be compulsory, although of course the boursiers, whose places have been gained by merit, are expected to continue to the higher stages. The second stage is designed to provide the sound basic education of a good citizen. The pupil is introduced to algebra, geometry, mechanics, astronomy, geography,

(3) Ibid. p.137.
anatomy, natural history, "la physique expérimentale" and chemistry. A basic course of logic and morals,

"ou la connaissance de l'homme et de ses devoirs, du citoyen, des lois fondamentales de la nation, des contrats, des actes particuliers, etc."

is also essential. The third and final stage of Diderot's scheme is especially important, because in it he reveals his theories on the teaching of languages. (1) In this part of the course he lays down in the curriculum a study of languages, eloquence, history, poetic appreciation ("la poésie et le goût"), law and some metaphysics. "Point de théologie", he says without elaboration. His method of teaching languages is to be applied to a fairly wide range - Russian, being the native language, is to be studied from the theoretical angle; the others, Latin, Greek, Italian, English and German, purely by practice. Diderot maintains that, contrary to the current belief, the teaching of languages to children by rules is most unsuitable.

What is needed is practice - "habitude et routine." Children are not intellectually equipped for the difficulties of studying the theory of language:

"Rien de plus sec, de plus fatigant, de plus dégoûtant, et de plus abstrait que la grammaire raisonnée soit générale des langues, soit particulière d'une langue. Les mathématiques n'ont rien d'autant difficile." (2)

What is needed is oral practice, and translation both from and into the foreign language. If the pupil is not required to translate into the foreign language, he will never learn it thoroughly.

After some compliments to Catherine, dwelling on the difficulties of her position as Empress which, however, she can overcome because of her greatness, Diderot returns to the curriculum. He recommends a drawing-class at the end of the school-day, so that any special artistic talent may be discovered. He deals with practical questions, the necessity for small classes, and for the placing of the schools in a central position, (3) the risk of corruption in Saint-Petersburg to young people from the provinces if they are not lodged at the school or with relatives, and the importance of stringent examination of the

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(3) Ibid. p.141.
teachers. One point he insists on is the institution of the regular inspection of the schools by magistrates, who are to make sure that the teachers and pupils are spending their time profitably and honourably.

In a note Diderot adds that in France, as well as in Russia, there is a great need for suitable schoolbooks, and urges Catherine to see to it in her realm.

In a final section entitled "Notes", Diderot explains his exclusion of the more frivolous pastimes of gymnastics, dancing and music. These have not the practical usefulness of the study of science and morals. Gymnastics are unnecessary, anyway, because the pupils will naturally take violent exercise in their hours of leisure. As for the fine arts, they are essentially a luxury and depend on the surplus wealth of society:

"Quand on a bien des citoyens et que parmi ces citoyens il y en a beaucoup de riches, on a de grands artistes et qui se perpétuent." (1)

If the arts are too closely tied to material success, they tend to degenerate into mere financial ventures. Artistic greatness is to be achieved only amidst prosperity. On this note Diderot abruptly leaves his study of the public schools.

He returns to the organisation of public education in the mémoire entitled De l'école des cadets (XLIII). Here, interspersed with his recollections of his own youth, he lays down some principles which he is to discuss more fully in the Plan d'une université. A brief account of the history of the Russian system of military education serves as an introduction to his topic. He points out that the original cadet school, (2) founded by Peter the Great on the model of the French "écoles de cadets" which had since disappeared, was accompanied by disadvantages due to the late entrance age of the cadets, who did not take kindly to discipline:

"Comme les enfants pouvaient être admis au corps des Cadets de Pierre Ier en âge de pleine puberté, ils devaient y apporter des vices, et comme ils avaient la liberté de sortir, ils en

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(2) See above, p. 239-40.
The present military schools, Diderot continues, are quite different. Only young children, five or six years old, are accepted. Their teachers are Frenchwomen (at this time the first language of the Russian aristocracy was French) and the servants Russian and German. Unfortunately, Diderot claims, the time they are supposed to spend learning French is largely wasted, and they progress in Russian and German only, because they learn far more by everyday conversations than by formal lessons. Diderot dismisses this system as injurious to discipline, the pupils being able to impose upon their French teachers, who have an inadequate knowledge of Russian.

The second and third years are occupied with teaching the children to read. Again this draws criticism from Diderot, who sketches out a short and simple method. This consists of a study of letters and the elements of the language, so that after a few days the child can read, although as yet without understanding; after another week he will understand perfectly. After three years the pupils study under male teachers, entering a new cycle or "âge" every three years for the next nine years.

Diderot next gives a brief outline of the pupils' daily programme. The day begins at 7 a.m. and ends at 9 p.m.; they have breaks for meals and recreation between 11 and 2, 4 and 4.30, and 6 and 9. (2)

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(2) In the Plan d'une université Diderot gives his own suggestion for a more elaborate curriculum stretching from 5.30 a.m. to 9.15 p.m.: 5.30 - 6 prayer; 6 - 6.45 private study; 6.45 - 7.45 revision of lessons; 7.45 - 8.30 breakfast; 8.30 - 10.30 class; 10.30 - 11.45 short recreation followed by private study; 11.45 - 12.45 lunch; 12.45 - 1.30 recreation; 1.30 - 2.30 private study; 2.30 - 4.30 class; 4.30 - 5.15 drawing class; 5.15 - 6 supper and recreation; 6 - 6.45 private study; 6.45 - 7.45 revision of lessons; 7.45 - 8 recreation; 8 - 8.45 supper; 9.00 prayer.

Diderot obviously considers this an improvement on the Russian system which consists of solid blocks of study and recreation; variety, he says, is all-important: "Les occupations sont coupées par des relâches", he writes of his own curriculum, "les études sont variées, et c'est l'application assidue à une seule chose qui ennuye, fatigue et dégoûte l'homme et l'enfant.

Quintilien, auteur d'un grand sens, assure qu'un enfant sera moins lasse de quatre leçons différentes par jour que d'une seule qui remplirait la durée de quatre." (A-T, III, 524-5).
He now asks a series of questions, which he will answer more fully in the Plan d'une université, questions on teaching methods, text-books and moral education. In the mémoire he now abandons a consideration of the present Russian system to expound his own ideas. He begins by insisting on the importance of a well-laid out school:

"C'est en vain que le plan d'éducation est un, si le local s'y oppose; le vice du local est un de ceux qui se font sentir à toutes les heures du jour et qui servent également ou de prétexte ou d'exemple aux maîtres et aux élèves. C'est donc un de ceux auxquels il importe de remédier primitivement." (1)

He praises the results of a good physical education, in the development of the child, recalling his own childhood with its rough games.

"Je regrette, he says, qu'à cette éducation qui préparait des corps robustes et des âmes fortes, courageuses et libres, il en ait succédé une efféminée, pédantesque et raide,"

If the body is hardened against fatigue and illness, its owner can face the difficulties of life with equanimity:

"Vos jeunes garçons [Catherine's Russian cadets] acquièrent par ces exercices de la force, surtout de l'intrepïrité et une santé à l'épreuve des intempéries des saisons (...) Dans la lutte contre [la] nature, c'est beaucoup que de s'être affranchi de l'inclémence des éléments." (2)

Here he is in accord with Rousseau's beliefs. (3)

Diderot counsels against long, biased courses of religious education, in which one denomination is represented as being the only true one; his education, on the other hand, will lead his pupils to a tolerance in which they will learn

"à distinguer les hommes, non par leur croyance, mais par leurs vertus." (4)

Next he turns to the question of politesse, the outward show of manners which the society of his time took to be proof of a good education. He

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(1) Mémoires, Paris, 1966, p.213; this is another point he enlarges on in the final part of the Plan where in the section Bâtiment (A-T,III,pp.533-4) he carefully lists the necessary buildings - masters' quarters, dormitories, large rooms for general study, classrooms, private studies, recreation rooms, library, collection of instruments, library of natural history and anatomy, a chemistry laboratory and so on.


(3) Rousseau in Émile points out the value in education of a healthy, well-exercised body: "Le grand secret de l'éducation est de faire que les exercices du corps et ceux de l'esprit servent toujours de délassement les uns aux autres." (Oeuvres complètes, Paris, 1959-69, Vol.IV, p.480) Physical health becomes a sign of moral purity; the body rejects luxury as needless and indeed harmful.

has already lamented the fact that the standards of polite society may be quite different from the teachings of virtue. In the Mémoire he creates a dialogue between an "Athenian" and a "Spartan" who debate the importance of polished manners in children. The Athenian's ideal children are polite, small models of their cultured parents:

"Ils ont déjà la grâce et la politesse du grand monde (...) Nous leur inspirons, au sortir du berceau, le désir de plaire." (1)

These children Diderot in the guise of the Spartan dismisses scornfully as mere dolls, "insipides petits mannequins," "jolis précieux marmots;"

(2) infinitely preferable are

"la franchise, la liberté, les sauts, les cris, l'impétuosité, les tiraillements de ces espèces de petits sauvages-là." (2)

They preserve their individuality and, when it becomes necessary, can still learn the usages of society:

"Tous vos petits enfants semblent avoir été fondus dans le même joli moule. Nous voulons que les nôtres, sortis divers des mains de la nature, restent divers. Tu prépares des modèles à Boucher, nous en préparons à Van Dyck. Tu élèves des courtisans, nous élevons, nous, des magistrats et des soldats." (3)

Mischiefous, lively children are preferable to passive, well-behaved children:

"Les polissons du collège des Quatre-Nations sont les plus méchants enfants de l'Université et ceux que j'aime le plus." (4)

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(2) Ibid. p.216.
(3) Ibid. p.217.
(4) Ibid. p.214; Rousseau too favoured the Spartan upbringing above that of the Athenians: "Vous ne parviendrez jamais à faire des sages si vous ne faites d'abord des polissons; c'était l'éducation des Spartiates (...). Les Spartiates étaient-ils pour cela grossiers étant grands?" (Oeuvres complètes, Paris, 1959-69, Vol.IV, p.362). He points out the falsity of outward forms of politeness: "Gardez-vous surtout de donner à l'enfant de vaines formules de politesse qui lui servent au besoin de paroles magiques pour soumettre à ses volontes tout ce qui lui plait." (Ibid. p.312). "La véritable politesse, ce maintiens later, consiste à marquer de la biaissavillance aux hommes." (Ibid. p.669).
The Russian cadets have the opportunity to gain useful knowledge instead of wasting their early years in the acquisition of social polish. Unfortunately, Diderot admits, despite this advantage, they do not in fact make the progress they should. As he has mentioned before, the method by which they are taught to read is excessively slow (1) and their knowledge of French imperfect. (2) Diderot's remedy is to encourage the spirit of emulation (3) which he regards as definitely beneficial. He suggests public contests, prizes for the successful and shame for the unsuccessful, in an attempt to impress upon the pupils the importance of their efforts. (4) Diderot notes briefly his satisfaction at the lack of corporal punishment in the Cadet School, and closes the mémoire with a justification for its composition - the state of girls' education, he says (paying an indirect compliment to Catherine by referring to the school at the Smol'nyi Monastyr which she had established in 1764 and which Diderot had visited soon after his arrival in Saint-Petersburg) is so superior to that of boys, that some suggestions were needed to redress the balance.

In several shorter articles Diderot considers topics related to education, although nowhere in such details as in the mémoires Des écoles publiques and De l'école des cadets. In Sur la maison des jeunes filles (XVI), despite its title, he does little more in its page and a half than touch on the importance of a good reputation in morals for a girls' school; Diderot uses this section mainly to compliment Catherine on her enlightenment. The only practical suggestion that he makes is that Catherine should make sure that the financial upkeep of the schools is assured, so that after her death they will be able to continue. In the next mémoire, Sur le même sujet, la maison des jeunes filles, (XVII), he leaves Catherine's school after the first

(3) Ibid. p.136.
paragraph, in which he praises in vague terms its accomplishment in preparing

"des mères, des épouses et des citoyennes instruites,
honnêtes et utiles." (1)

He offers his suggestion for the sexual education of girls by a course of practical lectures, illustrated by reference to wax models, which, by removing the mystery surrounding conception and birth, will give the girls a healthy attitude; thus his double aim of imparting knowledge and purifying the morals will be accomplished. He gives as an example his own daughter, who read Candide at an early age and remained uncorrupted because of her sensible education. In the article Leçons d'anatomie dans la maison des jeunes filles (XXXIV) Diderot takes up this subject again, apparently in reply to Catherine's objections to some of his previous remarks. He agrees with the Empress that, for modesty's sake, a woman and not a man must be in charge of the anatomy lessons. He offers to invite Madame de Bihéron, the expert on the subject, to give lessons in Saint-Petersburg, although pointing out that it would be easier to use medical experts already in Russia.

