

The Open Court

A MONTHLY MAGAZINE

Devoted to the Science of Religion, the Religion of Science, and the
Extension of the Religious Parliament Idea

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CHICAGO

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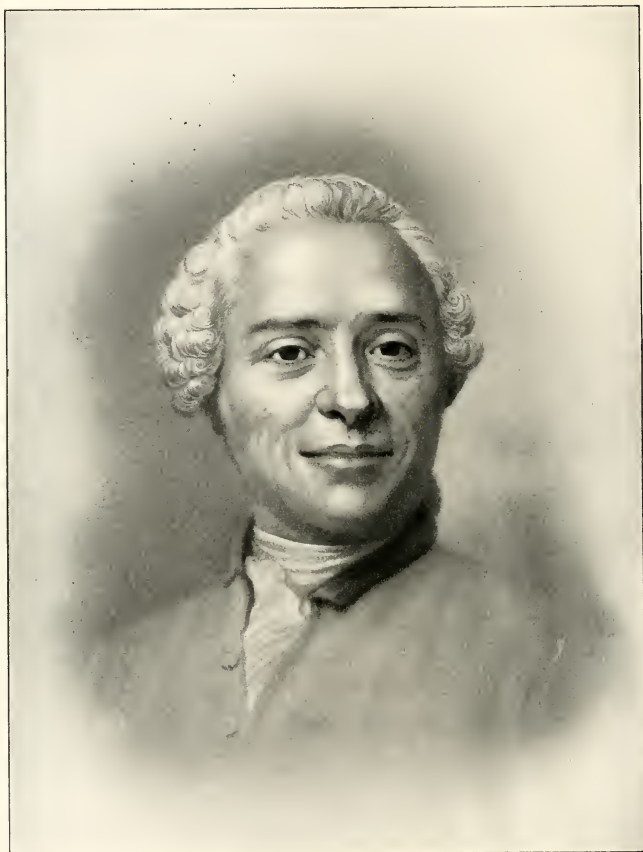
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D'ALEMBERT.

(1717-1783.)

Frontispiece to The Open Court.

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THE ENCYCLOPÆDISTS.

BY PROFESSOR L. LÉVY-BRUHL.

VOLTAIRE was, indeed, in his tendencies, both confessed and secret, in his likes and his dislikes, in his good qualities and his defects, "the representative man of French philosophy in the eighteenth century." We have therefore been obliged to give a somewhat detailed account of his doctrines, in which we find the average of the philosophical ideas professed by most of his contemporaries. Around him was arrayed an army of "philosophers," full of zeal but undisciplined, and sometimes unruly, whose best lieutenants were the most independent. In spite, however, of the differences in their natures, tempers, aptitudes and talents, the public feeling was not mistaken in grouping them all together under one name, from La Mettrie to Condorcet, from Condillac to Abbé Raynal. Sometimes unthinkingly, but in most cases quite consciously, they worked together on a common task. Most of them used every exertion in combating the Roman Catholic Church, and in a general way Christianity itself. They rejected its conception of the universe and of man, which appeared to them false and superstitious; they condemned the social order which the Catholic hierarchy contributed to maintain, and which they thought unjust and oppressive. Against this double tyranny all weapons were lawful. They would preserve nothing of this religion except its moral teaching, and even this they reduced to its essential elements, and held it to be human rather than specifically Christian.

In the constructive part of their work likewise, in spite of inevitable divergencies, they are quite akin to one another. Eager to lose no time in putting something in the place of that which they

thought they had destroyed, they set to work with great haste, and their want of experience appears so constantly as to be almost monotonous. There is a continual recurrence of the same paradoxes, accepted without discussion, and of the same dubious formulæ looked upon as axioms; their common stock consisted of a limited number of theories, often superficial and rudimentary, concern-



VOLTAIRE.

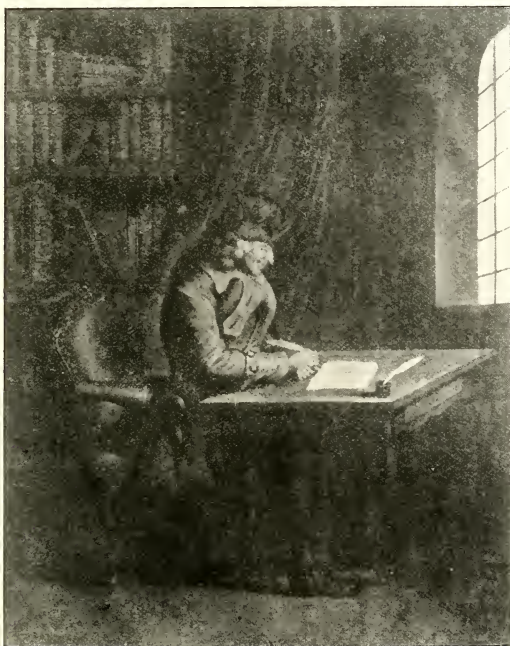
From a painting by Latour in 1736. Engraved by Balechou.

ing psychology, morals, politics and history, and of certain ideas and views which were often both profound and fruitful—building-stones, as it were, intended to fit into an edifice which they were as yet unable to build. For the *Encyclopædia* which they thought of as destined to be this edifice, represents a work-yard rather than a building. It has no unity, save in the spirit which animates it,

and in the perseverance of Diderot, who, in spite of obstacles and at the cost of untold trouble and sacrifice, finally brought it to completion.

* * *

La Mettrie, by the date of his works, somewhat precedes the main body of the philosophical army. He died in 1751, four years



VOLTAIRE IN HIS LIBRARY.

before Montesquieu, and before Diderot, D'Alembert and Rousseau had produced their masterpieces. Being a disciple of Boerhaave, who sought to explain the phenomena of life by the mechanism of physical and chemical phenomena, being also acquainted, though somewhat superficially, with the doctrines of Descartes and Locke, he composed, with elements derived from widely different sources, a system which he thought scientifically proven. It was a

kind of materialism, based on the idea which often reappeared in the course of the century, that the diversity in the orders of phenomena is due to the more or less complex organisation of matter. As this organisation is not the same in animals as in plants, nor (in certain points) in man as in animals, the functions which exist in plants, animals, and in man, must also be different: there is no need whatever of a special principle to explain certain of these functions rather than others. In opposition to spiritualistic dualism, which sets an abyss between the substance of the soul and that of the body, La Mettrie advanced, in his *Histoire Naturelle de l'Ame*, the ancient peripatetic and scholastic conception, which makes of the soul the form of the body. Like some Aristotelians of the Renaissance, he slipped his own materialism into this theory. He openly expounded it in the *Homme-Machine*. While he praised Descartes for saying that an animal is a machine, he reproached him for not having dared to say the same of man. Not that La Mettrie denied the existence of feeling or thought in animals or in man: such a paradox would seem to him absurd. He means that feeling, thought, consciousness, are all produced by the machine; the whole soul is explained by it, depends upon it, and, in consequence, disappears when it gets out of order, or is taken apart. As a physician, he quotes in support of his theory definite facts borrowed from mental physiology and pathology, and he declares that he will accept as his judges none but scientific men, acquainted with anatomy and with the philosophy of the body.

La Mettrie's reputation in the eighteenth century was very bad. In our days some have tried to rehabilitate him. No doubt a philosopher may have been a declared materialist and atheist, have written insipid defences of physical voluptuousness, and have died from eating too freely of patties, and yet may none the less have been a sincere man and have honestly sought after truth. No doubt also La Mettrie more than once served as a scapegoat for the philosophers who followed him and perhaps from time to time imitated him. The nearer they came to him the more fiercely they expressed their indignation against his abominable doctrines; for he, being dead, had nothing to fear either from the police or the Parliament. His good name may have suffered from this manœuvre. Yet, if we examine his works closely, we shall conclude that he has not been seriously wronged. He does not sufficiently distinguish between what is proved and what is merely asserted; he has no absorbing concern for close reasoning and exact expression,

and his language is often rash in proportion to the looseness of his demonstrations. Let us grant that he introduced French materialism in the eighteenth century, but let us acknowledge at the same time that he too often presented it under an aggressive and unacceptable form.



FRONTISPIECE TO THE "ENCYCLOPÆDIA."

In 1751 appeared the *Discours Préliminaire* of the *Encyclopædia*. Diderot had acted wisely in asking D'Alembert to write it, and in contenting himself with drawing up the prospectus of his

great enterprise. He had already been at odds with the authorities, and had spent several months in Vincennes on account of his *Lettre sur les Aveugles*, in a word, he was looked upon as a suspicious character. D'Alembert, a great mathematician, renowned for his *Traité de Dynamique*, and a member of the Academy of Science, was just the man to present the *Encyclopædia* to the public, and his name insured it against the ill-will of the enemies of philosophy.

This discourse was much admired, but we now find it rather difficult to understand this admiration. Though we do not refuse our homage to the dignity of its tone and the elevation of its thought, we are rather disappointed as we read it. This is owing to several causes. Ideas which were new in those days have now become familiar and commonplace. Several important points in D'Alembert's philosophy do not appear in the *Discours*, or are merely hinted at. Others, on the contrary, are developed which do not express his real thought; but he believed this concession to be indispensable in order to gain acceptance for the rest. "In the accursed country in which we write," he said to Voltaire, "such phrases as these are notarial style, and serve only as passports for the truths that we wish to establish. Moreover, nobody is deceived by them. . . . Time will teach men to distinguish what we have thought from what we have said." D'Alembert never would deviate from this prudent course. Accordingly we see in the works offered to the public a D'Alembert whose attitude is irreproachable and whose irony is hidden under the forms of respect. But the letters to Voltaire and to Frederic the Great show us a quite different sort of man, eager for the fray, and as much incensed against parliaments, Jesuits, Jansenists, priests in general, and religion as the most determined "philosopher."

Being a fervent admirer of Bacon, D'Alembert borrowed from him his classification of sciences, with a few alterations which he himself explains. To tell the truth, the *Discours Préliminaire* contains not one but three classifications of human knowledge, from three different points of view. D'Alembert first examines "the origin and development of our ideas and sciences from the philosophical or metaphysical (i. e., psychological) point of view." Like a true disciple of Locke and Condillac, he divides all our knowledge into direct ideas and ideas derived from reflexion. Our direct knowledge is only that which has come to us through our senses: in other words, to our sensations alone do we owe our ideas. The classification here consists, therefore, in tracing our

complex ideas back to simple ones, that is, to those derived from sensation.

The "encyclopædic order of sciences," which comes next, is a logical order. It must not be confused with the order which the human mind has actually followed in the production of the sciences. In all likelihood man, spurred on by his bodily wants, must first have set out to meet the most urgent need, and then, as he met with difficulties, have tried another way, then have retraced his steps, etc. If so, the sciences which we look upon as containing the principles of all others, and which must come first in the encyclopædic order, were not the first to be invented. Moreover, in the historical order of the progress of the human mind, the various sciences can be viewed only in succession, one after another, whereas the encyclopædic order consists in embracing all sciences at one glance, as if from a height one should perceive at one's feet a maze of interweaving paths. Or, again, this encyclopædic order may be compared to a map of the world, on which we see at one glance the whole surface of the globe. And just as, in preparing such a map, we may choose among various systems of projection, so we may also conceive the encyclopædic order in several different ways. None of these ways is necessarily to be adopted to the exclusion of all others, and if D'Alembert chose that of Bacon it was because, without being more defective than the others, it has the advantage of suggesting with tolerable accuracy the genealogy of human knowledge.

Lastly, a third order considered by D'Alembert is that according to which our sciences have been historically developed since the Renaissance. It differs from the order which the human mind would follow if left to its own lights. In this order, then, the sciences of erudition came first, owing to the prestige of antiquity, which after long ages of barbarism and ignorance was rising again fair and luminous before the delighted eyes of men. Thus D'Alembert had a clear perception of the psychological genesis of our knowledge, of the logical order of the sciences, and of their historical succession. Could not these three orders have been combined to form a higher one? Comte later on attempted such a combination; but D'Alembert contented himself with a rapid criticism of each of the sciences, and a summary appreciation of the great minds who had created or developed them.

And, first of all, in the already formidable mass of our knowledge, how few branches deserve the name of sciences! History, according to D'Alembert, is in no wise entitled to it. It is only of

practical interest. Why should we not, for instance, cull from it the best catechism of morals that could be given to children, by collecting into one book the really memorable deeds and words? It would be particularly useful to philosophers and to the "unfortunate class" of princes to teach them to know the men with whom they live from what they learn of men who lived in former times. Metaphysics should be strictly limited to what is treated of in Locke's *Essay*. Nearly all the other questions it proposes to solve are either beyond solution or idle. It is the food of rash or ill-balanced minds—in one word, a vain and contentious science. D'Alembert is not allured, like Voltaire, by the hypothesis which attributes to matter, under certain conditions, the power to think. To him it appears uncalled for and dangerous. If it inclines towards materialism, we fall back into a metaphysical doctrine no more clearly proven than any other. Is it not better for us to confess that we do not know at all what substance, soul, and matter, are? Likewise, as regards the existence and nature of God, scepticism is the only reasonable attitude of mind. And we should be compelled to say the same of the existence of the outer world and of man's liberty, did not instinct here supplement the deficiency of reason; whether the outer world exists or not, we have such a strong inclination to believe in it that everything appears to us as if it existed; and, in the same way, everything appears to us as if we were free.