The mémoires concerning the education of foundlings, De l'éducation des enfants trouvés (XXX) and Notes sur deux points des règlements de la maison des enfants trouvés (XXXI) were placed by Tourneux in his Diderot et Catherine II in the section entitled Économie politique. They deserve mention here, however, because they show Diderot's concern for the practical application of education and his interest in the education of the lower classes, both important parts of his scheme in the Plan d'une université. He sets out briefly the basic requirements:

"Lire et écrire, L'arithmétique, Éléments de géométrie, Éléments de mécanique."

Their learning is to be supplemented almost immediately by training as artisans and craftsmen:

"Autour de leur maison, une grande enceinte de boutiques et d'ateliers de toute espèce, où ils pussent aller prendre par goût le métier qui leur convient." (2)

He suggests a fair form of apprenticeship, under which the child will

(2) Ibid, p.187.
not be exploited. In the second of these two mémoires he insists on the necessity of giving trained workers an adequate allowance once they have completed their education and are looking for a job. This problem of the care of foundlings was a grave one for the French society of the time. (1)

The sections on public education in the Mémoires pour Catherine II discussed above are a valuable indication of Diderot's ideas at the time. Later, in 1775, he was to undertake the task of systematising and expanding these ideas into his important educational work, the Plan d'une université pour le gouvernement de Russie, written for Catherine's guidance in her proposed reform of the educational system of Russia. Here he was to dwell on three points which he had already indicated in the Mémoires: the advantages of the establishment of free, universal public education, so that the talents of all classes could be used to benefit the state; the need for a practical education which was to prepare the pupil for his future career; the consequent importance of a break with the traditional emphasis of the Jesuit schools on religious teaching and the dead languages. Despite the excellence of these suggestions, (which indicate, as Vernière writes, (2), "la fraîcheur et la modernité de son humanisme") Catherine paid little attention to his plan and, after Diderot's visit, alarmed by the difficulties of the task of an enlightened monarch, she took less interest in plans of reform.

(1) See R. Mercier, L'enfant dans la société du XVIIIe siècle, Dakar; Lacon, 1961.
Chapter XIII
THE PLAN D'UNE UNIVERSITÉ POUR LE GOUVERNEMENT DE RUSSIE

It was at Catherine the Great's instigation that Diderot prepared the Plan d'une université. Not that he had abandoned his interest in public education; since his association with the anonymous work De l'éducation publique, (1) he had become friends with Betskoi and on his return from Russia undertaken the publication of a French edition of Betskoi's works, the Plans et statuts. (2) Now that he was commissioned to express his own views on a system of education for imperial Russia, Diderot with typical breadth of vision laid down a vast plan for an education "dans toutes les sciences" - the title is significant.

Before Roth and Varloot's edition of Diderot's correspondence it was believed that the composition of the Plan was a hasty affair, suggested by Catherine in March 1775 and sent by Diderot in May of the same year. In fact, as Varloot points out, there has been an error in the dating of one of Diderot's letters to Catherine, and Diderot had more time: he was probably working on it until the end of July. What happened is that Catherine wrote to Grimm on the 10th March 1775 asking him and Diderot to produce educational plans: "Mais écoutez un peu, Messieurs les philosophes", she wrote persuasively,

"qui ne faites point secte, vous seriez des gens charmants, adorables, si vous aviez la charité de dresser un plan d'étude pour les jeunes gens, depuis l'abc jusqu'à l'université inclusivement (...) On me dit qu'il faut trois sortes d'écoles (...) Je suis fort en peine d'avoir une idée d'université." (3)

Diderot sent his Plan to Grimm, to be forwarded to Catherine, at the end of July, as is shown by his letter to Catherine of the 6th December, 1775:

"J'ai remis, il y a quatre à cinq mois, à Mr Grimm, le Plan d'une université ou d'une école d'enseignement public des sciences et des arts libéraux, auquel Votre Maj. Imp. nous avait proposé de travailler l'un et l'autre."

(1) See above, Chapter IX.
(2) See above, p.242.
The date of this letter was wrongly read by Grot and transcribed by him as the 10th October. This error was perpetuated by later editors and by P. Vernière in the Oeuvres politiques (1) and the Mémoires pour Catherine II. (2)

Although correcting this mistake, Varloot seems ill-informed on another point concerning the Plan. This is the authorship of the Essai sur les études en Russie, which until P. Oustinoff's article in 1949, (3) which summarises P. Liublinskii's conclusions in his Russian edition of Diderot's works, (4) was falsely believed to be by Diderot. In fact, both Grimm and Diderot sent an educational plan to Catherine.

Grimm's Essai was acknowledged on the 27th June 1775:

"Je vous remercie bien sincèrement de votre excellent écrit sur les écoles, que je garderai bien soigneusement pour en faire mon profit dès que la besogne que j'ai sur les bras sera finie." (5)

Diderot's Plan was acknowledged on 10th December 1775:

"J'ai reçu le traité de M. Diderot sur les écoles, et je vous en remercie bien sincèrement tous les deux. Dès que la gourme de la législananie sera jetée, je m'occuperai de cet ouvrage-là. Dieu veuille conserver jusque-là M. Ernesti." (6)

The reference to Ernesti has complicated the issue, because it is Grimm's Essai which recommends Ernesti to Catherine. He writes in a footnote:

"J'ose recommander très particulièrement M. le docteur Ernesti, à Leipzig, homme d'un mérite éminent." (7)

In this letter Catherine seems to be thanking them both, Diderot for his Plan, and Grimm for his Essai.

Another puzzling feature of the correspondence concerning the Plan is that Catherine acknowledges it again, in a letter of the 31st January, 1776:

(4) Deni Didro, Sobranie sochinenii, Moscow-Leningrad, 1947, Vol.X.
(6) Ibid. p.38.
"J'ai reçu le gros livre de Denis Diderot, et je le lirai lorsque l'article des Universités sera mis sur le tapis." (1)

This is explained by Oustinoff, following Liublinskii; Grimm had delayed in forwarding Diderot's Plan, which he had received in July, so Diderot finally sent another copy to Catherine, the one which arrived in January.

Diderot subsequently mentions the Plan: Catherine, however, seems not to have been impatient to read it, and certainly never put it into practice. On the 6th December 1775, writing a few days before Catherine received the copy of the Plan which Grimm had finally forwarded, Diderot explains a few points dealt with in the Plan. It can be used, he writes, only if two practical problems are resolved, the lack of textbooks and the shortage of good teachers. These are related, as Diderot points out, because, by summoning masters and employing them to compose school-books, Catherine will be able to remedy both difficulties:

"J'oserai donc exhorter encore Votre Majesté à employer ses académiciens et les savants du reste de l'Europe à la composition des livres classiques. C'est un service qu'elle rendra à toutes les contrées policées, et qui la comblera d'honneur. C'est un point essentiel à la perfection de l'enseignement public, dont aucun souverain ne s'est avisé." (2)

Diderot, strangely, sees no divorce between academic ability and the capacity to teach children:

"Tout homme capable d'entendre un livre classique," he assumes cheerfully, "est capable de l'enseigner à des enfants." (3)

This need for the composition of text-books by masters was a question which Diderot's former master, L-F, Rivard, treated as particularly important. (4)

Diderot in this letter goes on to mention several important topics dealt with in the Plan: the teaching of the history of man's intellectual development; (5) a treatise on tolerance which is to be added to religious instructions; (6) and the usefulness of Condillac's Cours d'éducation, which had only just appeared.

(2) Roth, XIV, p.173.
(3) Ibid. p.174.
(4) See above, p.232.
(6) Ibid. p.518/1
A year after Diderot had sent the Plan, Catherine had still not read it. Diderot comments wryly in December 1776 to Grimm that he would have made a better job of it if he had hurried less to oblige the Empress:

"Si j'avais porté mon manuscrit sur les écoles publiques à Pétersbourg, il ne serait pas à lire. Si j'avais su, quand je l'écrivais, qu'on n'en était pas pressé, je crois qu'il aurait été un peu mieux fait. Mais heureusement Sa Maj. Imp. entend à demi mot et elle saura bien étendre, raccourcir, supprimer, rectifier. Mon médiocre labeur deviendra merveilleux entre ses mains." (1)

Some time in the summer of 1776 he had revised the Plan. (2)

The next year, writing again to Grimm, Diderot mentions indignantly Catherine's protection of the Jesuits, an attitude which shows clearly that she has not taken to heart Diderot's strictures against the use of priests as teachers which he expressed strongly in the Plan. He complains:

"Nous sommes étrangement scandalisés ici de la protection que l'Impératrice accorde aux Jésuites. Elle en tirera, certainement, autant d'instituteurs qu'elle en voudra. Mais ... mais ... etc. ...

" (3)

Later in the same letter he comments ironically on Catherine's acceptance of the Plan:

"Mon papier sur la fondation d'une grande école publique ne lui a donc pas déplu? Elle y a donc trouvé quelques bonnes vues? C'est un succès fort au-dessus de mes espérances. Un petit philosophe qui rencontre dans son grenier une ou deux idées qui lui sont communes avec une grande souveraine, doit être bien fier; et je le suis." (4)

He must have known by now that Catherine would never use his suggestions.

The manuscript of the Plan in the Leningrad collection is the one used in the edition by Assézat and Tourneux ("Complété d'apres le manuscrit de l'Ermitage.") (5) This is in accord with the autograph manuscript in the Fonds Vandeul, following its corrections and additions, but with some variants and omissions. A whole page is missing at one stage of the Assézat-Tourneux edition. (6) Professor

(1) Roth, XV, p. 27.
(2) Roth, XIV, p. 233.
(3) Roth, XV, p. 61.
(4) Roth, XV, pp. 61-2; 9th June, 1777.
Dieckmann believes that the manuscript in the Fonds Vandeul, comprising Volume XXVIII, represents the whole text of the Plan, as it was before the last pages of the autograph manuscript were lost. (1) Before an analysis of the Plan, the Essai sur les études of Grimm should be examined. It is a far shorter work than Diderot's, a mere sketch, (2) relying heavily on Grimm's praise of the German methods of instruction. He describes the Protestant countries as enlightened and properly educated, while the Catholic nations remain enshrouded in a general barbarism. He begins with the reference, common to the Encyclopedists, to medieval times as the Dark Ages:

"Lorsqu'on jette les yeux sur les progrès de l'esprit humain depuis l'invention de l'imprimerie après cette longue suite de siècles où il est resté enseveli dans les plus profondes ténèbres, on remarque d'abord, qu'après la Renaissance des lettres en Italie, la bonne culture, les meilleures écoles, se sont établies dans les pays protestants, de préférence aux pays qui ont conservé la religion romaine, et qu'elles y ont fait jusqu'à ce jour les progrès les plus sensibles." (3)

France as a Catholic country has suffered from the machinations of the priests in their reaction against the growth of enlightened opinion; the rise of philosophy is due solely to the good influence of English thought:

"Il est clair, pour tous ceux qui ont des yeux, que sans les Anglais, la raison et la philosophie seraient encore dans l'enfance la plus méprisable en France, et que leurs vrais fondateurs parmi nous, Montesquieu et Voltaire, ont été les écoliers et les sectateurs des philosophes et des grands hommes d'Angleterre." (4)

Thus Grimm has no hesitation in advising Catherine to consult scholars

(1) This manuscript in the Fonds Vandeul, in the Bibliothèque nationale (H. a, fr. 13-724) is the one used in the edition of Diderot's Oeuvres complètes, Édition chronologique, Le club français du livre, 1971, ed. R. Lewinter.

There is a manuscript in Moscow, in the Central State Archives of Ancient Acts (Z.G.A.D.A.), a copy of an earlier version of the text, made by Roland Girbal for Catherine II; this is thus the first version, which Diderot sent to Russia with Grimm. This will be utilised by Professor Mortier in his edition of the Plan, which will form part of the collected works of Diderot, to be published by Hermann in Paris.

(2) It occupies only thirteen pages of the Assezat-Tourneux edition.


in Germany, England and Scotland, especially J. A. Ernesti of Leipzig. (1)

The second section of the Essai contains only one sentence:

"On a raison de dire qu'il faut trois sortes d'écoles dans un pays bien policé." (2)

This is apparently directly in reply to Catherine's remark in her letter of the 10th March, 1775, "On me dit qu'il faut trois sortes d'écoles." (3) Grimm now goes on to describe and discuss the state of German education, showing a great familiarity with the details which Tourneux, believing the work to be by Diderot, justifies as being caused by his connection with Grimm, Prince Henry of Prussia, the Nassau-Saarbrucks and other young German friends. (4) It is less difficult to explain away when one accepts the work as by Grimm, who had been educated in Germany. He describes the lower schools, where children are taught the elements of reading, writing and arithmetic. In Germany, even children of the peasants have a good basic education, which the nobility may object to as making it more difficult to oppress the peasants. Grimm, on the contrary, like Diderot, (5) believes that some basic education for all is important for the tranquillity of the state:

"L'assujettissement à l'opération de lire, d'écrire, de calculer, donne une première façon à l'esprit grossier des peuples; dont les suites, pour la police et la stabilité des gouvernements, ne sont pas, peut-être, calculables." (6)

In addition to the elementary religious education available, Grimm suggests a practical instruction and a moral training to make people aware of their rights and duties as citizens:

(1) Diderot, on the other hand, finds fault with the German educational system just as much as the French: "Je ne crois pas que les universités d'Allemagne soient beaucoup mieux ordonnées que les nôtres. La méthode barbare de Wolf y a perdu le bon goût." (Plan, A-T, III, p.436).

(2) Ibid, p.416.

(3) Roth, XIV, p.135.


"Il serait à désirer qu'on eût aussi des catéchismes de morale et de politique, c'est-à-dire des livrets où les premières notions des lois du pays, des devoirs des citoyens, fussent consignées pour l'instruction et l'usage du peuple; et une espèce de catéchisme usuel, qui donnât une idée courte et claire des choses les plus communes de la vie civile, comme des poids et mesures, des différents états et professions, des usages que le dernier d'entre le peuple a intérêt de connaître, etc." (1)

Sections IV and V introduce the upper schools of Germany, the gymnasium, which are free and attended by the children of the nobility and the upper middle classes, who can spare the time for an education instead of going out at once to work. Extra private lessons are available out of school hours. Grimm praises especially public promotion from class to class,

"Qui est excellent pour entretenir l'émulation et enflammer la jeunesse." (2)

Despite Grimm's general approval of the German schools, he joins with the opinion of the times in suggesting more practical subjects than "le latin et un peu de grec," which formed nearly the whole of the syllabus. Like Diderot (3) and D'Alembert, (4) he points out the importance and dignity of the mechanical arts:

"Je pense qu'on devrait donner dans les écoles une idée de toutes les connaissances nécessaires à un citoyen, depuis la législation jusqu'aux arts mécaniques, qui ont tant contribué aux avantages et aux agréments de la société." (5)

Otherwise Grimm has no severe criticism of the German schools, which include some music, history, geography, blazonry,

"une teinture (...) de tout ce qui est nécessaire à un homme qui veut servir sa patrie avec quelque distinction." (6)

Grimm goes on to describe the German university system, beginning with the faculty of philosophy. His criticisms are mild. He suggests a course in mathematics instead of logic and metaphysics, "ces fadasises;"

(2) Ibid. p.420.
(6) Ibid. p.422.
which often teach "à déraisonner méthodiquement." (1) He instructs Catherine on the division of the universities into faculties and chairs, and the use of elementary text-books, taking her modest disclaimers of her ignorance to be true.

("Moi, qui n'ai point étudié et qui n'ai point été à Paris, je n'ai ni science ni esprit, et par conséquent je ne sais point ce qu'il faut apprendre, ni même qu'est-ce qu'on peut apprendre." (2))

He explains that the German universities are responsible directly to the sovereign, not the local authorities, and goes into the award of titles, Rector magnificus, prorector and so on. After furnishing some more details of the German university system, Grimm ends with a recommendation that the faculty of law should be used to form an impartial tribunal to judge difficult cases.

These remarks, forming fifteen divisions, are set down as a brief description of the good points of the system by which Grimm was educated, rather than a serious attempt at creating an educational structure to suit the needs of Russian society. Diderot's Plan, as will be shown, while not attempting to deal with specifically Russian problems, is a collection of fruitful suggestions and careful criticisms of the only educational system he was at all well acquainted with, the French.

The Plan opens with some general reflections on education: Diderot is consistent with his belief represented by his effort in producing the Encyclopédie, his faith in the value to society of an increased education for all its members. In his first section, De l'instruction, he claims that with enlightenment comes social stability as well as the other advantages of civilisation:

"L'instruction adoucit les caractères, éclairé sur les devoirs, subtilise les vices, les étouffe ou les voile, inspire l'amour de l'ordre, de la justice et des vertus, et accélère la naissance du bon goût dans toutes les choses de la vie." (3)

These views he gallantly attributes to Catherine:

"Convaincue de ces vérités, Sa Majesté demande le plan d'une université ou d'une école publique de toutes les sciences."

His aim is to produce a general framework having the greatest possible flexibility:

"Je serai bref. Peu de lignes, mais claires; peu d'idées, mais fécondes, s'il se peut; poser les principes généraux;
où tirer les grandes conséquences et négliger les exceptions; surtout rien de systématique." (1)

In fact, the Plan occupies over a hundred pages in the Assézat-Tourneux edition, and treats the topic in more detail than Diderot here suggests.

Diderot, unlike Grimm, has no recommendations to give of other educationalists' writings, whose views, he complains, lack coherence and are ill-suited to the demands of the time:

"J'ai commencé par m'instruire de ce que les hommes les plus éclairés de ma nation ont, autrefois ou récemment, publié sur cette matière (...) Partout la liaison essentielle des sciences ou ignorée ou négligée." (2)

Diderot's aim, in accord with the growing patriotic aim of educational writers of the 1760s and 1770s, is to provide the ruler with loyal subjects and the country with useful citizens. Society must be furnished with "des particuliers instruits, honnêtes et même aimables", the family with "de bons époux et de bons pères", the republic of letters with "quelques hommes de grand goût", and religion with "des ministres édifiants, éclairés et paisibles." (3)

Although acknowledging the difficulty of such a task, Diderot modestly suggests himself, with his broad knowledge and lack of specialisation, as more suitable than most to write on the topic.

The essential idea of a university, he maintains, is to provide a basic education for all of society, even (indeed especially) its less prosperous members, who will be more grateful for the opportunity. Such a wide system of education, Diderot does not fail to notice, demands an educational method quite different from the private teaching of one or a few pupils. The teacher must proceed at a pace suitable for the average child:

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(1) A-T, III, p.430; "en tirer" (Fonds Vandeul ms.)
(2) Ibid., pp.430-1.
(3) Ibid. p.431.
A young genius may suffer from being held back, but Diderot sees genius as developing by its own impetus, not being inculcated by instruction:

"Mais est-ce qu'on élève le génie? Il suffit que l'éducation ne l'étouffe pas." (1)

Here he stands firm in his belief that genius is innate, a position which he took up in his criticism of Helvétius on the nature of genius. (2)

Diderot's criticisms of the French university system of the time are severe. A Gothic structure founded by Charlemagne, it has remained unenlightened, managing in spite of itself to produce genuinely educated scholars in the centuries following the Middle Ages, dominated by "le goût des futilités scolastiques." (3) The faculty of arts still wastes the students' time, by teaching for literature only Greek and Latin; by teaching an art of "rhetoric" which gives the pupils false confidence; by discussing under the title of logic the subtleties of Aristotle; by ignoring in the teaching of morals the nature of virtue and saying nothing of the qualities of the mind and heart, of passions, vices, virtues, duties, laws or contracts; by arguing on trivial questions in metaphysics; by establishing systems in the teaching of physics. Attention should be given to useful knowledge, Diderot insists, such as natural history, chemistry, "le mouvement et la chute des corps", anatomy, geography and mathematics. Such an appeal was not new; (4) Diderot himself had expressed his dissatisfaction with the educational system in his preface to the Essai sur le mérite et la vertu of 1745. Now, thirty years later, better equipped than most educational writers by his encyclopedic knowledge, he sets out to create a plan. The universities of Germany are barbarous and cannot serve as models; the higher French faculties all need reform. The faculty of law is concerned with futile disputes on points of Roman law. The faculty of theology is a breeding-ground

(2) See above, p. 171-2.
(4) See above, p. 197.
for incredulity and fanaticism. The faculty of medicine is slightly better but must add practical teaching to the theoretical.

There now follow general remarks on the organisation of a public education for Russia. Diderot lays down some basic principles, suitable for all ages and societies. Education must produce both moral and intellectual excellence:

"Le but en sera le même dans tous les siècles: faire des hommes vertueux et éclairés." (1)

It must proceed from the elementary to the difficult, from the essential to the specialised: this is to be the cornerstone of Diderot's method, a principle which he likens a few pages later in a witty simile to the classification of the animals by Buffon, who

"a parlé d'abord du boeuf, l'animal qu'il nous importe le plus de connaître; ensuite du cheval; puis de l'âne, du mulet, du chien; le loup, l'hyène, le tigre, la panthère, occupent d'après sa méthode un rang d'autant plus éloigné dans la science, qu'ils sont plus loin de nous dans la nature, et que nous en avons eu moins d'avantages à tirer ou moins de dommages à craindre." (2)

Any attempt at enlightenment in France has the weight of tradition against it,

"une perpétuité d'ignorance traditionnelle et consacrée par de vieilles institutions". (3)

Studies which were important in medieval times must now be replaced. Catherine is fortunate, on the contrary, in being the initiator of a national university system. Diderot, as he had shown in the Mémoires pour Catherine II, had some knowledge of the schools in Russia and realised the small scale on which educational experiments (mainly unsuccessful) had been made. (4)

He now goes on to discuss the specialisation of studies, using terms which he seems to have taken from the anonymous work De l'éducation publique (1762). (5)

(2) Ibid. p.442; "ou moins d'avantages" (Fonds Vandeul ms.).
(3) Ibid. p.440.
(4) See above, p. 247.
(5) See above, p. 215.
"Il y a deux sortes de connaissances:" he writes, "les unes que j’appellerai essentielles ou primitives, les autres que j’appellerai secondaires ou de convenance. Les primitives sont de tous les états; si on ne les acquiert pas dans la jeunesse, il faudra les acquérir dans un âge plus avancé, sous peine de se tromper ou d’appeler à tout moment un secours étranger.

Les secondaires ne sont propres qu’à l’état qu’on a choisi." (1)

Diderot points out that by demanding a knowledge of the classics as a "connaissance essentielle" the schools are not producing people suited to the society of the time, but announcing "le projet de peupler une nation de rhéteurs, de prêtres, de moines, de philosophes, de jurisconsultes et de médecins." (2)

Diderot’s plan of education will initiate pupils into the elements of a wide variety of connaissances, to equip them to go on to specialise in whatever subject they choose. He rebuts the accusation that he is forming superficial minds. He is avoiding the formation of pedants: the pupils will be careful not to regard themselves as authorities in one field, but capable of following a discussion on any number of things.