Even in the natural sciences, how limited did man's knowledge appear. Physiology had hardly yet begun to exist. D'Alembert speaks of medicine as a man who has measured all its risks; in his eyes it is a purely empirical science. The physician who builds systems and clings to a theory is most dangerous; that one is least to be feared who has seen many patients and has learned to make an accurate diagnosis and not to dose at random. Physics is more advanced and its conquests are lasting. Here we stand on firmer ground, but progress is slow and the human mind has to guard against itself. D'Alembert insists upon the prudent advice already given by Bacon: we should distrust even the most probable explanations, so long as they have not been tested by experience, and, if possible, by calculation.

Sciences in the highest sense of the word, D'Alembert called those he had been studying all his lifetime, and to which he owed the best of his glory—the mathematical sciences, which he divides into pure mathematics, mixed mathematics, and physico-mathematical sciences. Certitude, properly so called, which is

founded upon principles necessarily true and self-evident, does not belong equally or in the same way to all these branches of mathematics. Those which rest on physical principles, that is, on experimental truths or on physical hypotheses, have, so to speak, only an experimental or hypothetical certitude.

One might infer from this that D'Alembert looks upon pure mathematics, in opposition to physico-mathematical sciences, as being really *a priori* and independent of experience: but how could he have harmonised such a conception with the principle borrowed from Locke, according to which all our knowledge comes, either directly or indirectly, from experience? D'Alembert did not fall into this contradiction. He avoided it by means of a theory of mathematics which was consistent with his sensationalistic principles, and much clearer than the ones to which Hume and Condillac resorted. Mathematics, in his opinion, belongs to natural philosophy. "The science of dimensions in general is the remotest term to which the contemplation of the properties of matter may lead us." Experience shows us individual beings and particular phenomena, the sun, the moon, rain, and wind. By means of successive abstractions and of more and more comprehensive generalisations, we separate the qualities common to all these phenomena and beings, till at last we reach the fundamental properties of all bodies: impenetrability, extension, and size. We cannot further subdivide our perceptions, and we find at this point a subject for sciences which, in virtue of the simplicity of this subject, may be made deductive. Thus, in geometry, we strip matter of nearly all its material qualities, and consider, so to speak, only its ghost. "Thus," says D'Alembert in a language that foreshadows Stuart Mill, "it is merely by a process of abstraction that the geometriician considers lines as having no breadth, and surfaces as having no thickness. The truths he demonstrates about the properties of all are *purely hypothetical* truths. But they are none the less useful, considering the consequences that result from them." This empirical theory of mathematics, which stands in such direct opposition to that of Plato and Descartes, has made its appearance again in our century, and is anything but abandoned at the present day. Even such men as Helmholtz, though reared under the influence of Kant, have deemed it indispensable to accept the statement that geometry contains elements derived from experience.

As the certainty of mathematics rests on the evidence of ideas so closely related that the mind perceives the connexion between

them at a glance, so the certainty of morals rests on the "heart's evidence" which rules us as imperiously. D'Alembert's theory of morals is almost entirely identical with Voltaire's. The only original feature about it is the personal accent that D'Alembert gives it, especially in his letters. To him sympathy for the hapless, indignation against the "monstrous inequality of fortunes" are not mere commonplaces, hackneyed expressions of a trite sentimentality, an homage paid to the reigning fashion. They are the words of a man who has seen the poor, who has lived among them, who has witnessed their sufferings, and to whom misery is a living reality, not a theme for literary amplification. D'Alembert goes so far as to ask himself whether, when driven to despair, and reduced without fault of his own to the verge of starvation, a man is morally bound to respect the surplus that another has beyond his needs.

In dignity of life and independence of character, as well as in genius, D'Alembert was among the glories of the party of philosophers. He more than once dared to contradict Voltaire. His friendship with Frederick never cost any sacrifice of his pride, and he fell out with Catherine of Russia because she rather haughtily rejected his intercession on behalf of some Frenchmen who had been taken prisoners in Poland. His two great passions were for mathematics and against "priests"; and it is characteristic of the times that the latter should have contributed no less than the former to constitute him a "philosopher."

* * *

Diderot was as adventurous, expansive and lyrical as D'Alembert was prudent, reserved and methodical. But his disorder is rich in ideas. Diderot was one of the most extraordinary mind-stirring writers that the world has ever seen. The brightness and charm of his conversation seem to have been prodigious. He was called "the philosopher." It must indeed be admitted that if we always meant by this word a man whose methodical and persevering meditation does not rest satisfied till it has found out a first principle from which it can deduce the whole world of reality, Diderot would occupy but a low place among philosophers. Not that he was incapable of reducing his ideas to a system; but the starting-point of his attempts at such a synthesis was variable, depending on a chance encounter, conversation or reading. Before his reason went deep into things, his imagination had to be stirred. But on the other hand he was without a rival in rising from an apparently insignificant point to general ruling principles, and in dis-

covering from that vantage ground many roads, some of which led him to new points of view ; his curiosity was indefatigable, his reflexion sometimes profound and always suggestive.

Unfortunately, though all this be sufficient to exercise a considerable influence upon contemporaries, it may easily fail to produce many durable works. All Diderot's writings wear an air of improvisation, due to his ready and sudden enthusiasm, and to the facility with which he could put together *extempore* a vast structure of ideas. It can therefore hardly be said that the *Encyclopædia*, by compelling him to scatter his labors for twenty years upon an infinite and varied task, prevented him from bringing forth the great masterpiece which his intelligence, if concentrated, might have produced. It was rather because Diderot felt no strong desire to concentrate himself thus that he poured into the *Encyclopædia* and into a multitude of pamphlets his wonderful gifts for quick assimilation and uninterrupted, but fragmentary, production.

Diderot was at first a deist, after the manner of Voltaire, and, like him, under the influence of the English, particularly of Locke and Shaftesbury. He then thought, as did Voltaire, that modern physics had dealt materialism and scepticism a fatal blow. "The discovery of germs, in itself, has dispelled one of the strongest objections of atheism." But this style of philosophy soon ceased to satisfy him, and he gradually inclined to what he himself called the most attractive form of materialism : that which attributes to organic molecules desires, aversions, feeling, and thought,—to end at last in a sort of pantheistic naturalism.

Several paths led Diderot to this goal. First of all, he perceived that the irreducible dualism of soul and body was generally upheld for religious quite as much as for philosophical reasons ; and this alone was sufficient to drive him away from it. Then, in his *Lettres sur les Aveugles* and *Sur les Sourds Muets*, he insists upon the relative character of our metaphysical conceptions. For a blind man, what becomes of the proof of the existence of God based upon final causes? Diderot attempted, as Condillac did afterwards, to work out the psychological development of sensationalism. All our knowledge comes from the senses ; how does it come from them? What do we owe to each of our senses? Can we analyse their data, and afterward from them reconstruct the whole? Cheselden's experiment and Molyneux's problem were known ; Diderot wished to go beyond these, to carry this kind of "metaphysical anatomy" still farther, and to take in pieces, so to speak, the senses of man. He imagined the "conventional mute,"

and the conclusions that he drew from his psychological analysis alarmed many a Christian.

But Diderot's pantheistic tendencies seem to have been chiefly determined by the discoveries made about this time in natural science. These he followed with passionate interest, and his imagination soon swept him on to bold hypotheses concerning life and thought. "We are," he says, "on the verge of a great revolution in science." In mathematics such men as Bernoulli, Euler, D'Alembert, Lagrange, have "set the pillars of Hercules." Nobody will go further. The natural sciences, on the other hand, have only just been born; and already the little that is known about them entirely changes our view of the world. For instance, to a mathematician studying abstract mechanics, a body may undoubtedly, by convention, be looked upon as inert; but if we examine the facts, the inertia of bodies is a "fearful error," contrary to all sound principles of physics and chemistry. In itself, whether we consider its particles or its mass, a body is full of activity and strength. The distinction between inorganic and living matter is therefore superficial, and strictly speaking even false; for do we not plainly see that the same matter is alternately living and not living, according as it is assimilated or eliminated by a plant or an animal? Nature makes flesh with marble, and marble with flesh. Therefore, is it not very rash to assert that sensibility is incompatible with matter, since we do not know the essence of anything whatever, either of matter or of sensibility? But, it is said, sensibility is a simple quality, one and indivisible, and incompatible with a divisible subject. "Metaphysico-theological gibberish," answers Diderot. Experience shows that life is everywhere; who knows but feeling may be everywhere too?

One of the most serious objections raised against such a doctrine rests on the stability and permanence of living species, which seem to set an insurmountable barrier between man and other animals, between any two living species, and, above all, between the realm of life and that of inorganic matter. Diderot was aware of this difficulty. He answered it by asserting the natural evolution of all the species that ever appeared on the globe. It does not follow because of the present state of the earth and consequently of the living species and of the inanimate bodies which are to be found thereon, that this state has always been similar in the past, or is to remain similar in the future. What we mistake for the history of nature is only the history of an instant of time. Just as in the animal or vegetable kingdom an individual begins to exist,

grows, matures, decays, and disappears, may it not be the same with an entire species? Who knows what races of animals have preceded us? And who knows what races of animals will succeed ours? Let us then waive the apparently unanswerable question of the origin of life. If you are puzzled by the question of the egg and the owl, it is because you suppose animals to have been originally what they are now. What folly! We do not know what they have been any more than we know what they are to be. To Diderot's eager, universal, and insatiable scientific curiosity was joined a conception of science itself which might already be termed "positivism." We know little; let us be contented with what we can know. Our means of gaining knowledge reach as far as our real needs do, and where these means are denied us, knowledge is probably not very necessary for us. I might as well feel seriously grieved at not having four eyes, four feet, and two wings. We must accept the fact that we are as we are, and not aspire to a science that would be beyond our comprehension. If men were wise, they would at last give their attention to investigations that would promise to promote their comfort, and no longer deign to answer questions which are idle because they are unanswerable. For a similar reason, they would cease to aim at a greater degree of precision in science than practical considerations demand. In a word, "utility is the measure of everything." Utility will a few centuries hence set limits to experimental physics, as it is on the point of doing with regard to geometry. "I will allow centuries to this study (physics), because its sphere of utility is infinitely wider than that of any other abstract science, and because it is unquestionably the basis of our real knowledge."

The same fervent love of humanity which animates and limits Diderot's idea of science, is also to be found in his polemics against the Christian religion. Of course his language varied according to circumstances. When he did not intend to publish he gave free rein to his bold tongue. In this way he wrote the *Supplément au Voyage de Bon Gainville, Le Neveu de Rameau* (his masterpiece), the *Entretien avec la Maréchale de * * ** In private letters, he sometimes vents his rage in invectives against that religion, "the most absurd and atrocious in its dogmas, the most unintelligible, metaphysical and intricate, and consequently the most liable to divisions, schisms and heresies, the most fatal to public peace and to sovereigns, the most insipid, the most gloomy, the most Gothic, the most puerile, the most unsociable in its morals, the most intolerant of all." In the *Encyclopædia* he makes a show of respect.

Yet significant sallies will sometimes escape him : "The Hebrews knew what Christians term the true God ; as if there were any false one !"

His ethics, extremely lax as regards the union of the sexes, is unfortunately influenced by the lachrymose sentimentality of the times. The moment that virtue is mentioned Diderot gets excited. Tears come into his eyes, his heart throbs, he gasps, he must embrace his friends, and they must share his transports. This overflow of feeling seriously impairs the precision of his ideas. Diderot taught his daughter that every virtue has two rewards : the pleasure of doing good, and that of winning the good will of others ; and every vice has two punishments : one in our inmost hearts, the other in the feeling of aversion which we never fail to excite in others. He wished her to have no prejudices, but to have morals and principles "common to all centuries and nations." Here we recognise ideas dear to Voltaire. Like him also, Diderot considered that justice was rooted in the very nature of man, and not, in spite of Locke, variable according to times and places. "The maxims engraved, so to speak, on the tables of mankind are as ancient as man and preceded his laws for which they ought to furnish the guiding principles." But Diderot, in accord here with Rousseau, added that nature has not created us wicked, and that it is bad education, bad examples, and bad legislation that deprave us.