Diderot divides each subject into three parts, the érudition or history of its progress, the théorie or principle and the pratique or useful application. This division too had appeared in De l’éducation publique, where the author used it as a basis for his arrangement of subject-matter. (3) Diderot does not expand on it, but goes on to insist on the liaison of all subjects among themselves. He feels that the arrangement of subjects in the Encyclopédie, excellent as it was for such a vast work, would be quite unsuitable for a course of lessons. Thus he will not go back to the encyclopedic division into memory, reason and imagination, but will suggest a development of learning based on a criterion of general utility. The structure of his Plan he now lays down as follows:

(1) A-T, III, p. 443.
(2) Ibid. p. 444.
(3) See above, p. 216-7.
"J'exposerai l'ordre selon lequel j'estime que les sciences devraient être enseignées dans une école publique. J'en donnerai le plan aussi vaste qu'il peut l'être; je circonscrirai ce plan dans les limites ordinaires et d'usage; je présenterai le tableau de l'un et de l'autre." (1)

He assumes that the pupils to be admitted will have a basic grasp of reading, writing, spelling and arithmetic. This resembles a passage in De l'éducation publique. (2)

These remarks of Diderot's, preliminary to the actual details of the plan, are a good indication of his views on education, and particularly on the faults of the French system. Although he tends to return to topics as they occur to him, as if he had not arranged his notes in any strict order, he never loses sight of his twin aim of a moral training to benefit society, and an intellectual education to equip the pupil for a useful career in later life.

Diderot presents his plan in schematic form according to classes, then going on to elaborate on each subject. His general plan (3) has to be abridged for practical reasons into a shorter plan. (4) He does not include music, dancing, fencing or riding, the subjects taught in Paris at the "Academies" after a boy left school, nor political science, agriculture or commerce, although he says that these last two especially are of importance. He omits military and naval training because, he says, these are already taught in special institutions in Russia.

He follows the traditional division of the university course into four faculties; all pupils join the Arts Faculty (the preliminary, begun at the age of thirteen and equivalent to the modern secondary school), and after seven or eight years they choose between Law, Medicine and Theology.

The Arts classes consist of three courses, to be followed side-by-side, one to provide a general education, the other two to instil more specialised knowledge and give moral training. Diderot recommends text-books for each subject; sometimes the titles or spelling are inaccurate, but they are always identifiable.

(2) See above, p. 217.
The first course, which takes place in the morning, consists of eight classes. First of all, there is an introduction to the elements of mathematics — arithmetic, algebra, geometry and the theory of probability. Diderot had obviously not lost his early interest in mathematics, despite his warnings in the *Pensées sur l'interprétation de la nature* against a strict adherence to the geometric deductive method. (1) Young pupils are more capable of learning geometric symbols than the letters of the alphabet, he says, (2) giving examples of child prodigies with a phenomenal grasp of mathematics. Even for ordinary children, Diderot sees the subject as a valuable introduction to right thinking in all matters:

"On ne peut commencer trop tôt à rectifier l'esprit de l'homme, en le meublant de modèles de raisonnement de la première évidence et de la vérité la plus rigoureuse. C'est à ces modèles que l'enfant comparera dans la suite tous ceux qu'on lui fera, et dont il aura à apprécier la force ou la faiblesse, en quelque matière que ce soit." (3)

An acquaintance with geometry should teach people to shake off superstition:

"[La géométrie] est la lime sourde de tous les préjugés populaires, de quelque espèce qu'ils soient (...) Un peuple est-il ignorant et superstitieux? Apprenez aux enfants de la géométrie et vous verrez avec le temps l'effet de cette science." (4)

Without claiming the superiority of mathematics for solving all problems, Diderot sees it as an aid even to creative work, instead of as a dry subject. It is "la boussole d'un bon esprit, c'est le frein de l'imagination." Another section of mathematics, the theory of probability, serves a philosophical purpose by teaching the pupil not to expect things too confidently:

"C'est elle [la science des probabilités] qui indique le parti le plus sûr ou le moins incertain, et qui console lorsque l'événement ne répond pas à une attente bien fondée. Toute notre vie n'est qu'un jeu de hasard; tâchons d'avoir la chance pour nous." (5)

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(1) *Pensées sur l'interprétation de la nature*, 1753, III.
(2) A-T, III, p.453.
(3) Ibid. p.454.
(4) Ibid. p.454.
(5) Ibid. p.456.
For text-books Diderot strongly recommends works by D.-F. Rivard [1697-1778], his Éléments de géométrie [Paris, 1732] and his Éléments d'algèbre [Paris, 1746]. (1) He also mentions Clairaut, [A.-C. Clairaut, 1713-1765], his Éléments d'algèbre, [Paris, 1746] and his Éléments de géométrie [Paris, 1741].

Diderot attributes to Huygens an Art de conjecturer. This is actually by Jacques Bernouilli [1654-1705]; Jacobi Bernoulli Ars conjectandi, opera posthuma Basle, 1713. Bernouilli included the De ratio ciniis in ludo aleae [1657] by Christian Huygens [1629-1695] in this edition.


Also mentioned is the Analyse des jeux de hasard, by "Montmaur". Diderot is actually referring to the mathematician Pierre Rémond de Montmort [1678-1719] who published in 1708 in Paris the Essai d'analyse sur les jeux de hasard.

The subject of the second class is what we would now call physics or applied mathematics: the laws of motion, mechanics and hydraulics. Here Diderot shows the strongly practical bias of his Plan, which is to equip people to work usefully in society. Perhaps, besides following his own preference, he was also aware that previous Russian plans had sought to build up technical knowledge in emulation of Western society. (2) He suggests the Introduction à la vraie physique by Keill [John Keill, 1671-1721, Scottish mathematician. His Introductio ad veram physicam appeared in 1700]. He also mentions the Principes de mécanique, by Varignon. [Pierre Varignon, 1654-1722. His works are actually entitled Projet d'une nouvelle mécanique, Paris, 1687 and Nouvelle mécanique ou statique, Paris, 1725]. He mentions Newton, D'Alambert's Dynamique [1743] and Traité de l'équilibre et du mouvement des fluides [1744], which Diderot merely refers to as the Éléments d'Hydraulique. D'Alambert's Essai sur la nouvelle théorie de la résistance des fluides [1752] he calls his

(1) See above, p. 230.
(2) See above, p. 236.
Hydrodynamique. Diderot recommends Pascal's *Traité de l'équilibre des fluides* [Paris, 1663] and Mariotte's *Hydraulique* [actually *Traité du mouvement des eaux et des autres corps fluides*, Paris, 1686]. Also Trabaud's *Éléments de mécanique* [Actually *Principes sur le mouvement et l'équilibre*, Paris, 1741]. However, he suggests that the teachers themselves should find out the best textbooks: "La bibliographie est une partie de la science du professeur."

The third class deals with another subject holding both practical and moral application, astronomy. The specialist such as the navigator needs to know the movements of the heavenly bodies. So should any well-educated person, for the purposes of travel, or even just so that he can appreciate the beauties of the heavens ("l'œuvre principale du Créateur") and, more important to Diderot, the ingenuity of modern man:

"Si le Créateur n'a marqué plus fortement nulle part la grandeur de sa puissance que dans l'ordonnance des cieux, l'homme n'a marqué nulle part plus fortement l'étendue de son esprit que dans le progrès de l'astronomie." (2)

Nevertheless Diderot concedes that he may have been influenced more by the way astronomy fits into the order of subjects, than by a strict regard for utility. The classes are flexible and may be omitted at the teacher's discretion.

As textbooks he mentions again Rivard [ *Traité de la sphère et du calendrier*, 1741] and Keill [ *Introductio ad veram astronomiam*, 1718, which was translated by Lemonnier in 1746 as the *Institutions astronomiques*]. Bion's *Traité des globes* is probably the *Usages des globes célestes et terrestres et des sphères, suivant les différents systèmes du monde*, [1699] by Nicolas Bion [died 1733].

He refers to Gregory's *Institutions astronomiques*, which had actually been written in Latin by the Scottish mathematician David Gregory [1661-1703; *Astronomiae physicae et geometricae elementa*, Oxford, 1702]. Any good abridgement of Newton's writings should be used.

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(2) Ibid. p.459.
He mentions "L'astronomie de Deslandes", apparently meaning the Traité d'astronomie [Paris, 1764] by J.-J. L. de Lalande [1732-1807].

Diderot reveals that he had had a hand in the Gnomonique of Déparcieux [The Traité de trigonométrie et de gnomonique, Paris, 1741, by the mathematician Antoine Déparcieux, 1703-1768]:

"la formule générale et les tables sont de moi, comme l'auteur a eu l'honnêteté d'en convenir." (1)

In fact there seems to be no acknowledgement in the book of Diderot's part of the work.

With the fourth class Diderot enters into another field which held a fascination for him, natural history and experimental physics. He points out that these are especially suited to the lively curiosity of the child. Again Diderot seems to be too hurried to give anything more precise than some tentative suggestions for text-books. Most of the works he recommends, he complains, should be improved on, being either too long or badly arranged. By Bomare's Dictionnaires he means the Dictionnaire raisonné, universel d'histoire naturelle, [Paris, 1765], by the French naturalist J.-C. Valmont de Bomare [1731-1807]. He suggests that D'Aubenton [L.-J.-M. D'Aubenton, naturalist and anatomist, 1716-1800] should be commissioned to prepare a text-book on natural history. Diderot recommends the Mémoire instructif sur la manière de rassembler, de conserver et d'envoyer les diverses curiosités d'histoire naturelle, [Lyon, 1758] by Étienne-François Turgot [1721-1789], the brother of the comptroller general.

Buffon's abridgement of his Histoire naturelle [1749], he says, is still too long. Diderot suggests a new, improved edition of the two Dictionaries of Lémery [Nicolas Lémery, 1645-1715] whose works are actually entitled Cours de chimie, [Paris, 1701] and the Traité universel des drogues simples, [Paris, 1714]. He also prescribes Linnaeus's Systema naturae [1735]. The Institutions de botanique by Tournefort which he mentions are in fact the Éléments de botanique [Paris, 1694] by Joseph Pitton de Tournefort, the botanist [1656-1708].

He mentions, although not by name, the numerous mineralogists who have written in German and been translated into French [by D'Holbach].

The only mineralogist he mentions especially is the Swedish chemist J. Wallerius or Vallerius, [1709-1785], whose Mineralogia systematica proposita appeared in Stockholm in 1747 and 1748 and was translated by D'Holbach [Paris, 1753].

For experimental physics Diderot suggests the Cours of the Abbé Nollet [J.-A. Nollet, 1700-1770, Lecons de physique expérimentale, Paris, 1743], Muschenbroeck's works [P. Muschenbroeck, Dutch biologist, 1692-1761, Introduc提问 ad rhizosohiam naturalem, 1726, translated by Sigaud de Lafond in 1769 under the title Cours de physique expérimentale et mathématique]. By Hales's Traité Diderot seems to mean the Vegetable Staticks [London 1727] and the Statical Essays [London 1733] by the Englishman Stephen Hales [1677-1761], translated by Buffon [Paris, 1735]. Diderot also mentions Newton's Optics, but concludes this section with a warning that his knowledge is limited:

"J'essauche, j'indique les sources où mes maîtres ont puisé, où j'ai puisé après eux. Beaucoup d'autres plus limpides et plus abondantes peuvent m'être inconnues." (1)

The fifth class forms an introduction to chemistry and anatomy. Chemistry appealed to Diderot for its exploration into the secrets of nature, which he had attempted in the Pensées sur l'interprétation de la nature. Here he explains its fascination:

"Rien n'est simple dans la nature, la chimie analyse, compose, décompose; c'est la rivale du grand ouvrier." (1)

Diderot mentions, without specifying, the large number of works on elementary chemistry in both French and German. What should be done, he continues, is to use the notes of Rouelle [G. F. Rouelle, 1703-1770, the famous chemist], edited by his brother [H.-L. Rouelle, 1718-1777] and Jean Darce (1725-1801).

For anatomy he mentions Kulm's Anatomie [J.-A. Kulm, German anatomist, 1680-1745; his works were translated into French in 1734 by P. Massuet under the title Tableaux d'anatomie]. A better guide is Heister's Anatomie [actually the Compendium anatomicum, Altorf, 1717 by the German doctor L. Heister, 1683-1758, translated by J.-B. Séna, Paris, 1735].

Haller's Physiology should be used by the teacher, and his Lineaments de physiologie \[Prima lineae physiologiae, Goettingue, 1747\] by the pupils.

Logic and the principles of grammar are the subjects of Diderot's sixth class. Logic enables the pupil to avoid error and prejudice in his search for the truth, to apply a critical judgement to the evidence of different authorities. This leads to an intelligent study of history and literature. (1) The principles of grammar are to be a preparation for the study of foreign languages. Diderot, however, does not insist on this order of study; he concedes that it may be better that the pupil should be acquainted with some language, ancient or modern, other than his own, for the purposes of comparison. Nevertheless, his sense of orderliness conflicts with his fondness for the inductive method: he suggests that, because of his close association with logic, the study of the principles of grammar is appropriate here.

For logic he names the Logique of Port-Royal, an abridgement of Locke's Essay Concerning Human Understanding [probably the Abrégé de l'essai de Monsieur Locke sur l'entendement humain, by J.-P. Bosset, which first appeared in 1738 and had just been reprinted in Amsterdam, 1774]. Diderot also mentions Malebranche's Recherche de la vérité, Descartes's Discours sur la méthode, and "l'ouvrage de Crouzas". \[Jean-Pierre de Crousaz, not Crouzas, 1663-1750, whose Système de réflexions appeared in Amsterdam in 1712\]. His praise goes out to Hobbes's Human Nature, which he speaks of as an "ouvrage court et profond (...) un chef-d'œuvre de logique et de raison." (2) This remark reflects his change of attitude towards Hobbes. From his disapproval of the Hobbiste in the Suite de l'apologie de l'abbé de Prades (1752) he had moved to admiration of, if not direct acquaintance with, Hobbes's works, as he showed in the article Hobbiste. (3)

For literary criticism Diderot recommends "l'ouvrage de Le Clerc" \[Jean Le Clerc, Ars critica, 1657-1736, Ars critica, Amsterdam, 1697\].

As for the principles of grammar, Diderot finds nothing completely

(2) Ibid. p.466.
satisfactory, and suggests that the task should be undertaken by someone like Gébelin [Antoine Court de Gébelin, 1725-1784, whose Le monde primitif analysé et comparé avec le monde moderne had begun to be published in Paris in 1773 and was to continue until 1784]. Diderot finds the Port-Royal grammar superficial, although he recommends as a guide the edition of Duclos [Remarques sur la grammaire générale et raisonnée de Port-Royal, 1754]. He also considers useful Damarsais's Troes [Traité des troes, ou des différents sens dans lesquels on peut prendre un mot dans une même langue, Paris, 1730]. He adds that De Brosses's work on the origin and formation of languages is excellent [Charles de Brosses, first president of the parlement of Burgundy, 1709-1777, Traité de la formation mécanique des langues et des principes physiques de l'étymologie, Paris, 1765]. Beauzée's Grammaire française lacks clarity and taste, Diderot continues [Nicolas Beauzée, 1717-1789, author of a Grammaire générale, Paris, 1767]. The Abbé Girard's Grammaire [Gabriel Girard, 1677-1748, Vrais principes de la langue française, Paris, 1747] vacillates between preciseness and an elegant style, but his Synonymes [Synonymes français, Paris, 1736] are excellent.

Diderot has no precise recommendations for the seventh class, Russian and the other Slavonic languages, which he says are unknown to him. He had in fact tried to study Russian on his journey to Russia, and according to V. Chuchmarev had acquired a good knowledge of written Russian. (1) It is surprising that he nowhere includes a study of any other modern language. Although it would not be necessary for Russian artisans, French was still the language of polite society, and Diderot's aim is to provide a course of study for des gens de bien as well as des savants. (2)

Diderot now devotes a long discussion to the necessity of teaching classical languages and literature; the section on this eighth class occupies more space than all the preceding seven. He develops the discussion into a dialogue, a form which suited his lack of dogmatism. Educated himself under the Jesuits, who devoted a great proportion of the time to the study of Latin, and imbued with a great love for

(2) A-T, III, p.488.
classical literature, Diderot could nevertheless see that for many, differing from him in interests and the careers they were to pursue, such a concentration could seem entirely useless. He has himself set out to create a practical plan, to avoid producing the "priests, monks, poets and orators" (1) of previous systems; he is thus understandably anxious to justify his retention of Greek and Latin. He opens with a defense of the arts as preserving all that is most noble in civilization:

"La gloire littéraire est le fondement de toutes les autres; les grandes actions tombent dans l'oubli ou dégénèrent en fables extravagantes, sans un historien fidèle qui les raconte, un grand orateur qui les préconise, un poète sacré qui les chante, ou des arts plastiques qui les représentent à nos yeux." (2)

Yet he accepts that practical action is necessary before deeds can be celebrated:

"Cependant il y a bien de la différence entre celui qui agit et celui qui parle, entre le héros et celui qui le chante: si le premier n'avait pas été, l'autre n'aurait rien à dire." (3)

A small number of artists only in society is necessary, and being naturally gifted they do not need extensive education. What must be remembered, however, is their great power for good or evil influence in the field of morals. Young children must not be exposed to moral corruption. For this reason Diderot suggests that the study of classical literature should be delayed until the eighth class, when the pupils have been trained in logic and right thinking. Those who introduce the classics at an early age, he says, justify themselves by three reasons. Firstly, they wish the children to start learning the language at the age when they have a great capacity for mechanical learning; secondly, such learning develops the powers of the memory; thirdly, they consider children incapable of learning in any other way. He answers the second and third points: there are other and better ways of exercising the memory - chronology, geography and history - and children are capable of more than rote-learning and may well take an interest in useful subjects such as arithmetic, geometry

(2) Ibid. p.468.
(3) Ibid; "n'aurait eu" (Fonds Vandeul ms.).
and history. Anyway, Diderot sees classical studies in quite a different light from those who consider them as suitable for young children. The study of language is extremely difficult even for the experts:

"Je ne connais pas de science plus épineuse; c'est l'application continuelle d'une logique très fine, d'une métaphysique subtile, que je ne crois pas seulement supérieure à la capacité de l'enfance, mais encore à l'intelligence de la généralité des hommes faits." (1)

At the age of eighteen, properly trained pupils will pick up the principles of language in a short time, whereas those who are forced to spend years on the study of Latin grammar forget anything they may have learnt as soon as they leave school and become merchants, soldiers, courtiers and lawyers.

The content as well as the language of the classical authors should not be dealt with too early, because, even by reading expurgated editions, they may absorb wrong principles:

"le préservatif des moeurs, à l'aide des éditions mutilées, me paraît insuffisant, si à chaque ligne le maître ne fait pas sentir le Vice d'un caractère, le danger d'une maxime, l'atrocité ou la malhonnêteté d'une action." (2)

Latin and Greek are no longer essential for one to excel in the law and medicine, because the classical works have been translated.

Nevertheless, since Latin and Greek are of great value for a small number of people, Diderot sees fit to discuss the best methods of teaching them. Here he gives far more useful and detailed suggestions than elsewhere in the Plan. The traditional method, supported by Dumarsais and others, is of translation of the great authors:

"D'accord, says Diderot, il faut traduire. Et composer?
- Gardez-vous-en bien.
- Et pourquoi?
- C'est que vous doubleriez votre peine, et qu'à la perte du temps, vous a-jouteriez celle du goût, en vous accoutumant à des tours viciés et barbares." (3)

Diderot, however, insists on both translation from the original, la version, and composition in Latin and Greek, le thème. In this way, the pupil will gain an active knowledge of the language:

(1) A-T, III, p.470; "si subtile" (Fonds Vandeul ms.).
(2) Ibid. p.471.
"Quand on compose on feuillette à la vérité le dictionnaire de sa propre langue, mais c'est pour y chercher l'expression correspondante dans la langue étrangère; c'est cette expression qu'on lit, c'est cette expression qu'on écrit, c'est à la syntaxe de cette langue étrangère qu'on l'assujettit." (1)

Diderot recommends separate dictionaries for pupils and teachers. For the pupils, Boudot's dictionary is suitable. Jean Boudot, d.1706, *Dictionarium universale latino-callicum, 1704*. For the pupils, the Grand dictionnaire latin of Estienne Charles Estienne, d.1564, *Dictionarium latino-callicum, Paris, 1570*. The pupils can use Clénart's *Grammaire* [Nicolas Clénard or Kleinarts, German scholar, 1495-1542, published his *Institutiones linguae graecae* in Louvain, 1530. The German writer G. J. Vossius, 1577-1649, edited it in 1632.]

It is this edition which Diderot recommends. Diderot also recommends the Racines precuæs of Port-Royal, and for the teacher the Port-Royal grammar and a grammar by Antisignanus [Pierre Antesignan, sixteenth-century French scholar, who had contributed to Clénart's *Institutiones*]. Diderot also suggests J. Scapula's dictionary [*Lexicon graeco-latinum*, Basle, 1579, by the sixteenth-century German lexicographer]. Estienne's *Grand dictionnaire precæ* [Paris, 1554] is also mentioned. There is the Minerve of Sanctius [Francisco Sanchez, Spanish grammarian, 1523-1601, author of *Minerva, seu de causis linguae latinae*, Salamanca, 1587].

Diderot advises Catherine to embark on the huge task of commissioning the printing of the best editions of the ancients:

"Une société de savants consacrés à ce travail serait bien moins dispéndieuse et beaucoup plus nécessaire qu'une Académie, car c'est ainsi que peu à peu on ferait naître l'art de l'imprimerie et le commerce de la librairie." (2)

For the development of literary taste, Diderot considers a wide reading of Latin and Greek to be the best method. Although he appreciated the advances of the moderns, he had a great admiration for the excellence of ancient literature. He makes a personal reference to his fondness for reading:

"J'ai suçu de bonne heure le lait d'Homère, de Virgile, d'Horace, de Térence, d'Anacreon, de Platon, d'Euripide, coupé avec celui de Moïse et des prophètes." (3)

He now goes on to set out his opinion on the classical authors, in a

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(1) A-T, III, p.475; "s'assujettit" (Fonds Vandeul ms.).
(2) Ibid. p.477.
(3) Ibid. p.478.
passage which Guizot found too superficial and inaccurate to reproduce. Tourneux, on the other hand, finds that it contains "beaucoup plus de vérités que d'erreurs" and is inadequate as a sketch. (1) Diderot comments briefly on notable authors, following a roughly chronological order. His love for Greek literature is exceptional enough in an eighteenth-century writer to have provoked R. Trousson's study Diderot et l'antiquité grecque. (2) Trousson concludes that Diderot was certainly well-versed in Greek language and literature:

"Une solide éducation d'helléniste, renforcée par des études personnelles, avait certainement fait de Diderot un homme capable de manier le grec avec une relative aisance, sinon un érudit au fait de toutes les nuances de la grammaire et de la syntaxe." (3)

In two sections entitled Caractère des auteurs grecs and Caractère des auteurs latins Diderot brings his appreciation of classical literature into play. The great historians, orators and philosophers, Herodotus, Thucydides, Isocrates, Xenophon, Epictetus, Flutarch, Demosthenes, Polybius, Diodorus, Dionysius of Halicarnassus, are all awarded a short paragraph. Lesser authors he merely mentions, mixing Latin authors with the Greek in a passage which seems to have been hastily written: Philo, Josephus, Appian of Alexandria, Appian of Nicomedia, Diogenes Laertius, Polyaeus, Pausanias, Flavius Philostratus [actually the author of both works which Diderot attributes to two different Philostrates], Cassius Dionysius, Herodian, Zeaimus, Procopius, Agathias, Aelianus, Julius Capitolinus, Vopiscus, Aurelius Verus, Aurelius Victor, Eutropius, Ammianus Marcellinus, Julius Solinus. The last seven of the list are Latin writers. Lucian and Flato are to Diderot's taste, but from the point of view of the moralist Diderot condemns them as unsuitable for schoolboys.