The originality of Diderot must not therefore be sought in his ethics ; it lies elsewhere, in the mass of ideas set in motion by this indefatigable mind, a real precursor on many points of the present century, which has justly shown a predilection for him. He anticipates the progress of the natural sciences and the change they were to bring to the general conception of the universe, and consequently to the whole life of mankind. He was among the first to recognise the social importance of the mechanic arts, by giving them the place they were entitled to in the *Encyclopædia*. He raised in public esteem the men who practise these arts, and thus did for the workman what the physiocrats were at the same time doing for the husbandman. At the same time his *Salons* were making the beginnings of art criticism, and teaching his contemporaries how to look at pictures and statues. On dramatic art and the art of the comedian he brought forward many ingenious and profound ideas,—and finally, he revealed in many articles of the *Encyclopædia*, a searching knowledge of the history of philosophy, then neglected and almost unknown in France.

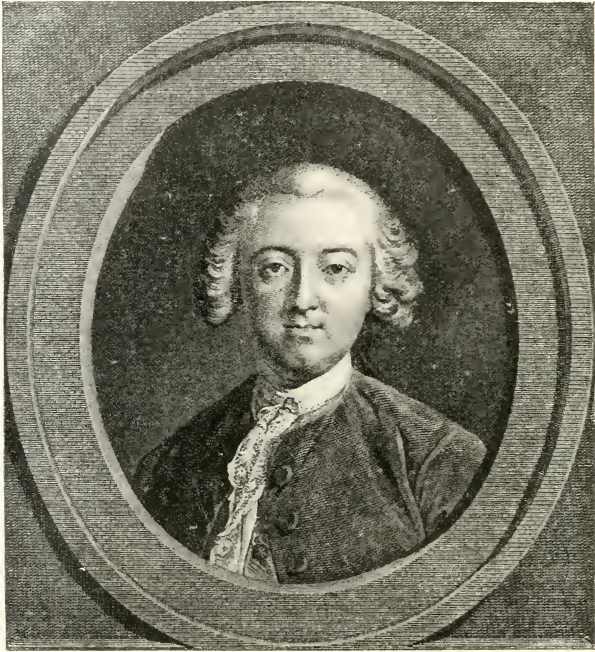
Goethe, who greatly admired him, said that his was "the most Germanic of French heads." Indeed very few French philosophers have had as keen a sense of the great pulse of universal life and of the creative power of nature, or as sound and penetrating an insight into manifold reality. He occupies a special place, which we must almost despair of defining in a satisfactory manner. We can neither set forth his philosophical thoughts without exhibiting their shortcomings, nor yet point out these drawbacks without running the risk of being unjust to this vast, powerful, and unrestrained genius.

* * *

Compared with such men as D'Alembert and Diderot, Helvetius is not the most original of the "philosophers," yet his book *De l'Esprit* created a wonderful sensation, both in France and abroad. This success was partly due, at least in France, to the personality of the author, who was a great financier and a kind, generous, hospitable and friendly man, who approached very near to the most esteemed type of man of the eighteenth century: the man of feeling who is virtuous and made happy by his virtue. The success was undoubtedly also due in part to a most captivating style; easy to read, composed with a manifest concern for the favor of women, and weaving in short stories and anecdotes, *De l'Esprit* did not repel even the most indolent reader. Lastly, its success was due to the apparent boldness of the paradoxes which however were nothing but the fashionable opinions carried to their logical conclusions. The strange thing was that the success of Helvetius lasted for a long time, and at the end of the century it was still thought worth while to refute him.

Apart from the current doctrine of sensationalism for which Helvetius was evidently indebted to Condillac or to some other contemporary writer, his two main paradoxes are the following: (1) That personal interest or the pursuit of happiness is the only principle, whether confessed or not, of human actions; (2) that education can do everything. The first paradox was not new. Many a moralist, not to mention La Rochefoucauld, had already shown the infinite cunning of self-love, and concluded that men, even in the actions that seem most disinterested actions, are always more or less hypocritical. But Helvetius gives his argument a quite different turn. There is no pessimism or bitterness about him; he is full of kindness. "It was not the love of paradoxes," he writes, "that led me to my conclusion, but solely a desire for men's happiness." And he flatters himself that his doctrine may

contribute to it. Indeed, if it be once granted that man never seeks anything but his own interest, let law-givers so contrive that the general interest shall always agree with private interests, and all men will be good and happy. Everything, therefore, depends upon the laws. Wherever private interest is identified with public interest, virtue in each individual becomes the necessary effect of



HELVETIUS. (1715-1771.)

self-love and personal interest. "All the vices of a nation almost invariably originate in some defects of its legislation."

Diderot justly observed that this omnipotence attributed to the laws repeats in an exaggerated form the conception of Montesquieu who saw an inseparable connexion between morals and the system of government, and thus attributed to political laws an influence not always confirmed by experience. Furthermore, with

Montesquieu, the forms of government depend, in their turn, upon climate and a multitude of conditions, whereas Helvetius expressly opposes Montesquieu's theory of climates. He maintains that the action of the law-giver is supreme everywhere, and that no obstacles are insuperable if this action be properly directed. If it be objected that the pursuit of personal interest is rather a narrow basis to sustain the whole edifice of human society, he answers that, as all things come from experience, the feeling which was afterwards to be called altruism is no exception to the rule. The *moral instinct*, the moral sense, the natural capacity for beneficence and benevolence, appealed to by the English, are not to be admitted. "The vaunted system of the morally beautiful is really nothing but the system of innate ideas, demolished by Locke, and brought forward again under a somewhat different form." No individual is born good, no individual is born wicked. Both goodness and wickedness are accidents, being the result of good or bad laws.

Thence logically follows the second paradox, according to which education alone creates differences among men. Since nothing is innate or hereditary, every human soul is at first a blank page, and all souls are identical at birth. Inequality among minds is therefore due to the various circumstances in which men have been placed, to the passions aroused by these circumstances, to the power of attention that these passions produce, in short, to a thousand causes, but above all to education. Pedagogy is to individuals what political science is to nations. Error is an evil which, like vice, may be avoided. To insure the happiness of mankind, it will only be necessary to bring the art of education to perfection. Education will make enlightened men and even "men of genius as numerous as they have hitherto been scarce." The enormity of the paradox did not prevent its making an impression upon the public. It had at least the merit of calling attention to the then quite new science of pedagogy, and of preparing the public to welcome Rousseau's *Emile*. Besides, the influence of Rousseau was already quite perceptible in Helvetius. "Everything is acquired" is indeed, according to Locke's conception, the negation of innate ideas; but it is also, according to Rousseau's conception, the assertion that the errors, sufferings and crimes of men are their own work, and that it is for the educator and the law-giver to cure them.

* * *

Le Système de la Nature, by Baron D'Holbach, which appeared in 1770, is a less superficial and more vigorous work than the writ-

ings of Helvetius. Being a confessed materialist, D'Holbach defines man as a material being organised so as to feel, think and be modified in certain ways peculiar to himself, that is, to the particular combinations of substances of which he is composed. The intellectual faculties may be reduced to changes produced by motion in the brain. The word "spirit" has no meaning. The savages admit the existence of "spirits" to explain effects for which they cannot account, and which seem to them marvellous. Such an idea of spirit is preserved only by ignorance and sloth. It is more useful to divines, but most harmful to the progress of society, which keeps pace with science. The immortality of the soul is a religious dogma which never was of any use except to priests, and is not even a check upon the passions if they are at all violent, as experience sufficiently proves. And as necessary laws govern all natural phenomena, intellectual and moral phenomena included, freedom is quite out of the question.

So far this materialism had nothing remarkable about it unless it be its perfect frankness. But on the question of the existence of God, D'Holbach subjected deism and theism to a searching criticism, obviously directed against Voltaire's natural religion, and worthy of some notice. People make a wrong use of physics in behalf of metaphysics, says D'Holbach, and the study of nature should have nothing to do with moral or theological interests lest a new chance of errors be added to all those we already have to guard against. But even if we overlook this point, the argument based on final causes does not prove what it is thought to prove. First of all, the idea of order is relative to human canons of propriety, and if we leave these out of account, disorder is in itself no less natural and normal than order, nor illness than health; all phenomena being produced by virtue of the same laws. Then "to be surprised that the heart, the brain, the arteries, etc., of an animal should work as they do, or that a tree should bear fruit, is to be surprised that an animal or a tree should exist." What we call finality is but the total sum of the conditions required for the existence of every being. When these conditions are found combined, the living being subsists; if they cease to be so, it disappears; and this very simple proposition, which is true as regards individuals, is no less so as regards species and even suns. There is nothing in this which compels us to have recourse to a Providence, the author and maintainer of the world's order.

The divine personality, upheld by theists, is untenable. Newton, the vast genius who divined Nature and its laws, is only a

child when he leaves the domain of physics; and his theology shows that he had remained in bondage to the prejudices of his childhood. What is that God, lord and sovereign of all things, who rules the universe, but an anthropomorphic conception, which was only a reminiscence of Newton's Christian education? And what is Voltaire's retributive and vengeful God, but a reminiscence of precisely the same kind?

The God of deists is useless, that of theists is full of contradictions. If we nevertheless accept him, we have no right to reject anything in the name of reason, and we are inconsistent if we refuse to go further and to submit to religious dogma. Theism is liable to as many heresies and schisms as religion, and is, from a logical point of view, even more untenable. So there will always be but a step "from theism to superstition." The least derangement in the machine, a slight ailment, some unforeseen affliction, are sufficient to disturb the humors, and nothing more is required. Natural religion is only a variety of the other kind of religion, and speedily comes back to the original type. It is fear, and ignorance of causes, that first suggested to man the idea of his gods. He made them rude and fierce, then civilised, like himself; and nothing but science can cause this instinctive theology to disappear.

The appearance of this book, in which the author (though under an assumed name) so boldly carried his principles to their utmost logical conclusions, created great commotion among the "philosophers." Though they did not all feel indignant, they nearly all thought it advisable to simulate indignation. Voltaire strongly protested, and this time he was sincere. Diderot, who was suspected of having had a hand in the work, kept very quiet. D'Alembert confessed that the *Système de la Nature* was a "terrible book." Frederick II., very much shocked, wrote a refutation of it. He clearly perceived the revolutionary ideas lurking in it, and became out of humor with the Encyclopædists, who were friends and intimates of Baron D'Holbach. As for Rousseau, he had already broken with them long before, and had not waited for this book before opening the battle against materialism and atheism, which he "held in abhorrence."

Nevertheless, Rousseau had contributed to the *Encyclopædia*, in the first years of its publication; Condillac, Turgot, Quesnay had likewise written articles for it, and, unfortunately, other men besides, who were unworthy of such neighbors. In spite of Diderot's efforts there are strange incongruities in the *Encyclopædia*, and we easily understand Voltaire's frequent indignation at the

vapid or high-flown nonsense which Diderot was compelled to insert. D'Alembert, who ceased to be associated with him in publishing the *Encyclopædia* in 1757, though he went on contributing to it, often pleads extenuating circumstances in his Letters to Voltaire. It was he who, in his *Discours Préliminaire*, gave perhaps the best characterisation of this undertaking in which the philosophical spirit of the age found its expression: "The present century," he said, "which thinks itself destined to alter laws of all kinds and to secure justice . . ."

The philosophers proceeded to "alter the laws" with an eagerness, a confidence in their own reason and in their paradoxes, and a power of self-delusion that were extraordinary. The government they controlled existed only in imagination, and there was no check of experience to bring them to a halt in time. The work which they did too hastily now seems to us rather poor and out of proportion to their claims; but it does not follow that this work was not necessary, or that they were wrong in undertaking it. On the contrary, their impulse on the whole was generous, and for this reason, in spite of all their failings, it proved irresistible and carried away the very men who ought to have been its natural adversaries. Hatred of falsehood, superstition, oppression, confidence in the progress of reason and science, belief in the power of education and law to overcome ignorance, error and misery, which are the sources of all our misfortunes, and lastly warm sympathy for all that is human were shed abroad from this focus to the ends of the civilised world. Events followed which left an indelible mark upon history. And though a clear-sighted reaction showed the weaknesses, inconsistencies and lapses of this philosophy, it may well be believed that its virtue is not yet quite exhausted, and that by laying its foundations deeper it may yet rise again with new strength.

THE CROSS AND ITS SIGNIFICANCE.

BY THE EDITOR.

INTRODUCTORY.

CROSS means to us any form in which one line, stick, or beam, passes through or over another. The word is an Anglicised



THE SIMPLE CROSS.¹



THE X CROSS.¹

form of the Latin *crux*, which means any wooden pole or combination of poles erected for the execution of criminals. It is prob-

¹ Reproduced from Lipsius, *De Cruce*.

ably derived from the root "çram," which in Sanscrit means "to cause pain" or "to torture;"¹ and the term *crux* actually retained the significance of any instrument of capital punishment in the form of a lingering and painful death almost to the time of Constantine, when Christianity became the state religion of Rome. Then two intersecting lines, either a horizontal on top of a vertical line (T *crux commissa*), or a vertical passing through a horizontal

line (+ or † *crux immissa*), or two lines standing on end (X *crux decussata*) were adopted under the name of cross as the symbol of the new faith.



THE MOST COMMON FORM OF THE
ROMAN CROSS.²

The *crux commissa* (T) is also called the Tau cross, because it resembles the Greek letter T, called *tau*. The equilateral *crux immissa* (+) is commonly known by the name "Greek cross," while the other high form standing on a prolonged foot (†) is frequently called the Latin cross because it was officially adopted by the Roman Church as the symbol of Christianity. The popular name of the *crux decussata* is St. Andrew's cross, because St. Andrew is supposed to have been crucified on the X cross.

Seneca speaks of the great variety of the forms of the cross and the various ways in which criminals were crucified.³

The cross, certainly, did not always have the transverse beam, and was frequently a simple pole, wherefore it has also been called "rood," a word that signifies a rod without a transverse beam.

¹ The derivation from crun-c, as connected with the German *krumm*, proposed by Corssen upheld by Zestermann in his two programmes of Leipsic, 1867 and 1868, and again proposed by Friedrich (*Bonner Th. Litbl.*, 1875, No. 17 ff.), or a connexion with the root of the English words *crook*, as proposed in some English dictionaries, e. g., Chambers's, are highly improbable, not to say, impossible.

² Reproduced from Lipsius, *De Cruce*.

³ Consol. ad. Marc. 20. Video istic cruces non unius quidem generis sed aliter ab aliis fabricatae, etc.

Cicero¹ dwells on the cruelty and ignominy of this penalty, which was reserved for the vilest crimes and to which slaves and highway robbers alone were subjected. Livy, whose idea of a cross is apparently that of a stake, calls the cross "arbor infelix," and Horace mentions the big timber nails (*clavos trabales*) and plugs (*cuneos*) employed for crucifixion.²

Pliny (*Hist. Nat.*, 28) alludes to the strange superstition, natural at the time and common all over the Roman empire, that the ropes or nails employed for crucifixion were regarded as possessed of magic power.

It will facilitate a comprehension of the history of the cross, if we distinguish between the cross as an instrument of capital punishment and as the figure of two intersecting lines. That the former gradually assumed the shape of the latter is an interesting and instructive fact, which will find its natural explanation when we consider that a simple religious symbol was needed for Christianity, and the figure of two intersecting lines recommended itself for this purpose on account of the universality of its use, the variety of its interpretations, and, finally, the religious awe accorded to it for its mystic potencies by almost every primitive nation on earth.

CRUCIFIXION AS A SACRIFICE.

The nature of punishments depends greatly upon climatic conditions, and the death penalty of the cross is of an unequivocally southern origin. It is an exposure to the heat of the sun. In fact, the word *ἡλιάξειν*, "to expose to the sun," is a synonym of the term "to hang up on the tree," or "to crucify."³

Death by exposure to the sun was intended among the Israelites as a sacrifice to Yahveh. We read in Numbers xxv. 3-5 and 9:

"And Israel joined himself unto Baal-peor: and the anger of the Lord was kindled against Israel. And the Lord said unto Moses, Take all the heads of the people, and hang them up before the Lord against the sun, that the fierce anger of the Lord may be turned away from Israel. And Moses said unto the judges of Israel, Slay ye every one his men that were joined unto Baal-peor.

"And those that died in the plague were twenty and four thousand."

The most common death penalty of the Israelites is by stoning. Death by exposure to the sun always partakes of the nature of a sacrifice. We read in 2 Sam. xxi. 1-9:

"Then there was a famine in the days of David three years, year after year; and David enquired of the Lord. And the Lord answered, It is for Saul, and for

¹ Cicero. Terr. v. 21.

² Hor., I., 35.

³The term *ἡλιάξειν* is the word used in the Septuagint in 2 Samuel, chapter xxi., verses 1-6 and 9.

his bloody house, because he slew the Gibeonites. And the king called the Gibeonites, and said unto them; (now the Gibeonites were not of the children of Israel, but of the remnant of the Amorites; and the children of Israel had sworn unto them: and Saul sought to slay them in his zeal to the children of Israel and Judah). Wherefore David said unto the Gibeonites, What shall I do for you? and wherewith shall I make the atonement, that ye may bless the inheritance of the Lord? And the Gibeonites said unto him, We will have no silver nor gold of Saul, nor of his house; neither for us shalt thou kill any man in Israel. And he said, What ye shall say, that will I do for you. And they answered the king, The man that consumed us, and that devised gainst us that we should be destroyed from remaining in any of the coasts of Israel, Let seven men of his sons be delivered unto us, and we will hang them up unto the Lord [i. e., Yahveh] in Gibeah of Saul, whom the Lord did choose. And the king said, I will give them.¹

"And he delivered them into the hands of the Gibeonites, and they hanged them in the hill before the Lord [Yahveh]: and they fell all seven together, and were put to death in the days of harvest, in the first days, in the beginning of barley harvest."

The Gibeonites were worshippers of Yahveh as much as the Israelites, and yet they deemed it necessary to atone the wrath of God by human sacrifice. Without entering into the details of the story whether or not David intended to destroy thereby the house of his predecessor on the throne, we have the fact that the event took place in the name of Yahveh in response to an inquiry of Yahveh's oracle and according to the Yahvistic faith. It proves that the ideas of hanging up human victims to the Lord as an atonement were essential features of the religion of those days. But the Bible would not be a truthful record of the religious evolution of Israel if it did not preserve some evidence of this ancient and most significant custom, which was all but common among all savage nations.

It is a remarkable fact and by no means without significance that the oldest crucifixions recorded in the history of other nations, too, are not penalties but sacrifices offered to the sun-god, and these bloody offerings which seem to be interchangeable with holocausts were supposed to be the surest and most reliable methods of making prayer effective, of attaining one's wish, or of atoning the wrath of a god, especially if the victim was the son of the man who tried to gain the assistance of the deity.

Stockbauer, a Roman Catholic author,² calls attention to an event mentioned by Justinus which is of interest in this connexion.

¹ The clause *וְיָהוָה יָרָא* translated in the English Bible, "whom the Lord did choose," would more correctly be translated "for the satisfaction of Yahveh." The author apparently does not mean to remind the reader in this connexion that "Saul was once the choice of Yahveh," but on the contrary, that a sacrifice of seven men of the house of the rejected King would appease the wrath of Yahveh. The verb *וְיָהוָה יָרָא* means "delectari" or "to be pleased with."

² *Kunstgesch. d. Kr.*, p. 3.

The Carthaginian general Maleus had lost a battle about 600 B.C. in Sicily, and was on this account banished. Unwilling to submit, he returned home with his army and besieged his native city; but before he deemed it advisable to take the walls by storm, he had his son Catalo crucified in sight of the beleaguered fortifications, whereupon he attacked and conquered Carthage.

Notice here that the crucifixion of a son, an innocent victim, is supposed to be a reliable method of gaining the assistance of Baal!

The outstretched arms appear to have become a significant attitude of the sun-god. A votive stone, discovered in Numidia, North Africa, in the year 1813, shows the sun-god with outstretched arms holding a twig in each hand, with the inscription: "To Lord Baal, the Eternal Solar King, who has listened to the prayers of Hicembal," etc.¹

Holocausts or burnt offerings in which the victim was burned entirely are another ancient sacrifice to the sun-god. The Baal cult mentioned in the Old Testament required of its devotees to make their children pass through the fire.

Holocausts, too, were made for sacrifices, and the superstition prevailed that if a man offered his own son, his prayer would surely be granted. We read, for instance, in 2 Kings, iii. 26-27:

"And when the king of Moab saw that the battle was too sore for him, he took with him seven hundred men that drew swords, to break through even unto the king of Edom: but they could not.

"Then he took his eldest son that should have reigned in his stead, and offered him for a burnt offering upon the wall. And there came a great indignation over² Israel: and they departed from him, and returned to their own land."

The Israelites are apparently convinced that it would be useless now to continue the war, for Baal must now grant the prayer of the King of Moab. They are indignant because they have been deprived of the satisfaction of making their victory complete.

The Greek author Manetho informs us that the Egyptian king Amaris stopped a solar sacrifice of three human beings and ordered that it be replaced by a holocaust of three wax figures.

The early Christians were conscious of the similarity of their own interpretation of the death of Christ and the solar sacrifices of previous centuries. In his answer to Celsus, Origen calls Christ a holocaust of Love, and Christianity has always been regarded

¹ Domino Baali Solario requaeterno qui exundivit precer Hicembalis, etc. The inscription is published in Ghillany's *Menschenopfer der Hebräer*, p. 531.

² The English version reads "there was great indignation against Israel." Luther translates more properly: "Da ward Israel sehr zornig."

as a final fulfilment of the ancient belief that a human sacrifice is needed for the atonement of the wrath of God.

THE PRE-CHRISTIAN CROSS IN THE OLD WORLD.

We are so accustomed to regard the cross as the symbol of Christianity that we are apt to discredit the belief that the cross is the most common religious symbol of non-Christian, and especially of pre-Christian religions. But the fact is nevertheless well established, and can easily be proved.

ASSYRIA.

On the monuments of Assyria and Egypt crosses of various description are found, among which the equilateral forms abound, (thus \dagger \oplus \otimes). Assyrian kings wear equilateral crosses together with other amulets on their breast, and their horses are decked



ASSYRIAN KING IN BATTLE.¹

with them. We are probably right in interpreting it as a symbol of the sun and royal dignity. Sometimes the solar wheel (\oplus or \otimes) is used as an ornament for the ear, and we see the winged figure of a god placed within the four-spoked sun wheel.²

Upon a stele of Khorsabad an eagle-headed man holds in his right hand a ring, in his left a tau-cross (\dagger).³

Ancient crosses of the most modern description (thus $\opl�$, not unlike European decorations given by kings to men whom they desire to honor) are found among the bas-reliefs of Assyrian monuments, one of them depicting a royal reception scene. The cross

¹ Reproduced from Layard's *Monuments of Nineveh*.

² Layard, *Nineveh*. Figs. 79, a, 6, 11-59.

³ Botta, *Monumens de Ninive*. II., pl. 158. Layard, Fig. 23. Reihm, Fig. B, p. 114. Quoted by Zöckler, p. 12.

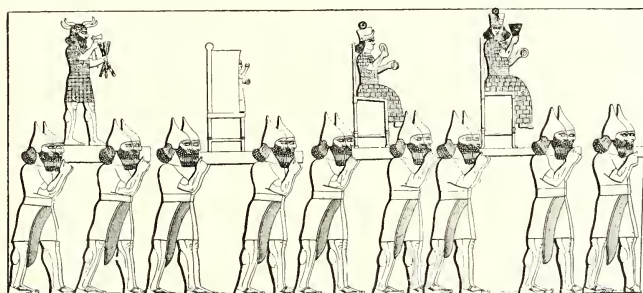
stands in the sky together with sun and moon, forming with these two divine symbols a trinity of remarkable significance.



A COURT RECEPTION IN ASSYRIA.¹

[Note the cross, the sun, and the moon in the sky. Observe also the crossed hands of those who approach the king.]

The Assyrian thunderbolt which is seen in the hands of Marduk, the God of Lightning, exhibits the form of three crossing rods, almost like a star (thus ✕), and anticipating by a strange co-



PROCESSION OF THE GODS. Marduk (or Merodach) holds in his left hand the fagot-shaped thunderbolt. (After Layard.)

incidence the Christian symbol of the initials I and X, in the sense of Jesus Christ (✕), which is frequently found in the catacombs.

¹ Reproduced from Layard's *Monuments of Nineveh*.

A more complicated form of the cross, with flower-like excrescences and ending in a divided disk (⚚), is found in the hands of the goddess Ishtar, but its significance is still an unsolved problem.

The cross standing on a sphere (⚔), exactly the same as the



ISHTAR.¹



PART OF THE SEAL OF AN
EGYPTIAN KING FOUND
IN ASSYRIA.¹

emblem of royal power in Christian lands, appears on an ancient cartouche discovered in Assyria, which served an Egyptian king as a seal.

EGYPT.

Concerning the four-armed cross in Egypt, we quote from Alviella's book on the *Migration of Symbols*, p. 15, the following interesting remark:

"On the Famous Damietta stone the Greek words Πτολεμαῖος Σωτήρ, "Ptolemy the Saviour," are rendered by the demotic characters forming the equivalent of Πτολεμαῖος, followed by the sign ⚈ ; from which the author concludes that the term Saviour being rendered by a cross, this sign was with the Egyptians, an allusion to the future coming of the Redeemer. Unhappily for this ingenious interpretation, M. de Harlez, who has taken the trouble to refute M. Ansault's article, points out to him that in demotic the sign ⚈ is the simplest form of a hieroglyph representing a hammer, or a boring tool, and is usually employed to express the idea of grinding, avenging, and by amplification, "the Grinder," "the Avenger," a not uncommon epithet of Horus, and some other gods."