He praises the poets, Homer, Hesiod, Anacreon, and Pindar; the tragedians Sophocles, Aeschylus and Euripides are also mentioned as well worth studying, but Diderot admits that it requires years of work before one can appreciate them to the full.

A deep acquaintance with the works of Aristophanes is essential to the knowledge of Greek, Diderot continues, but he is not always suitable:

(3) Ibid. p.217.
"Son élévation et son obscénité le qualifiaient alternativement le poète des hommes de goût et de la canaille." (1)

Theocritus too is "plein de peintures licencieuses," while Bion and Moschus resemble him. Diderot concludes this section with a brief tribute to Callimachus:

"Celui qui ne sent ni la simplicité ni l'élégance des hymnes de Callimaque ne sent rien." (2)

Diderot's survey of the Latin authors is even more compressed. He points out the difficulties caused by the inversion used in both Greek and Latin, so complex sometimes that he admits: "Je ne sais même comment le peuple romain l'entendait." This was a topic he had covered more fully in his speculations on the origins of language in the Lettre sur les sourds et les muets. (3) He recommends Cicero, Caesar and Sallust especially. He lists other authors in a sketchy fashion, pouring out ideas pell-mell as they come to him: Cornelius Nepos, Livy, Velleius Paterculus, Valerius Maximus, Seneca, Pomponius Lela, Columella, Quintus Curtius, Pliny, Tacitus, Quintilian, Frontinus, Vegetius, Pliny the Younger, Florus, Suetonius, Justinus, Trogus Pompeius, Virgil, Horace, Ovid, Catullus, Tibullus, Propertius, Juvenal, Martial, Petronius, Plautus and Terence.

There now follows a list of the classical works in the order in which they should be studied. The Assézat-Tourneux edition omitted this passage, probably by an oversight, as is shown by its inclusion by P. Liublinskii (4) who also worked from the manuscript in the Ermitage collection. The passage is also present in the manuscript from the Fonds Vandeul. (5) Diderot enumerates five stages: firstly, Cicero's Ad Familiares and a selection of Phaedrus's Fables and Cato's Disticha; secondly, Cicero's Ad Quintum fratrem and Somnium Scipionis, Virgil's Bucolics and Georgics, and in Greek Aesop's Fables, Epictetus's Maxima and the Tablet by Cebes; thirdly, Quintus Curtius, Justinian, Caesar, the Aeneid, Cicero's De Officiis, De Amore, De Senectute, the Tristia and the Metamorphoses of Ovid, and in Greek Isocrates,

(1) A-T, III, p.482; "le qualifient" (Fonds Vandeul ms.).
(2) Ibid.
(3) 1750.
(4) Deni Dido, Sobranie sochinenii, Moscow-Leningrad, 1947, Vol.X.
Lucian, Hesiod, some of Plato's dialogues; fourthly Cicero's De Natura Deorum and De Divinatione, Caesar, Sallust, Florus, Horace, and in Greek Theophrastus and Homer; fifthly Cicero's Orations, Pliny the Younger's letters, some of Pliny the Naturalist's writings, Velleius Paterculus, Suetonius, Juvenal, Persius, Martial, and in Greek Homer, Demosthenes, Plutarch, Sophocles, Euripides and Aeschylus. This is an enormous reading list for a life-time, let alone for a few years at school.

The order of studies has thus been arranged by Diderot in such a way as to introduce the pupil to classical literature without spoiling his aesthetic appreciation of the works. Fully versed in the writings of the Ancients, those few who are suitably talented may then go on to create their own works of art, to become orators and poets. Diderot here shows the position he has reached in his aesthetic theories. Art is the imitation of the beauties of nature - this is a point which Diderot had maintained early, in his article Beau. Later, in the Salons, he had given up the neo-classical notions he had retained in Beau and replaced the idea of form by the idea of nature. His naturalistic philosophy being built on the unity of all things in nature, (1) Diderot requires art to imitate the beauties of nature: it is only when man intervenes that disproportion is caused. Beauty is not absolute but depends on the surroundings, and what is beautiful in one setting may, by the action of man, lose its beauty. This is all that is left in Diderot's later writings of the neo-classical notion of convenance. In the Plan he expresses it thus:

"Ici, la même nature est belle; là, elle est laide. L'arbre qui est beau dans l'avenue d'un château, n'est pas beau à l'entrée d'une chaumière, et réciproquement. Entre les arbres à placer dans l'avenue du château et à la porte de la chaumière, il y a encore du choix." (2)

Both eloquence and poetry have their own truth, different from the simple imitation of nature:

"L'histoire se conforme rigoureusement à la vérité, l'éloquence l'embellit et la colore. La poésie, plus soucieuse de la vraisemblance que de la vérité, l'agrandit en l'exagérant." (3)

Diderot suggests text-books on aesthetics and style. There are the

(1) See above, p. 111.
(3) Ibid. p.486.
Beaux-arts réduits à un même principe [Paris, 1746] and the Cours de belles-lettres [1769] by the abbé Batteux [Charles Batteux, 1713-1780]; Longinus's treatise On the Sublime; the Réflexions sur la poésie et sur la peinture [1719] by the abbe Dubos [Jean-Baptiste Dubos, 1670-1742]. Diderot especially favours the work by Dionysius of Halicarnassus on the arrangement of words, which he gives by the title of its French translation by the abbé Batteux, Traité de l'arrangement des mots. Since this did not appear until after the abbé's death, in 1788, and since there is no record of earlier translation, Diderot may have heard of or seen the book in manuscript form. He also recommends Quintilian's Institutio Cratoria, part of Rollin's Traité des études [Paris, 1726-8], Cicero's De Cratere, Aristotle's Poetica and Horace's Ars Poetica. But the best way of forming the taste for good literature is the study of the actual works of the ancients and the moderns, with an intelligent teacher. All the genres must be studied:

"Il traitera de l'invention, de l'élocution ou du style, du style historique, du style oratoire, du style didactique, du style épistolaire; des différentes parties de l'oraison (...) de la poésie dramatique (...) de la chanson ou vaudeville et de l'épitaphe." (1)

The teacher will point out the qualities of Plautus, Terence, Lucretius, Virgil, Horace, Tibullus, Catullus, Propertius, Ovid, Phaedrus, Lucian, Seneca, Persius, Silius Italicus, Statius, Martial, Juvenal and Claudian. The pupils' taste once developed, they can judge classical authors with as much impartiality as they can the moderns:

"Je ne veux ni un sec et triste détracteur des Anciens, ni un sat admirateur de leurs défauts. Ce que je viens de prescrire sur les poètes latins, il faut l'entendre des orateurs, des historiens, de tous les auteurs en tout genre et en quelque langue que ce soit, ancienne ou moderne, nationale ou étrangère." (2)

The second of Diderot's three arts courses undertakes the moral education of the pupils. It consists of lessons in the evenings, and is to run parallel with the first class, delving more deeply into the important subjects of morals, duties and virtue, humanity, good faith and justice.

The first class of the second course deals with metaphysics and religion. Diderot acquiesces to Catherine's belief that the established

(2) Ibid. p. 488.
religion ensures the stability of the state, but his arguments to the contrary are far more eloquent. He refers to Bayle,

"qui prétend qu'une société d'athées peut être aussi ordonnée (1) qu'une société de déistes, mieux qu'une société de superstitieux."

to Flutarch, who considers that

"la superstition est plus dangereuse dans ses effets et plus injurieuse à Dieu que l'incréduité."

to Hobbes, who defines religion as a superstition authorised by the law, and superstition as a religion forbidden by the law. He continues,

"elle [Catherine] est persuadée que la somme des petits biens journaliers que la croyance produit dans tous les États compense la somme des maux occasionnés entre les citoyens par les sectes et entre les nations par l'intolérance, espèce de fureur maniaque à laquelle il n'y a point de remède."

Diderot makes no further comments, but he has made it obvious that on this point his sympathy does not lie with Catherine. He makes a half-hearted attempt to conform to her approval of religion by suggesting a demonstration of such theological topics as

"la distinction des deux substances, l'existence de Dieu, l'immortalité de l'âme, et la certitude d'une vie à venir " (2),

but he continually returns to his own form of morals, based on the equation of virtue with happiness and depending not at all on revealed religion.

"On pourrait terminer ces leçons, he continues, par une démonstration rigoureuse, qu'à tout prendre, il n'y a rien de mieux à faire pour son bonheur en ce monde, que d'être un homme de bien, ou par un parallèle des inconvénients du vice, ou même de ses avantages avec ceux de la vertu."

A practical training for citizenship is also necessary - a course in économique (a word which Diderot uses as referring to a domestic economy, the art of running a household.) Also the teacher must mention agriculture, which Diderot considered to be the source of all wealth.


(1) "aussi bien ordonnée" (Fonds Vandeul ms.).
(2) A-T, III, p.490; "d'un Dieu" (Fonds Vandeul ms.).
of the Old and New Testaments; Fleury's *Petit catéchisme* [1697, Paris] and his *Grand catéchisme*; the works of Abbadie [Protestant theologian, 1654-1727]; Puffendorf's *De Officio Hominis ac civis libri* [1673, translated by Barbeyrac in 1715 as the *Devoirs de l'homme et du citoyen*]; and Burlamaqui's *Traité* [Eléments du droit naturel, Lausanne, 1774].

Diderot also mentions a work by Hobbes, *Devoirs de l'homme et du citoyen*, but it is uncertain which book he is referring to; there is no trace of a French translation under this title. There are general moral works to be studied such as those by Montaigne and Nicole. He also recommends highly Hutcheson's *Philosophiae Moralis Institutio Compendiaria* [Glasgow, 1742]. Xenophon's writings on economics are also adequate.

The second class deals with history, mythology, geography and chronology. For the teaching of history, Diderot follows his general principle ("Procéder de la chose facile à la chose difficile") by suggesting a procedure from recent history back to ancient times. In this way, he says, the class moves from familiar facts back to the unfamiliar. History should be taught at a later stage than morals, so that moral precepts can be applied to the historical texts. For textbooks he advises the teacher to use Langlet du Fresnoy's *Introduction à l'histoire* [Nicolas Langlet du Fresnoy, 1674-1755]. Diderot is probably referring to his *Méthode pour étudier l'histoire*, 1713, or his *Principes de l'histoire pour l'éducation de la jeunesse*, 1736; the Abbé Millot's *Histoire ancienne* [C.-F.-X., Millot, 1726-1785, author of *Eléments d'histoire générale ancienne et moderne*, Paris, 1772, and *Eléments de l'histoire de France*, Paris, 1767-9]; and Cordillac's *Abrége d'histoire universelle* in his *Cours d'éducation* [1775].

Mythology he sees as an essential part of the education:

"Sans la mythologie, on n'entend rien aux auteurs anciens, aux monuments, ni à la peinture, ni à la sculpture, même modernes, qui se sont épuisées à remettre sous nos yeux les vices des dieux du paganisme, au lieu de nous représenter les grands hommes." (1)

There are plenty of text-books on the subject, Diderot continues, such as the works of the Abbé Banier [Antoine Banier, 1675-1741], author of *La mythologie et les fables expliquées par l'histoire*, Paris,

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1738] and the Abbé Fluche's *Histoire du cieI* [Paris, 1739].

Geography and chronology are necessary for a proper acquaintance with history; they are "les deux yeux de l'histoire." Instead of dry facts, Diderot encourages the elaboration on "les religions, les lois, les mœurs, les usages bizarres [1] les productions naturelles et les ouvrages d'art."