"The tau-cross," (i. e., T) says Zoeckler,² "has been found in Egypt upon the breast of a mummy preserved in the British museum, and is in several instances represented as growing out of

¹ Reproduced from Layard's *Monuments*.

² *Kreuz Christi*, p. 9.

the heart of a man" (thus ♣). Other Egyptian symbols that resemble the Christian cross are such characters as *am* (⚡ or ⚡), *un* (⚡), the determinative sign of towns (thus ⊕). In addition, there is the cross with four transverse bars (⚡) which serves as a symbol of the Nile-measure, a staff with four cross-beams called *Νειλομέτρον* or *Νειλοσκοπεῖον*. This Nile-measure was regarded with religious awe, and the four bars were interpreted to mean the fourfoldness of the world and of the gods, and the four stages of the soul-migration.¹

In Egypt as well as in Assyria we meet with a peculiar combination of the tau cross with a ring (thus ⚡ ♀ or ♀), now commonly called *crux ansata* or handle-cross. Its form dates back to the most ancient times and is interpreted by the Egyptians as the key of life. The origin of the symbol can, as is the case with all pre-historic signs, not be determined with any degree of certainty. Some give it a phallic significance in which the upper or oval part ○ represents the female, and the tau-like T or lower part the male principle. Others surmise that it is the tau-cross upon which the solar disk rests. It is an attribute of Osiris and Isis and other gods of Egypt, as well as of the Assyrian goddess Ishtar. The key of life is more common with an enlarged circle outside of Egypt, where it becomes the emblem of Aphrodite or Venus ♀ and is as such called the mirror of Venus. This sign is still retained in the symbolism of the science of to-day as an abbreviation which in our calendar means "the planet of Venus" and "Friday," i. e., the day of Venus, and in our botanical text-books "female," as opposed to the sign of Mars ♂ as male.

THE CROSS OF THE ISRAELITES.

There is a distinction between *tau* and *tav*; the former is the name of the Greek T and its figure is three-armed (T), and the latter is the name of the Hebrew *Th*, now written ⚡ , which in its oldest form is a four-armed or Greek cross (⊕); but both are called crosses in the literature of early Christianity.

The Hebrew *tav*-cross may have been freely used as a sign, perhaps for marking cattle, and otherwise, but in addition, appears to have been equivalent to an oath when the signer attached it to a protocol or contract in the presence of a judge. Thus Job says (in xxxi. 35, a passage that is greatly obscured in our English Bible by a poor translation):

¹ See H. Brugsch, *Hieroglyphische Grammatik*, Leipsic, 1872. Concerning the Nile-measure see also Carrière, *Die Kunst im Zusammenhang der Kulturentwicklung*, I., p. 199.

“Lo, there is my mark [viz., my *tav* (+), serving as my signature or sigil]! The Almighty may reply and my adversary should write down his charge.”

The meaning of these words is that Job has pleaded his case and has signed the document in a legal form with his cross, which act is equivalent to making a statement upon oath in court. He calls upon God to be his witness and wants now his accuser to make his charges which he is ready to refute. Another significant passage occurs in Ezekiel ix. 4-6, where we read:

“And the Lord said unto him, Go through the midst of the city, through the midst of Jerusalem, and set a [tav-]mark upon the foreheads of the men that sigh and that cry for all the abominations that be done in the midst thereof. And to the others he said in mine hearing, Go ye after him through the city, and smite; let not your eye spare, neither have ye pity: Slay utterly old and young, both maids, and little children, and women: but come not near any man upon whom is the [tav-]mark; and begin at my sanctuary. Then they began at the ancient men which were before the house.”

We must incidentally notice that this *tav*-mark of two intersecting lines (or, as we now would say, “cross”) is never identi-



ASTAROTH WITH THE CROSS. Sidonian coins.¹

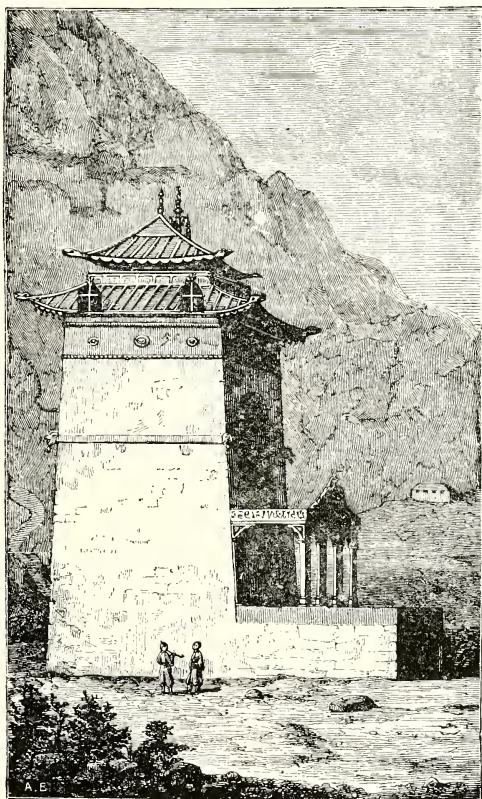
fied in the ancient Hebrew literature with the martyr instrument for crucifixion, which in Hebrew is simply called יָצ (pronounce ‘*ayts*), a tree. The Israelites never thought of identifying both, and only in Christian times the *tav*-sign of Ezekiel could be interpreted as a prophecy of Christ. The passage proves, however, the prevalence of the belief in the salutary effect of the *tav*-mark and contributed not a little finally to settle the problem of the form of the Christian cross in favor of the figure of two intersecting lines.

PHENICIA.

The high cross with a prolonged lower limb (thus †), is the symbol of Astarte in the ancient religion of the Phœnician sun-worship. Ancient coins of the city of Sidon show the goddess standing on the prow of a ship with this high cross in her arms. Considering the rite of a sacrificial crucifixion in the Baal cult of the

¹ Reproduced from Calmet No. 6, Plates CXL and XLV.

Phœnicians and Carthaginians, which is well established, we may here be confronted with an ancient identification of the intersecting lines with a pagan emblem of an atonement for sin.



MAUSOLEUM OF A GRAND LAMA IN TIBET.

INDIA AND TIBET.

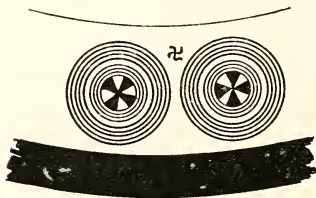
The sacred symbol of all the religions of India is an equilateral cross whose ends are turned all in the same direction at right angles, thus 卐 or 卐. It is called the Swastika or Buddhist cross,

but antedates the age of Buddha and can be traced to prehistoric times. It is called by Buddhists the wheel of the law and the broken lines are supposed to indicate the motion of the spokes.

We only mention, without entering into details, the use of the cross by the side of the swastika in Tibet and China, because they have probably been imported by Buddhists and Nestorians.¹ But there are good reasons to believe that crosses were used in pre-Christian and even in pre-Buddhistic times. Bishop Faurie, a Roman missionary and a Frenchman, observes (as quoted by Zoeckler, p. 20) that some tribes of Kui-Tchen, a province of Southern China, offer sacrifices to big crosses erected at the entrance of their villages. The people of this region of China, the bishop says, wear crosses of various colors on their garments and mark the dead on their foreheads with crosses of ashes. They call the cross "the great arch ancestor, saviour, and protector," which is apparently not due to Buddhist influence. Bishop Faurie jumps at the conclusion of a mysterious Christian tradition, which, however, we need scarcely add, is very doubtful.

GREECE.

The cross is frequently found in Greece, where it appears to have served mere ornamental purposes, for it abounds on pottery



THE CROSS AND THE SWASTIKA ON GREEK POTTERY. (Cypriotic ware of the Geometric Period.)²

during the so-called geometric period. The swastika (卐), which may have migrated to Greece from India, is also quite common and received, from the similarity of its four arms to the Greek letter gamma (Γ), the name *gamma-dion*, or *crux gammata*. The gam-madion appears on the pottery of Troy, on old coins, and on the breast of Apollo, the God of the Sun.

The swastika in all probability is a symbol of the sun. The original form (which most likely was not limited to four rays, but had sometimes only three, sometimes five or more) may have been undulating lines (thus \curvearrowright \curvearrowleft \curvearrowright), forms which are still preserved on

¹ We reproduce on the preceding page the picture of a mausoleum from Huc's *Travels in Tartary, Tibet, and China*. (Chicago: The Open Court Publishing Co.) The crosses on the miters which decorate monuments of this kind in Tibet are very conspicuous.

² *American Jour. of Arch.*, 1897, I. 3, p. 258.

various ancient monuments. When cut in wood by primitive artists, they may easily have assumed a cornered shape (thus ☩). That the idea of motion is connected with the swastika appears from the Buddhist interpretation of it as a wheel and from the feet into which Greek artists changed the gammadion, especially in its tri-cornered form.



APOLLO WITH THE SWASTIKA. (From a vase in the Historical Art Museum in Vienna.)¹

ROME.

Zoekler² states that the pre-Christian use of the four-armed cross in ancient Roman monuments has been established by de Rossi, Edmond le Blant, and Marini, who discovered the use of crosses of this form (☩) in unequivocally pagan tombstones at the beginning and the end of the names. Zoekler mentions several instances of the cross indicating the beginning and the end of names on coins as well as sigils, and calls attention to the method of

¹ Title page of D'Alviella's *Migration of Symbols*.

² *Das Kreuz Christi*, p. 397.



PETROGLYPHS IN KEI ISLAND, OCEANIA.

writing names crosswise, as did, for instance, the brick manufacturer Sempronius Heron, who made bricks for the barracks of the twenty-second legion.

S E S T S O T E R ¹	L E G, X X I I, P, F ²	L I T T I C R U S A N T U S ¹
	S E M P R O N	

Half a century before the Christian era a man working in the mint for Julius Cæsar wrote his name in the form of a cross; and Garrucci³ declares that it indicates the Julian star (* *Julium sidus*) which is frequently depicted as a mere cross (+).

THE TEUTONS.

The tau-cross (T) was an important religious symbol among the Teutons, who called it the Hammer of Thor, representing the thunderbolt of the God of Lightning. Thor was the first-born son of Odhin, the All-father, being, as a hero and a saviour, the favorite God of the Saxons as well as the Norse.

CROSSES IN THE OCEANIC ISLANDS.

In the religion of the inhabitants of the Kei islands the ghosts of the dead play an important part. There are a number of ghost caves, and the petroglyphs on overhanging rocks are the methods by which the natives remain in communion with their ancestors. Popular legend ascribes the greatest age to the petroglyphs *a-t* in the accompanying illustration. Most of them (*a-h*, also *q* and *p*) are masks and are probably intended to picture the ghosts. Figure *l* is apparently a ship. The hairy circles have either the same significance or may be solar disks. Other pictures are spirit hands (*u*, *v*, and *r*); but of special interest are two groups of three crosses (*s* and *t*) which might be an awkward reproduction of Golgotha if the theory of Christian influence were admissible. The greatest probability is that the pictures are intended to represent ghosts carrying three crosses, one on their head and one on each shoulder, or in each arm.⁴

¹ Camurrini *Iscrizioni di vasi fittili*, p. 18, No. 33, and p. 58, No. 361.

² P. F. means *primigenia fidelis*.

³ *Revue Archéologique* 1866, 1., p. 90.

⁴ For further details see *Tenth Annual Report of the Bureau of Ethnology*, '88-89, p. 167-168.

THE GENERAL IDEAS OF INFANTS AND DEAF-MUTES.¹

BY PROF. TH. RIBOT.

WE are concerned with children who have not yet learned to speak, and with such alone. In contradistinction to animals, and to deaf-mutes when left to themselves, infancy represents a transitory state of which no upper limit can be fixed, seeing that speech appears progressively. The child forms his baby-vocabulary little by little, and at first imposes it upon others, until such time as he is made to learn the language of his country. We may provisionally neglect this period of transition, studying only the dumb, or monosyllabic and gesture phase.

The problem proposed at the end of the seventeenth century (perhaps before), and dividing the philosophers into two camps, was whether the human individual starts with general terms, or with particulars. At a later time, the question was proposed for the human race as a whole, in reference to the origin of language.

Locke maintained the thesis of the particular: "The ideas that children form of the persons with whom they converse resemble the persons themselves, and can only be particular."

So, too, Condillac, Adam Smith, Dugald Stewart, and the majority of those who represent the so-called sensationalist school.

The thesis of the general was upheld by authors of no less authority, commencing with Leibnitz:

"Children and those who are ill-acquainted with the language they desire to speak, or the matter whereof they discourse, make use of general terms, such as *thing, animal, plant*, in lieu of the proper terms which are wanting to them; and it is certain that all proper or individual names were originally appellative or general."²

¹ Translated from the French by Frances A. Welby.

² *Nouveaux Essais*, Book III., Chapter I.

The problem cannot be accepted under this form by contemporary psychology. It is equivocal. Its capital error is in applying to the embryonic state of intelligence and of language, formulæ that are appropriate to adult life only—to the growing mind, categories valid for the formed intellect alone. A reference to the physiology of the human embryo will render this more intelligible. Has this embryo, up to three months, a nose or mouth? Is it male or female? etc. Students of the development of intra-uterine life in its first phases are very cautious in propounding these and similar questions in such a manner; they do not admit of definite answers. That which is in the state of development and of incessant becoming, can only be compared remotely with that which is fixed and developed.

The sole permissible formula is this: Intelligence progresses from the indefinite to the definite. If "indefinite" is taken as synonymous with general, it may be said that the particular does not appear at the outset; but neither does the general in any exact sense: the vague would be more appropriate. In other words, no sooner has the intellect progressed beyond the moment of perception and of its immediate reproduction in memory, than the generic image makes its appearance, i. e., a state intermediate between the particular and the general, participating in the nature of the one and of the other—a confused simplification.

Recent works on the psychology of infancy abound in examples of these abstractions and inferior generalisations, which appear very early.¹ A few examples will suffice.

Preyer's child (aged thirty-one weeks) interested itself exclusively in bottles, water-jugs, and other transparent vases with white contents; it had thus seized upon a characteristic mark of one thing that was important to it, to-wit—milk. At a later period it designated these by the syllable *móm*. Taine records an analogous case of a child to whom *mm* and *um*, and then *nim* at first signified the pleasure of seeing its pap, and subsequently everything eatable. We are assisting at the genesis of the sign; the crude sound attached to a group of objects becomes at a later period the sign of those objects, and later still an instrument of substitution. Sigismund showed his son, aged less than one year, and incapable of pronouncing a single word, a stuffed grouse, saying "bird." The child immediately looked across to the other side of the room where there was a stuffed owl. Another child having listened first

¹ Cf. Taine, *L'Intelligence*, Vol. 1., Book 1., Chapter 11., Part 2, Note 1. (Preyer, *Die Seele des Kindes*, Chapter XVI.)

with its right ear, then with its left, to the ticking of a watch, stretched out its arm gleefully towards the clock on the chimney-piece (auditory, not vocal, generic image).

Without multiplying examples known to every one, which give peremptory proof of the existence of abstraction (partial dissociation), and of generalisation, prior to speech, let us rather consider the heterogeneous nature of these generic images, the result of their mode of formation. They are in fact constructed arbitrarily,—as it were by accident, depending partly on the apprehension of gross resemblances, partly, and chiefly, on subjective causes, emotional dispositions, practical interests. More rarely they are based upon essential qualities.

John Stuart Mill affirms that the majority of animals divide everything into two categories: that which is, and that which is not, edible. Whatever we may think of this assertion, we should probably feel much astonishment if we could penetrate and comprehend certain animal generalisations. In the case of children we can do more than assume. Preyer's son employed the interjection *ass* (which he had forged or imitated) first for his wooden horse, mounted on wheels, and covered with hair; next for everything that could be displaced or that moved (carts, animals, his sister, etc.), and that had hair. Taine's little girl (twelve months), who had frequently been shown a copy of an infant Jesus, from Luini, and had been told at the same time, "That is the baby," would in another room, on hearing any one ask her, "Where is the baby?" turn to any of the pictures or engravings, no matter what they were. *Baby* signified to her some general thing: something which she found in common in all these pictures, engravings of landscapes, and figures, i. e., if I do not mistake, some variegated object in a shining frame. Darwin communicated the following observation on one of his grandsons to Romanes:

"The child, who was just beginning to speak, called a duck 'quack,' and, by special association, it also called water 'quack.' By an appreciation of the resemblance of qualities, it next extended the term 'quack' to denote all birds and insects on the one hand, and all fluid substances on the other. Lastly, by a still more delicate appreciation of resemblance, the child eventually called all coins 'quack,' because on the back of a French sou it had once seen the representation of an eagle."¹

In this case, to which we shall return later, there was a singular mixture of intellectual operations: creation of a word by ono-

¹ Romanes, *Mental Evolution in Man*, p. 283.

matopœia (resemblance) and finally an unbridled extension of analogy.

Such observations might be multiplied. They would only confirm this remark: the generic image varies in one case and another, because the condensation of resemblances of which it is constituted depends often upon a momentary impression, upon most unexpected conditions.

The development of *numeration* in the child takes us to some extent out of the pre-linguistic period; but it is advisable to consider it at this point. In the first place we have to distinguish between what is learnt and what is comprehended. The child may recite a series of numerical words that have been taught to him: but so long as he fails to apply each term of the series correctly to a number of corresponding objects, he does not understand it. For the rest, this comprehension is only acquired slowly and at a somewhat late period.

“The only distinction which the child makes at first is between the simple object and plurality. At eighteen months, he distinguishes between one, two, and several. At the age of three, or a little earlier, he knows one, two, and four (2×2). It is not until later that he counts a regular series; one, two, three, four. At this point he is arrested for some time. Hence the Brahmans teach their pupils of the first class to count up to four only; they leave it to the second class to count up to twenty. In European children of average intelligence, the age of six to seven years is required before they can count to ten, and about ten years to count to one hundred. The child can doubtless repeat before this age a numeration which it has been taught, but this is not what constitutes knowledge of numbers; we are speaking of determining number by objects.”¹ B. Pérez states that his personal observations have not furnished any indication contradictory to the assertions of Houzeau. An intelligent child of two and a half was able to count up to nineteen, but had no clear idea of the duration of time represented by three days; it had to be translated as follows: “not to-day but to-morrow, and another to-morrow.”²

This brings us back to the question, discussed in the last *Open Court*, of the numeration claimed for animals. Preyer tells us of one of his children that “it was impossible to take away one of his ninepins without its being discovered by the child, while at eighteen months he knew quite well whether one of his ten animals was missing or not.” Yet this fact is no proof that he was able to count

¹ B. Pérez, *op. cit.*, 219.

² Houzeau, *op. cit.*, II., 202.

up to nine or ten. To represent to oneself several objects, and to be aware that one of them is absent, and not perceived—is a different thing from the capacity of counting them numerically. If the shelves of a library contain several works that are well known to me, I can see that one is missing without knowing anything about the total number of books upon the shelves. I have a juxtaposition of images (visual or tactile), in which a gap is produced.

For the rest, much light is thrown on this question by Binet's ingenious experiments. Their principal result may be summarised as follows.¹ A little girl of four does not know how to read or count; she has simply learnt a few figures and applies them exactly to one, two, or three objects; above this she gives chance names, say six or twelve, indifferently to four objects. If a group of fifteen counters, and another group of eighteen, of the same size, are thrown down on the table, without arranging them in heaps, she is quick to recognise the most numerous group. The two groups are then modified, adding now to the right, now to the left, but so that the ratio fourteen to eighteen is constant. In six attempts the reply is invariably exact. With the ratio seventeen-eighteen, the reply is correct eight times, wrong once. If, however, the groups are found with counters of unequal diameter, everything is altered. Some (green) measure two and one-half centimetres, others (white) measure four centimetres. Eighteen green counters are put on one side, fourteen white counters on the other. The child then makes a constant error, and takes the latter group to be the more numerous, and the group of fourteen may even be reduced to ten without altering her judgment. It is not until nine that the group of eighteen counters appear the more numerous.

This fact can only be explained by supposing that the child appreciates by *space*, and not by number, by a perception of continuous and not by discontinuous size—a supposition which agrees with other experiments by the same author to the effect that, in the comparison of lines, children can appreciate differences of length. At this intellectual stage, numeration is accordingly very weak, and restricted to the narrowest limits. As soon as these are exceeded, the distribution between minus and plus rests, not upon any real numeration, but upon a difference of mass, felt in consciousness.

In children, *reasoning* prior to speech is, as with animals, practical, but well adapted to its ends. No child, if carefully watched,

¹ Cf. *Revue Philosophique*, July, 1890.

will fail to give proof of it. At seventeen months, Preyer's child, which could not speak a word, finding that it was unable to reach a plaything placed above its reach in a cupboard, looked about to the right and left, found a small travelling trunk, took it, climbed up, and possessed itself of the desired object. If this act be attributed to imitation (although Preyer does not say this), it must be granted that it is in imitation of a particular kind,—in no way comparable with a servile copy, with repetition pure and simple,—and that it contains an element of invention.

In analysing this fact and its numerous analogues, we became aware of the fundamental identity of these simple inferences with those which constitute speculative reasoning: they are of the same character. Take, for instance, a scientific definition, such as that of Boole, which seems at first sight little adapted to this connexion. "Reasoning is the elimination of the middle term in a system that has two terms." Notwithstanding its theoretical aspect, this is rigorously applicable to the cases with which we are occupied. Thus, in the mind of Preyer's child, there is a first term (desire for the plaything), a last term (possession); the remainder is the method, scaffolding, a mean term to be eliminated. The intellectual process in both instances, practical and speculative, is identical; it is a mediate operation, which develops by a series of acts in animals and children, by a series of concepts and words in the adult.

DEAF-MUTES.

In studying intellectual development prior to speech, the group of deaf-mutes is sufficiently distinct from those which we have been considering. Animals do not communicate all their secrets, and leave much to be conjectured. Children reveal only a transitory state, a moment in the total evolution. Deaf-mutes (those at least with whom we are dealing) are adults, comparable as such to other men, like them, save in the absence of speech and of what results from it. They have reached a stable mental state. Moreover, those who are instructed at a late period, who learn a language of analytical signs, i. e., who speak with their fingers, or emit the sounds which they read upon the lips of others, are able to disclose their anterior mental state. It is possible to compare the same man with himself, before and after the acquisition of an instrument of analysis. Subjective and objective psychology combine to enlighten us.

The intellectual level of such persons is very low (we shall re-

turn to this): still their inferiority has been exaggerated, especially in the last century, by virtue of the axiom, it is impossible to think without words. Discussion of this antique aphorism is unnecessary; in its rigorous form it finds hardly any advocates of note.¹ Since thought is synonymous with comparing, abstracting, generalising, judging, reasoning, i. e., with transcending in any way the purely sensorial and affective life, the true question is not, Do we think without words? but, To what extent can we think without words? Otherwise expressed, we have to fix the upper limit of the logic of images, which evidently reaches its apogee in adult deaf-mutes. Further, even in this last case, thought without language does not attain its full development. The deaf-mute who is left without special education, and who lives with men who have the use of speech, is in a less favorable situation than if he forms a society with his equals. Gérando, and others after him, remarked that deaf-mutes in their native state communicate easily with one another. He enumerates a long series of ideas, which they express in their mimicry, and gestures, and many of these expressions are identical in all countries.

“Children of about seven years old who have not yet been educated, make use of an astonishing number of gestures and very rapid signs in communicating with each other. *They understand each other naturally with great facility.* No one teaches them the initial signs, which are, in great part, unaltered imitative movements.”

The study of this spontaneous, natural language is the sole process by which we can penetrate to their psychology, and deter-

¹Max Müller, however, is an exception. He has not made the smallest concession on this point in any of his works, including the last (*Three Introductory Lectures on the Science of Thought*. Chicago: The Open Court Publishing Co.). He even maintains that a society of deaf mutes would hardly rise above the intellectual level of a chimpanzee. “A man born dumb, notwithstanding his great cerebral mass and his inheritance of strong intellectual instincts, would be capable of few higher intellectual manifestations than an orang or a chimpanzee, if he were confined to the society of dumb associates” (p. 92). This thesis was attacked by thirteen critics, including Romanes, Galton, the Duke of Argyle, etc., but Max Müller meets them all and replies to them without flinching. It must be confessed that the arguments invoked by his correspondents are very unequal in merit. Some are convincing, others not. The Duke of Argyle says happily that “words are necessary to the progress of thought, but not at all to the *act* of thinking.” Ebbels (p. 13, appendix) shows that Max Müller has unduly limited the question by excluding all processes anterior to the formation of concepts; we think in images; the transition from one form to another is imperceptible, and the faculty of abstraction does not appear suddenly along with the signs. On the other hand, we cannot admit as evidence the facts invoked by other correspondents, e. g., chess-players who combine and calculate solely by the aid of visual images; answers to letters, conceived in the first place as a general plan before they are developed in words, etc. It is forgotten that the persons capable of these operations have had long practice in verbal analysis, thereby attaining a high intellectual level. So, in the physical order, the practical gymnast, even when not executing any particular feat, possesses a suppleness and agility of body, due to exercise, which translates itself into all his movements.

mine their mode of thought. Like all other languages, it comprises a vocabulary and a syntax. The vocabulary consists in gestures which designate objects, qualities, acts; these correspond to our substantives and verbs. The syntax consists in the successive order of these gestures and their regular arrangement; it translates the movement of thought and the effort towards analysis.