Ancient and modern geography should be compared. For geography a globe, spheres and an atlas are needed, as well as works by Strabo, Ptolemy, Pompomius Mela, Cluvier [German writer, 1580-1623, author of *Italia antiqua*, Leyde, 1624, and *Introductio in universam geographiam tarn veterem quam novam*, Leyde, 1629]; Cellarius [German philologue, 1633-1707, who wrote *Notitia orbis antiqui*, Leipzig 1701]; and D'Anville [Jean-Baptiste Bourgnion D'Anville, 1697-1782, author of *Géographie ancienne*, Paris, 1769]. The best book for chronology Diderot believes to be Petau's *Rationarium temporum* [1633-4, by the Jesuit Denis Petau, 1583-1682]. Diderot also approves of Condillac's *Eléments du commerce considéré relativement au gouvernement* [1776], "un ouvrage clair, simple et précis."

The third course, which is to be parallel with the second, Diderot treats of quite summarily in a couple of pages. It consists of one class, perspective and drawing and the elements of architecture.

Diderot mentions the works of Brooke Taylor [English artist and mathematician, 1685-1731, author of *Linear Perspective*, London, 1715, which was translated into French in 1733].

This ends the instruction in the Arts Faculty, common to all pupils: Diderot follows the contemporary educational structure by dividing higher studies into three faculties, Medicine, Law and Theology.

He considers the position of doctors, characteristically, in relation to their social utility:

"Il faut se rappeler que la santé publique est peut-être le plus important de tous les objets." (2)

The proportion of doctors in a community must depend on local circumstances. Country-dwellers, for instance, living a healthy rustic life, have far less need of medical care than people living in towns. Diderot's meditations on the importance of medical knowledge lead him

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(1) "le climat," (Fonds Vandeul ms.).
(2) A-T, III, p. 497.
to conclude two things: that a large number of well-trained doctors is needed, and that in the event of a shortage some people are more important to society than others, and should be favoured:

"Il y a sans doute quelque différence entre la conservation d'un grand ministre et d'un petit mercier, d'un célibataire et d'un père de famille, d'un bon général d'armée et d'un mauvais poète." (1)

Diderot's practical suggestions for the training of doctors are brief and sensible. There must be an adequate supply of teachers, properly paid; the pupils must have a hospital adjoining the school for their practical studies; there must be a set syllabus. Diderot's course of medicine lasts seven years. There are seven chairs of medicine: one for anatomy and midwifery, two for physiology, hygiene, pathology, prophylactics and general therapeutics, one for surgery, one for pharmacy, two for practical courses in the care of the sick.

Before this specialisation, however, says Diderot, the students must have followed a two-year course in chemistry and natural history, which will expand on the introduction they had been given in the Arts Faculty. Since he is not a medical expert, Diderot leaves the choice of material to the lecturers, merely mentioning among the ancients Hippocrates and Galen, and among the moderns Thomas Sydenham (the English doctor, 1624-1639) and Boerhaave.

The Faculty of Law is to be composed of eight chairs. For the first year the pupils attend lectures in Natural Law and Legal History. Diderot prescribes Puffendorf's De Officio hominis ac civic libri and Burlamaqui's Éléments du droit naturel (2) for the one, and for the other De Celebroricibus Rebuspublicis [actually Memorabilia celebritatum et veterum rerumpublicarum, Leyde, 1646, by the Dutch historian Antonius Thysius, 1603-1665]; Vetus Graecia illustrata [Leyde, 1626] by the historian Ubbo Emmius [1547-1626]; Historia iuris civilis romani et germanici [Halle, 1733] by J.-T. Heinecke or Heineccius [the Saxon legal theorist, 1681-1741]; and the Historia iuris romani-justiniani [Leipzig, 1720] by the German expert Hoffmann [born 1692].

The second year is occupied by the institutions du droit des gens (3)

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(2) See above, p. 306.
and a study of the Institutes of Justinian, with detailed explanation of the law of contracts. For the third and fourth years, the students will study the basis of civil law, both secular and eclesiastical, with an addition of civil and criminal procedure.

Diderot avoids an attempt at any more detail. Inspired by his approval of the French law faculty, he goes into a digression on the organisation of examinations and the selection of teachers. He mentions questions which he had touched on in his Mémoires for Catherine the Great, as he recalls:

"Je crois avoir dit dans quelques-uns de ces papiers que Sa Majesté Impériale n'a pas dédaigné de renfermer dans un de ses tiroirs lorsque j'avais l'honneur d'entrer dans son cabinet, que les places de notre faculté de droit, abandonnées au concours, étaient le plus dignement occupées." (1)

Public examinations must be supervised by unbiased judges. The teachers should be paid adequately by the state, and given a pension when they retire. Their services still being useful to the nation, they could be employed on legal tribunals. All Diderot's considerations here stem not merely from the educational requirements at that time, but from his broad and hopeful vision of the march of civilisation as it brings enlightenment to mankind:

"A mesure que le grand ouvrage de la civilisation s'avancera, les intérêts divers, les relations entre les sujets se multiplieront, et c'est cet avenir que Sa Lajesté Impériale doit prévenir par sa sagesse (...) Quand on a son âme grande et son étonnante pénétration, on étend sa sagesse au-delà de son existence et l'on règne longtemps après qu'on n'est plus." (2)

Despite Catherine's own talents, Diderot urges her to continue to supplement her knowledge by consultation with the experts, and closes this section with a reference to one of his writings for Catherine, presumably one of the mémoires,

"un feuillet que j'ai laissé à Sa Lajesté Impériale sur les moyens de rendre les ambassadeurs bons à quelque chose." (3)

Although Diderot was hostile to established religion, he preserved from his student days an interest in theology (which he may have studied (4)) which is manifest in the next section, on the Faculty of Theology.

(2) A-T, III, p.509.
(3) Ibid. p.510; "un petit feuillet" (Fonds Vandeul ms.).
(4) See above, p. 200.
The power of the Church over the ruler, and indeed over the whole people of France, leads him to warn Catherine, who was inclined to see religion as a stabilising influence on society, that the clergy can be a formidable rival to the sovereign. Diderot here seems unaware that the Russian situation in the eighteenth century was essentially different from the French: in Russia the nobility and the clergy were almost completely separate, and the Russian nobles "rarely entered the Church as a career." (1) Diderot, however, distrustful of the French ecclesiastic, examines the danger he represents. His loyalties are uncertain:

"Ligué tantôt avec le peuple contre le souverain, tantôt avec le souverain contre le peuple, il ne s'en tient guère à prier les dieux que quand il se soucie peu de la chose."

It is not the mercenary and ambitious priest whom Diderot fears most, however, but the sincere one, who by his very position represents a force outside temporal power. He acts not according to a consistent moral code, but as circumstances require:

"La justice ou celle de Dieu, ou des livres inspirés, est celle des circonstances. Il n'y a point de vertus qu'il ne puisse flétrir, et point de faits qu'il ne puisse sanctifier; il a des autorités pour et contre." (2)

Since, however, Diderot has decided to follow tradition and preserve the faculty of theology, he examines the theological education which will cause least harm to the state. While accepting that a learned priest may not necessarily be the most moral of men, Diderot suggests a sound education in Hebrew as well as in Latin and Greek (which the student will have learnt in the Arts course). The course is then divided into three subjects, Holy Scripture, Moral Theology and Ecclesiastical History. Diderot recommends a number of works to supplement the study of the Scriptures - those by Walton, Bonfrierius, Serrarius and Dupin. Diderot does not specify, but he was probably referring to the *Biblia polyglotta* [London, 1657] by the English orientalist Bryan Walton, 1600-1661. Jacques Bonfrer or Bonfrerius, the French Jesuit writer, wrote such commentaries on the Bible as *Pentateuchis Mosis commentario illustratus* [Antwerp, 1625]. Serrarius [J.-A. Serrao, the Italian bishop, 1731-1799] had published *De Sanctis

(2) A-T, III, p.511.
Scripturis Liber [Naples, 1763] which had been summarised in the Nouvelles ecclésiastiques, 28th May, 1764, and De Claris catechistis [Naples, 1769], part of which had appeared in the Nouvelles ecclésiastiques, 6th May, 1771. The French theologian Louis-Élie Dupin, 1697-1719, wrote numerous books on the Scriptures. Diderot also suggests the book entitled L'auteurité des livres du Nouveau Testament contre les incrédules [Paris, 1775] by Jean-Baptiste Duvoisin [1744-1813] of which he says, doing his best to be fair,

"Je l'ai lu sans partialité, et quoique je ne puisse être de son avis, je le crois très propre à fortifier celui qui croit et à raffermir celui qui chancelle." (1)

He prescribes the French translations of the Bible by Calmet [Paris, 1724]; the Abbé de Vence [Avignon and Paris, 1767-73]; and by Chais [1743-1777, the Hague, incomplete]; and in Latin those by Cornelius à Lapide [a seventeenth-century Jesuit], Estius [a seventeenth-century scholar], Lenocius [a seventeenth-century Jesuit] and Grotius. For the study of the Hebrew language Diderot suggests the Abbé de Ladvocat's grammar [Grammaire historique, à l'usage des écoles de Sorbonne, Paris, 1755, by J. E. Ladvocat, 1709-1765].

For Diderot, even if he unwillingly concedes theology to be necessary, it must be kept strictly separate from politics: "Ce qui regarde l'ordre politique n'appartient point à la théologie." (2) The head of state is also the head of the church, so that no foreign power can threaten the stability of the nation.

As far as the teaching of theological dogma is concerned, Diderot's concern is for simplicity:

"s'interdire les recherches curieuses, les systèmes qui ne produisent que des erreurs et des parties." (3)

Hooke's treatise should be useful, he adds [Religionis naturalis revelatae et catholicae principia, Paris, 1754, by the Abbé L.-J. Hooke], and also the Décisions de cas de conscience, 1686, by Jacques Sainte Beuve, 1613-1677.

A course in Ecclesiastical History completes the theological training. Diderot refers to the work of Bingham [Joseph Bingham, the

(1) A—T, III, p.513.
(2) Ibid. p.515.
(3) Ibid. p.514.
English theologian, 1668-1723, whose Origines ecclesiasticae, Cr.,
The Antiquities of the Christian Church appeared in London from 1708
to 1722. J.-H. Grichow translated it into Latin, Halle, 1724-38].
There is also J. L. Mosheim's Ecclesiastical History, 1776; and
De Locis theologicis, [Salamanca, 1652, by the Spanish bishop
Melchior Canus, 1523-1560].

In his concluding remarks in this section Diderot reveals his
contempt for religion and his opinion of it as a necessary super­
stition to satisfy the masses. Although striving to spread enlighten­
ment with his propagation of the Encyclopédie, he seems convinced that
the majority of people will always be "ignorant, peureux et
consequemment superstiteux."

"La croyance à (1) l'existence de Dieu, he continue, ou
la vieille souche, restera donc toujours. Or qui sait ce
que cette souche abandonnée à sa libre végétation peut
produire de monstrueux? Je ne conserverais donc pas des
prêtres comme des dépositaires de vérités, (2) mais comme
des obstacles (3) à des erreurs possibles et plus monstrueuses
encore." (4)

Religious frenzy must be kept within bounds by the wise ruler,
who is to remain unaffected by any influence by the clergy.