I. VOCABULARY—Gérando collected about a hundred and fifty signs, created by deaf-mutes living in isolation or with their fellows.¹ A few of these may be cited as examples:

Child—Infantile gesture, of taking the breast, or being carried, or rocking in the cradle.

Ox—Imitation of the horns, or the heavy tread, or the jaws chewing the cud.

Dog—Movement of the head in barking.

Horse—Movements of the ears, or two figures riding horse-back on another, etc.

Bird—Imitation of the beak with two fingers of the left hand, while the other feeds it; or simulation of flight.

Bread—Signs of being hungry, of cutting, and of carrying to the mouth.

Water—Exhibition of saliva, imitation of a rower, or of a man pumping; accompanied always by the sign of drinking.

Letter (missive)—Gestures of writing and of sealing, or of unsealing and reading.

Monkeys, cocks, various trades (carpenter, shoemaker, etc.) all designated by imitative gestures. For sleep, sickness, health, etc., they employ an appropriate gesture.

For interrogation: expression of two contradictory propositions, and undecided glance towards the person addressed. This is rather a case of syntax than of vocabulary; but a few signs may be further indicated for some notions more abstract than the preceding.

Large—Raise the hand and look up.

Small—Contrary gestures.

Bad—Simulate tasting, and make grimace.

Number—Indicate with the help of the fingers; *high numbers*, rapid opening of the hand several times in succession.

¹ *De l'Education des sourds-muets*, 2 vol., 1827. Notwithstanding its somewhat remote date, the book has lost none of its interest in this particular. It must also be remembered that institutions for deaf-mutes are far more numerous now than at the beginning of the century, and that the children are placed in them much earlier. Formerly they were abandoned to themselves or instructed very late; in proportion to their age, they presented better material for the study of their development.

Buy—Gesture of counting money, of giving with one hand, and taking with the other.

Lose—Pretend to drop an object, and hunt for it in vain.

Forget—Pass the hand quickly across the forehead with a shrug of the shoulders.

Love—Hold the hand on the heart (universal gesture).

Hate—Same gesture with sign of negation.

Past—Throw the hand over the shoulder several times in succession.

Future—Indicate a distant object with the hand, repeated imitation of lying down in bed and getting up again.

It does not need much reflexion to see that all these signs are *abstractions* as well as imitations. Among the different characters of an object, the deaf-mute chooses one that he imitates by a gesture, and which represents the total object. Herein he proceeds exactly like the man who speaks. The difference is that he fixes the abstract by an attitude of the body instead of by a word. The primitive Aryan who denominated the horse, the sun, the moon, etc., the rapid one, the shining one, the measurer (of months), did not act otherwise; for him also, a chosen characteristic represents the total object. There is a fundamental identity in the two cases; thus justifying what was said above: abstraction is a *necessary* operation of the mind, at least in man; he must abstract, because he must simplify.

The inferiority of these imitative signs consists in their being often vague, with a tendency to the opposite sense; moreover, since they are never detached completely from the object or the act which they figure, and cannot attain to the independence of the word, they are but very imperfect instruments of substitution.

II. SYNTAX—The mere fact of the existence of a syntax in the language of the deaf-mutes proves that they possess a commencement of analysis, i. e., that thought does not remain in the rudimentary state. This point has been carefully studied by different authors: Scott, Taylor, Romanes,¹ who assign to it the following characteristics:

1. It is a syntax of position. There are no "parts of speech," i. e., terms having a fixed linguistic function: substantive, adjective, verb, etc. The terms (gestures) borrow their grammatical value from the place which they occupy in the series, and the relations between the terms are not expressed.

2. It is a fundamental principle that the signs are disposed in

¹ Taylor, *Early History of Mankind*, p. 80. Romanes *Mental Evolution in Man*, Chapter VI

the order of their relative importance, everything superfluous being omitted.

3. The subject is placed before the attribute, the object (complement) before the action, and, most frequently, the modified part before the modifying.

Some examples will serve for the better comprehension of the ordinary procedure of this syntax. To explain the proposition: After running, I went to sleep, the order of gesture would be: to run, me, finished, to sleep.—My father gave me an apple: apple, father, me, give.—The active state is distinguished from the passive by its position: I struck Thomas with a stick; me, Thomas, strike, stick. The Abbé Sicard, on asking a deaf-mute, Who created God? obtained the answer: God created nothing. Though he had no doubt as to the meaning of this inversion, he asked the control question, Who makes shoes? Answer, shoes makes cobbler.

The dry, bare character of this syntax is evident: the terms are juxtaposed without relation; it expresses the strictest necessity only; it is the replica of a sterile, indistinct mode of thought.

Since we are endeavoring by its aid to fix an intellectual level, it is not without interest to compare it with a syntax that is frequent among the weak in intellect. "These do not decline or conjugate; they employ a vague substantive, the infinitive alone, or the past participle. They leave out articles, conjunctions, auxiliary verbs, reject prepositions, employ nouns instead of pronouns. They call themselves "father," "mother," "Charles," and refer to other people by indeterminate substantives, such as man, woman, sister, doctor, etc. They invert the regular order of substantives and adjectives."¹ Although this is a case of mental regression, hence not rigorously comparable with a mind that is sane but little developed, the mental resemblance between the two syntaxes, and especially the absence of all expression of relations, deserves to be signalled, because it cannot be the result of a fortuitous coincidence. It is the work of intellectual inferiority and of relative discontinuity of thought.

There is little to say about *numeration* in deaf-mutes. When untrained, they can count up to ten with the help of their fingers, like many primitive people. Moreover (according to Sicard and Gérando), they make use of notches upon a piece of wood or some other visible mark.

To conclude, their mental feebleness, known since the days of

¹ Kussmaul, *Die Störungen der Sprache*, Chapter xxx.

antiquity by Aristotle, by the Roman law which dispossessed them of part of their civil rights, later on by many philosophers who refused even to concede them memory, arises from their inaptitude to transcend the inferior forms of abstraction and kindred operations. In regard to the events of ordinary life, in the domain of the concrete (admitting, as is not always done, that there are individual varieties, some being intelligent, and others stupid), deaf-mutes are sufficiently apt to seize and to comprehend the practical connexion between complex things.¹ But the world of higher concepts, moral, religious, cosmological, is closed to them. Observations to this effect are abundant, though here again—as must be insisted on—they reveal great individual differences.

Thus, a deaf-mute whose friends had tried to inculcate in him a few religious notions, believed before he came under instruction that the Bible was a book that had been printed in heaven by workmen of Herculean strength. This was the sole interpretation he gave to the gestures of his parents, who endeavored to make him understand that the Bible contains a revelation, coming from an all-powerful God who is in heaven.² Another who was taken regularly to church on Sunday, and exhibited exemplary piety, only recognised in this ceremony an act of obedience to the clergy. There are many similar cases on record. Others on the contrary, seek to inquire into, and to penetrate, the nature of things. W. James³ has published the autobiography of two deaf-mutes who became professors, one at the asylum of Washington, the other in California.

The principal interest attaching to the first is the spontaneous appearance of the moral sense. After stealing small sums of money from the till of a merchant, he accidentally took a gold coin. Although ignorant of its value, he was seized with scruples, feeling “that it was not for a poor man like him, and that he had stolen *too much*.” He got rid of it as best he could, and never began again.

The other biography—from which we make a few brief ex-

¹ Cf. as proof, the story related by Kussmaul (*op. cit.*, VII.): A young deaf-mute was arrested by the police of Prague as a vagabond. He was placed in an institution and questioned by suitable methods, when he made known that his father had a mill with a house and surroundings which he described exactly; that his mother and sister were dead, and his father had remarried; that his step-mother had ill-treated him, and that he had planned an escape which had succeeded. He indicated the direction of the mill to the east of Prague. Inquiries were made, and all these statements were verified.

² Romanes, *Mental Evolution*, etc., p. 150.

³ W. James, *Psychology*, I., 266, for the second observation; *Philosophical Review*, I., No. 6, p. 613 et seq. for the first.

tracts—may be taken as the type of an intelligent and curious deaf-mute. He was not placed in an institution until he was eleven years old. During his childhood he accompanied his father on long expeditions, and his curiosity was aroused as to the origin of things: of animals and vegetables, of the earth, the sun, the moon, the stars (at eight or nine years). He began to understand (from five years) how children were descended from parents, and how animals were propagated. This may have been the origin of the question he put to himself: whence came the first man, first animal, first plant, etc. He supposed at first that primæval man was born from the trunk of a tree, then rejected this hypothesis as absurd, then sought in various directions without finding. He respected the sun and moon, believed that they went under the earth in the West, and traversed a long tunnel to reappear in the East, etc. One day, on hearing violent peals of thunder, he interrogated his brother, who pointed to the sky, and simulated the zigzag of the lightning with his finger; when he concluded for the existence of a celestial giant whose voice was thunder. Puerile as they may be, are these cosmogonic, theological conceptions inferior to those of the aborigines of Oceanica and of the savage regions of South America, who, nevertheless, have a vocal idiom, a rudimentary language?

To sum up. That which dominates among the better gifted, is the creative imagination: it is the culminating point of their intellectual development. Their primitive curiosity does not seem inferior to that of average humanity; but since they cannot get beyond representation by images they lack an instrument of intellectual progress.

THE MORAL EDUCATION OF CHILDREN.

BY THE EDITOR.

IMAGINATION AND LOVE OF TRUTH.

LOVE of knowledge is a good thing, but love of truth is more important than anything else, and should be impressed upon a child's mind as early as possible ; but we must not be blind to the fact that the conception of truth can scarcely develop before the fourth or fifth year. Although the idea is very simple to an adult, it is, in its full significance, quite complex,—indeed, too complex to be appreciated in all its importance by children.

The first condition for developing the love of truth is never to let the punishment of a small criminal follow his confession of a trespass. For fear is the main, and in serious cases, the only, incentive to telling lies,—lies in the sense of wilful misstatements of facts, of deceptions, made for the purpose of gaining advantages or escaping unpleasant results.

We ought to know that sometimes a child tells untruths which are not lies. Children have a vivid imagination, and they are apt to invent facts. A certain small boy who was suspected of having broken a dish denied the fact, while his little brother, who could not have done the deed, positively assured his parents that he had broken the dish. He told an untruth simply because he imagined how he might have broken it. The case was interesting to him, and in his vivid imagination he depicted all the details, and told with great complacency a long story describing how the accident had happened.

To many children the dreams of their imagination at once become as real as the reminiscences of actual events, and in our fervor of impressing upon children a love of truth, we must not be too quick to condemn a little sinner before we positively know that he tells not a mere untruth but an actual lie invented for the purpose of shirking his responsibility.

Love of truth ought to be closely connected with self-esteem, and what is commonly called the sense of honor. There ought to be no worse opprobrium than the defamation of being a liar.

When years ago I was a scientific instructor at the Royal Corps of Cadets at Dresden, I adopted the principle, whenever any disturbance of a recitation occurred, of simply asking the question, "Who did it?" On the first occasion, of course, there was no response, whereupon I spoke contemptuously of the spirit of the whole class, in which there was some one too cowardly to stand up frankly and acknowledge the mischief which he had committed. I argued that all the members of the class were responsible for the *corps d'esprit*; and that so long as such cowardice was condoned and encouraged, I could have no respect for the class. When this happened for the first time, the charge of cowardice stung the evil doer, but he did not rise to confess, although the whole class grew more and more indignant and urged him to do so. The duty of the class, I continued, is so to influence its members that none of them shall shirk the responsibility and fail to acknowledge whatever he has done. In a society that tolerates suspicious characters one must be on one's guard; and so a teacher cannot treat a class in which some refuse to confess the truth frankly and openly, as young friends, but as inferiors, comparable to inmates of a penitentiary who are always under the suspicion of wrong-doing. The result was that somebody rose to expose the delinquent; but I refused to listen to the denunciations, and stigmatised, at the same time, in strong terms, the practice of playing the informer, saying that I did not care to know who did it, but hoped that the guilty one would have honor enough to tell the truth, if it were for no other motive than to avert suspicion from an innocent comrade. The malefactor appeared after the recitation and denounced himself privately, but here again I refused to listen to the confession, and told him the proper thing would be to stand up before the whole class and publicly acknowledge his guilt. What he had done before the whole class, he must confess to before the whole class. Without any further suggestion, at the next recitation the malefactor jumped up, and in a few clear words made the confession required.

An occurrence of this kind took place once only in every new class and never again. The class understood the principle, and whenever anything out of the way happened, whenever there was a noise which was difficult to trace, or whenever a disturbance of any kind took place, the cause of which could not be discovered,

the question, "Who did it?" was always followed by a prompt surrender of the delinquent. He knew, of course, that he would not be punished, nor was it ever necessary, because the confession ended the joke, if there was any joke in it, for its repetition had become impossible.