Diderot's aim in the Plan, as he now stresses, has been to
establish a universal education for the whole of society. After a
primary education, obligatory for all classes, all pupils have the
chance to enter the secondary schools, or collèges of the University.
The practical management of the collèges does not escape Diderot.
They are controlled by citizens responsible only to the sovereign.
Each class has its own supervisor (maître de quartier) who sees to
discipline as well as the pupils' homework. After the age of fifteen
the pupils have their own rooms for study. The hours of study are
long, but Diderot insists that the pupils are easily kept interested
by a variety of lessons. The day's occupations are as follows:

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(1) "de" (Fonds Vandeul ms.).
(2) "Je conserverais donc les prêtres, non comme des dépositaires de
vérités" (Fonds Vandeul ms.).
(3) "barrières" (Fonds Vandeul ms.).
5.30 - 6 prayers; 6 - 6.45 private study; 6.45 - 7.45 revision of
lessons; 7.45 - 8.30 breakfast; 8.30 - 10.30 first lesson; 10.30 -
11.45 recreation and private study; 11.45 - 12.45 lunch; 12.45 - 1.30
break, preferably in the open air; 1.30 - 2.30 private study; 2.30 -
4.30 second lesson; 4.30 - 5.15 third lesson (drawing); 5.15 - 6
supper and break; 6 - 6.45 private study; 6.45 - 7.45 revision of
the day's lessons; 7.45 - 8 recreation; 8 - 8.45 supper; 8.45 - 9
prayer. Wednesday and Saturday afternoons until 6 will be devoted
to physical education to balance the bad effects of hard study:

"La vie sédentaire de l'homme d'étude; la méditation, exercice
le plus contraire à la nature, sont en même temps des sources
de maladies particulières; la stagnation des humeurs en amène
l'altération, et le corps se corrompt tandis que l'âme
s'épure; cela est triste." (1)

There are to be three types of pupil - pensionnaires, boursiers and
externes. (2) The scholarships for the boursiers are to be subject
to examination and provided by funds from the nobles and the sovereign
herself; the pensionnaires pay fees for their board and education;
the externes or day-boys wear a different uniform so that the boarders
cannot follow them and escape. Discipline is to be consistent:

"Rien d'arbitraire ni pour les châtiments ni pour les
recompenses (...) Un petit code pénal des fautes contre
da discipline." (3)

Because of the variety of lessons and the system of public examinations,
pupils with aptitudes in any direction will be encouraged to do their
best.

Diderot now turns his attention to the teachers, who must be
morally as well as intellectually sound. By making the profession
a respected one, Diderot hopes to encourage true, or, at the worst,
simulated virtue. Teachers will be willing to lead a virtuous life
when they are assured of an honourable position. They must be provided
with pensions when they retire. Diderot is against the use of priests
as teachers except for the theological faculty.

Again and again Diderot reminds Catherine that it is the duty of
the state to provide education. As an essential part of society the
public school is maintained by the government:

(3) A-T, III, p.527; see above,
"C'est à l'État à nommer, continuer ou changer le recteur et les principaux, à déposer les professeurs, à chasser les répétiteurs ou maîtres de quartier, et à exclure des écoles les enfants inéptes ou vicieux." (1)

As for the actual methods of teaching, which an educational theorist such as Rousseau discusses so fully, Diderot mentions them only in passing. He suggests that the teacher accompany the pupils in their learning instead of treating them with superiority. Diderot seems to overlook the fact that this method, difficult enough with only one pupil, would be practically impossible with a class of twenty or thirty. In these last pages Diderot moves from one topic and back again with haste, as if he were setting down notes at the end and had no time to systematize them. He now returns to the selection of teachers for the University. They must be encouraged to come to Russia from far and wide:

"Pour le moment on en appelle de toutes les contrées; bons, médiocres, mauvais, qu'ils aient des moeurs, cela suffit." (2)

As long as they speak Russian sufficiently well and are qualified in their field, they must be encouraged by generous pay. Pupils may then be sent abroad, to finish their education.

Diderot points out the need for good text-books, composed by experts:

"C'est une tâche à distribuer à tous les savants de l'Europe. Que Sa Majesté Impériale dise à M. D'Alembert: M. D'Alembert, faites-moi tous les livres classiques de la science des mathématiques ... et M. D'Alembert les fera et les fera bien." (3)

Diderot concludes the Plan with remarks on the lay-out of the University. Each faculty has its own rooms, lodgings for the teachers as well as classrooms and studies for the pupils. For practical study Diderot suggests a selection of natural history exhibits, an anatomy theatre, a chemistry laboratory, a pharmacy, a hospital for the training of the medical students and a seminary for the theological students.

He chooses scientific writers, usually French authors within the Cartesian tradition, or English representatives of the new philosophy, with its basis of sensationalism. It is significant, for example, that

(2) Ibid. p. 531
(3) Ibid. p. 533.
he includes the Abbé Pluche's Histoire du ciel not in the scientific, but in the mythological, section. He does not retain any of the old scholastic philosophy, nor the old rhetoric. Among all the works on his list there are only three Jesuits - Petou, whose works are exceptionally scholarly and scientific, and two editors of the Bible, for the reading of the theological students, the seventeenth-century Jesuits Cornelius à Lapide and Xenochius.

Diderot's Plan is a huge programme of education. He shows the tremendous scope of his reading, and his unerring judgment, by his unerring choice of the writers who are still considered important. Instead of taking merely the works of the eighteenth-century philosophes, he shows his eclecticism and true modernism by recommending authors (not all of whom he would agree with) all within the scope of the tradition of the new philosophy. Despite his concern for the teaching of Latin and Greek, the emphasis of the Plan is on modern subjects - mathematics, and wide course of reading in geography, history and chronology. The Plan is a huge compilation by Diderot of the best and most recent works on all these subjects, with his own valuable suggestions for improvements.
Throughout his life Diderot's educational ideas expanded and altered their emphasis. His own training, the conventional attendance at a Jesuit college, followed by a philosophy course at one of the colleges of the university, had left him well aware of the limits of the eighteenth-century educational system. This caused him in his first published literary work, the translation of Shaftesbury's Enquiry Concerning Virtue and Merit, to spend much effort on interpreting Shaftesbury and following him into a rational conception of virtue, which could form a scheme of "moral arithmetic" to be taught in a methodical way, especially to young men eager to base their actions on a clear set of moral principles. At this stage a general consideration of the nature of man, derived from Shaftesbury's equation of virtue and happiness, seemed to Diderot an adequate way of leading to moral improvement.

With the advent of the influence of Locke's writings, and the more extreme sensationalistic doctrines of his disciple Condillac, Diderot began to build up a different picture of man and his reactions to moral problems. Man no longer appeared as a rational being requiring a definition of "the good"; instead, as Diderot showed in the Lettre sur les aveugles, he came to believe that a moral code could depend very much on the various sense-impressions a man received. The undoubted variety in circumstances, milieu and the sense-equipment of the individual made the existence of some supreme universal morals extremely unlikely, and the inculcation of moral principles a difficult task.

Also in the Lettre Diderot examined the problem of epistemology. The derivation of man's ideas, which Diderot in his consideration of the psychology of the blind placed emphatically in the impressions derived from the actions of the senses, is of crucial importance in a discussion of the educability of man. If, as Diderot maintained, man's ideas of distance, proportion and so on are not innate but
acquired by experience, the role of the educator becomes increasingly important. He may train the pupils to judge of their experience and of various moral problems, instead of furnishing them with a ready-made ethic.

In the *Penseés sur l'interprétation de la nature* Diderot continued this examination of the intellect of man. It was his aim to understand the workings of the mind, to assign their proper importance to fact-finding and speculative reasoning. Although he followed Bacon in a reliance on the value of painstaking and unprejudiced research, Diderot went on to suggest a proper belief in the value of hypotheses, indeed even a certain reliance on the power of intuition. Man should be taught to examine with caution both the raw material of investigation, the facts, and the hypotheses which the mind suggests.

Linked with Diderot's psychology is his interest in the physiology of man. To him, the acquisition of knowledge could depend greatly on a man's physical make-up. Mind and matter are inextricably linked. In the dialogues of the *Rêve de D'Alembert* he proceeded to expound his hylaeism in such a way as to demonstrate the essential unity of the universe, "Dead matter" is potentially living, and "living matter" constantly changes its form. From the link between dead and living matter, Diderot took the step to a link between sensation and thought, l'être sentant and l'être pensant. Memory, which is derived from the "organisation" of a being, is based on reflection on the impressions received by the senses. A man of genius may be trained to fulfil his talent, Diderot concluded in the *Rêve*, but the physical organisation of his brain as well as his experience has contributed to his success.

Along with his interest in natural history and physiology, Diderot maintained his concern for the problem, which he never claimed to have solved, of moral education. In the article *Droit naturel*, while continuing to attempt the equation of virtue and happiness, Diderot faced the problem of the "méchant conséquent", who could insist on acting anti-socially and justify his actions by an egotistic desire for his own satisfaction. Although Diderot could not produce indisputable rational arguments against the méchant, he still maintained that
some form of ethics was possible, and therefore that the moral formation of the individual was desirable.

With the Réfutation d'Helvétius he moved into a full discussion of educational psychology. Having established that both experience and the natural temperament form a man's ideas, Diderot was nevertheless very wary of what seemed to him to be Helvétius's excesses. In fact he simplified and misrepresented Helvétius's arguments. Diderot's eagerness to argue with him is beneficial to our understanding of his own ideas, which he presented with great cogency. Diderot suggested that a man is what he is, not solely by a combination of his experiences, nor by the individual innate organisation of his brain, but by a combination of both. A sound public education (Diderot, unlike Helvétius, believed it possible to implement such a scheme in France immediately) should be based both on the development of the natural capabilities of the child, and on the belief of the power of outside influence on the mind. Diderot's insistence on the innate diversity in temperament had already led him into an interesting discussion in the Nouveau de Rameau, where the neveu claimed that his méchanceté was caused by an unfortunate organisation, by the "molécule paternelle", inherited from his forebears, and that any attempt at moral education on such a subject would be useless. This Diderot refused to accept, still claiming that man is modifiable and that education can have a great effect. In the Réfutation, returning to the question, he declared his faith in the power of education, maintaining not that "l'éducation fait tout", but that "l'éducation fait beaucoup". Diderot had reached the stage in his thinking, therefore, where he could confidently draw up a plan of moral and intellectual education.

Educational plans were, of course, numerous in the second half of the eighteenth century. As a background to Diderot's work can be seen the interest in the old debates, on the relative merits of public and private education, on the aims of public education, on the best methods to use for the inculcation of learning. The concept of the formation of the citizen, or patriot, took on a new aspect. The guiding line was now not merely the good of society as a whole,
which the seventeenth-century moralists had found desirable, but the
development of the nation. Increased impatience with the unworldliness
of the contemporary educational system led to complaints in articles
in the Encyclopédie, and to a spate of educational treatises on the
need for a "national education" (as La Chalotais called it) to produce
loyal citizens for the patrie.

Diderot himself, long before he produced the Plan d'une université,
had shown himself to be interested in the details of a new form of
education. This is shown by his association with leading educationalists,
and his composition of the letter to the Princess of Nassau-
Saarbrück in 1758 (on the importance of both moral and intellectual
training) and to the Countess of Forbach in 1772 (on a suitable private
education for young nobles). The extent of his participation in the
anonymous work De l'éducation publique (1762) is difficult to assess.
Diderot seems to have seen the book through the press for the author,
who is still unidentified, and later used some of its terms and
practical suggestions for his own plan.

Educational speculation was moving very slowly and with little
result in Russia. Despite the efforts of Ivan Betskoi and, in the
early days of her reign, the Empress herself, reform was fragmentary
and there was yet to be instituted any national system of education.
The practical suggestions put forward by members of the Legislative
Commission in 1767 were not implemented. Diderot's visit to Russia
in 1773 must have made it clear to him that Russia was badly in need
of educational as well as political reform. He visited the Smol'nyi
Institute and set out ideas on improvements for the Cadet School and
the education of girls, as well as the need for more sweeping changes,
in which success in Russian society should depend on merit. An
efficient system of state education, as well as competition for public
office, was to result in an enlightened society.

Diderot brought the fruit of his considerations on the nature and
educability of man, combined with his truly encyclopedic breadth of
learning, into the Plan d'une université pour le gouvernement de Russie,
composed not for publication but for Catherine the Great's own use.
Here, exposing the grave defects of contemporary French education and
the need for a practical training (as well as a teaching of morals),
Diderot went into a great amount of detail on the subjects to be covered in each class and the text-books available. His knowledge of each subject, marred only by a few inaccuracies in the naming of texts, is amazing. Although building on the traditional structure of the university (four faculties, Arts, Medicine, Law and Theology), Diderot swept away the old rhetoric and scholastic philosophy, which were still being taught at the time, and showed a truly modern regard for subjects such as history and geography. He devoted much time to the teaching of the Classics, he himself being a keen classicist, but acknowledged their limited value to the society of his time. The Plan is a culmination of his educational speculations, a proof of his humanism and modernity. Diderot's thought on education, the first of the human sciences, gives a marked unity to his intellectual life.
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ABBREVIATIONS