When I was a child attending school, the investigation of criminal cases was a favorite pastime for several of my teachers. I remember that many of our lessons were idled away by cross-examinations. The professor played the judge in court, and every one of the boys deemed it his duty to mislead him. It was almost impossible to learn the truth, for the *corps d'esprit* of our classes preserved the conviction that belying the teacher was the proper thing to do, and any one who had told the truth plainly, either in self-confession or in denunciation of others would have been regarded as an abject fellow who, without self-respect, bowed his neck under the yoke of our common oppressors. During my experience as a teacher at the Royal Corps of Cadets, I was never obliged to undertake any investigation, and I may add, I never had reason to doubt the word of the boys. Many of them are now officers in the German army, or may do duty in the very institution at which they were educated, and I hope they have learned to treat soldiers and cadets in the same spirit.

WORLDLY PRUDENCE.

While love of truth must become part of the foundation of a child's mind, we should not one-sidedly press the importance of truth to the utter neglect of discretion. Common prudence teaches that we have to tell the truth at the right moment and in the right way. Love of truth should not be identified with bluntness. We are by no means requested to tell the truth, the whole truth, and nothing but the truth, to everybody. We should tell the truth above all considerations where it is our duty to do so, and that depends upon circumstances.

The physician who shocks a sick man by bluntly telling him, "Your disease is fatal," may be guilty of a criminal offence in so far as he hastens the dissolution of his patient. He must be on his guard and break the truth in an appropriate way, as the occasion requires. Due reserve is not lying, and bluntness is not love of truth. We must consider the consequences of our words, and choose such expressions as will bring about the result at which we truthfully aim. We must tell the truth with discretion.

The main thing is to tell the truth to ourselves. The old evening prayer has a very good feature in its review of the day's work, and its self-criticism should, at any rate, be kept up. Whenever a child has done anything wrong, let him consider it in a quiet mood when he retires for the night, and drive home to him the lesson that, the severer he is with himself, the more apt he will be to make a success in life. Most failures in life are direct results of vanity, which prevents us from seeing our own faults. Truthfulness to ourselves must be the basis of our truthfulness to others; as Shakespeare says:

" This above all : to thine own self be true,
And it must follow as the night the day
Thou canst not then be false to any man."

As to cleverness and discretion, I know no better way to cultivate them than by reading with the children *Æsop's Fables* and even *Reynard the Fox*. The former have the advantage of being short, and most of them need no explanation as to the lesson involved. The moral of the latter, however, is almost dangerous, as it seems to teach that cunning is the most valuable equipment in life, and that the clever liar will win in the end. But I am not willing to reject the story on such easy terms, for many of the situations and many of the delineations of characters are too realistic and intrinsically true not to teach a useful lesson. A few words of explanation will prevent children from drawing the wrong moral from the story. First we must call their attention to the fact that all the creatures so ingeniously duped by the fox are caught by their own faults—Bruin, the bear, by his love of honey; Tibert, the cat, by his proclivity for mousing; Bellin, the ram, by his ambition to appear as a clever councillor; Kyward, the hare, by his stupidity, which in a certain sense is a vice too, and which our children must be taught to overcome as a matter of duty. It is true that Reynard is the personification of cunning, but Isegrim the wolf, his enemy, has all the faults of the fox with the sole exception that he is physically his superior, and is, in addition, voracious, improvident, slovenly, and villainous. And with what a humor are all the other characters described! Grimbart, the badger, the uncritical admirer of Reynard; Baldwin, the Ass, the learned clerk; the she-ape, Ruckinaw, an intriguing chambermaid. Noble, the lion, is a very short-sighted sovereign who becomes a mere puppet, a plaything, and, without knowing it himself, is used by Reynard as a tool. For all that, the fox remains a rascal who constantly runs the risk of ending on the gallows.

With some such hints, a reading of this ancient animal epic will be very instructive, especially if after its perusal the children are told that the tale reflects the age in which it was written—an age in which true goodness was rare and the importance of a genuine love of truth was not yet appreciated. Civilisation was then so low that cleverness, even in the low form of cunning, was uncommon, and whenever found it was appreciated as a rare gift from heaven. It takes quite a clever man to tell a lie with approximate consistency, and the *Odyssey*, written in an analogous period of culture in the Greek nation, expatiates with great satisfaction upon the virtue of lying and the mendacious genius of its versatile and inventive hero, whose usual epithet, *πολύμητις*, sounds like a translation of *Regin-hard*.¹

There can be no doubt that the animal fables, including the story of Reynard the Fox, are among the best methods, if not the very best, to teach in a playful way the first elements of worldly wisdom. The fact that *Æsop's Fables* can be traced back to India, that fables are mentioned in the Old Testament and in the history of Rome as early as the sixth century B. C.; further, that similar poetical productions of an independent growth have been discovered in the tales of Uncle Remus among the negroes of the United States, and in the animal stories of the natives of America, Africa, and Oceanica, is sufficient evidence not only of the fact that they must be a very ancient and venerable heirloom of ancestral wisdom, but also of their popularity and usefulness as a means of instruction.

Carlyle speaks of the animal fable as "a true world's book which through centuries was everywhere at home, the spirit of which diffused itself into all languages and all minds, . . . the universal household possession and secular Bible."

SQUARE DEALING.

There is an innate desire among people to get something for nothing, or to gain by a reduction of prices. On this principle those merchants base their business who announce that they are enabled by bankruptcy or otherwise to sell under the manufacturing price. While I do not deny that this is sometimes possible, there is no question that some of the goods bought in this way possess much less value than the reduced price represents. The man

¹ Reynard means "strong in council" (*regin* = wisdom, advice, council; and *hard* = strong, firm). The second part of Greek *πολύμητις* is derived from the same root as *μητιάειν*, "to deliberate," "to consider," "to devise"; and thus the entire word means "he of many devises."

who buys goods at an exorbitant price loses money, but he owns the goods. He got what he wanted. But he who buys poor goods at a reduced price loses both, money and goods, for he gave away the former, and the latter are without value and will either be useless or will not serve the purpose for which they were bought.

The fact that cheap goods are "made to sell" is admirably set forth in Dr. John Wolcott's humorous poem *The Razor Seller*, which I quote :

A fellow in a market-town,
Most musical, cried razors up and down,
And offered twelve for eighteen pence ;
Which certainly seemed wondrous cheap,
And, for the money, quite a heap,
As every man would buy, with cash and sense.

A country bumpkin the great offer heard,—
Poor Hodge, who suffered by a broad black beard,
That seemed a shoe-brush stuck beneath his nose :
With cheerfulness the eighteen pence he paid,
And proudly to himself in whispers said,
" This rascal stole the razors, I suppose.

" No matter if the fellow *be* a knave,
Provided that the razors *shave*;
It certainly will be a monstrous prize."
So home the clown, with his good fortune, went,
Smiling, in heart and soul content,
And quickly soaped himself to ears and eyes.

Being well lathered from a dish or tub,
Hodge now began with grinning pain to grub,
Just like a hedger cutting furze ;
'Twas a vile razor !—then the rest he tried,—
All were impostors. " Ah ! " Hodge sighed,
" I wish my eighteen pence within my purse,"

In vain to chase his beard, and bring the graces,
He cut, and dug, and winced, and stamped, and swore ;
Brought blood, and danced, blasphemed, and made wry faces,
And cursed each razor's body o'er and o'er :

His muzzle formed of *opposition* stuff,
Firm as a Foxite, would not lose its ruff ;
So kept it,—laughing at the steel and suds.
Hodge, in a passion, stretched his angry jaws,
Vowing the direst vengeance with clenched claws,
On the vile cheat that sold the goods.
" Razors ! a mean, confounded dog,
Not fit to scrape a hog ! "

Hodge sought the fellow,—found him,—and begun :

“ P'rhaps, Master Razor-rogue, to you 't is fun,

That people flay themselves out of their lives.

You rascal ! for an hour have I been grubbing,

Giving my crying whiskers here a scrubbing,

With razors just like oyster knives.

Sirrah ! I tell you you 're a knave,

To cry up razors that can't shave ! ”

“ Friend,” quoth the razor man, “ I'm not a knave,

As for the razors you have bought,

Upon my soul, I never thought

That they would *shave*.”

“ Not think they'd *shave* ! ” quoth Hodge, with wondering eyes,

And voice not much unlike an Indian yell ;

“ What were they made for, then, you dog ? ” he cries.

“ *Made*,” quoth the fellow with a smile,—“ *to sell*.”

It is sad, but nevertheless true, that most people who are cheated in life are deceived by their own desire to deceive. There is, for instance, a trick among gamblers, which among the uninitiated rarely fails. The gambler who plays puts down three cards and requests those present to bet on one of them. While putting down the cards, there is a disturbance somewhere behind the gambler, and he indignantly turns round, requesting the people to be quiet, and this moment of his apparent inattention is utilised by a bystander who lifts up one of the cards, shows it to some others, and puts it down again. It is done quickly enough not to be noticeable to the gambler. But woe to him who imagines that on the strength of this deception he can risk his money on the exposed card. For, when the card is turned up it proves to be different from the one he has seen. The man who lifts up and shows the card belongs to the gang, and before he puts it down again he replaces it by another one. There are, however, plenty of people who, if they but have a chance to deceive their fellow-men, venture to do so, and thus they are gulled by their own evil desires and have no reason to complain about it.

The bait which will catch the unwary with the greatest ease is flattery. Vain people are most easily inveigled and defrauded by praise, or by propositions that appeal to a sense of their own importance, or fame, or ability. The fable of the fox and the crow repeats itself more frequently than any other allegorical story, and it is worth while to have our children learn it by heart so that they will remember the lesson.

Let us teach children at an early age and as soon as they can

comprehend it, not by moralising, but by practical instances such as they observe in their surroundings, that the employment of tricks never pays; and that they should look with suspicion on every one who invites them to gain by the loss of others or by deception. To gain by cheating others is difficult; and therefore, as a mere matter of prudence, it should not be practised. In fact, one must become a professional trickster, or gambler, in order to succeed in the profession of cheating. A bird that is caught tightens the noose by its own movements. So a country clown, when victimised by a gang of tricksters, himself closes as a rule the snare into which he falls.

SYMPATHY WITH ANIMALS.

It is well to impress children at an early age with the truth that animals are as much sentient creatures as we are. It is not necessary to make children sentimental or to avoid telling them that animals are used for meat; but they should not witness such scenes as the slaughter of chickens, or pigs, or other creatures. Our Western civilisation is in many respects, and, indeed, in its most important features, superior to all other civilisations, but it is inferior to Hindu habits, in so far as it has no proper sympathy with animal life. I read, for instance, in an otherwise good book, the title of which is *The American Boy's Handy-Book*, on page 386, the following passage:

"Mr. Fred Holder, the celebrated naturalist and writer of boys' books on natural history, is responsible for 'the goose fisherman,' which is nothing more nor less than a live goose, with a line and spoon-hook attached to one leg. Mr. or Mrs. Goose is driven into the water and forced to swim, which, owing to the nature of the bird, is not a difficult or disagreeable task.

"As the bird swims, using its feet as paddles to propel itself, the spoon at the head of the line is jerked along in a most interesting manner to the fish, and if there are any pickerel, with their voracious appetites to spur them on, they cannot often restrain themselves, but needs must seize what, to them, appears to be a fat, shiny, young fish, but which they learn to their sorrow to be a hard metal snare.

"Then the fun begins. The goose feels something tugging at its leg, and becomes excited. The unfortunate fish plunges about, only to drive the cruel barbs deeper into its cartilaginous mouth, and make escape impossible.

"Finding, as it supposes, a hidden enemy in the water, the bird seeks refuge on the shore, where its master gleefully unhooks the fish, and starts the bird on another trip."

What a barbarous game! Can there be any better mode of teaching boys cruelty? And what will be the result of an education in which the distress of a goose is thought to be exciting fun? The game is not so cruel as many other sports, but it is certainly

calculated to harden a boy's heart to the sufferings of helpless animals. Hunting and fishing are good out-door exercises, but they can be tolerated only on the condition that the mind shall not dwell on the havoc which is caused in animal life. The sole inducement to hunting and fishing ought to consist in the exercise it affords, and perhaps also in the difficulties which the pursuit of the game offers.

I, for one, cannot understand how a man can shoot at a deer that does not run away but confidently and boldly faces the hunter. That hunting and fishing are sports is a mark of barbarism. They ought to be simply a business, engaged in on account of the necessity of killing a certain number of animals either for food, or because of the danger of their becoming a plague to the country, as is the case with the rabbits in California, which have to be killed, not for food, but because they destroy the harvest, and on account of their rapid increase making it a question whether they or man shall inhabit the country.

A disinclination to regard hunting as a noble sport may appear sentimental ; but I am happy to say that a man who, if he lacked any virtue, lacked in sentimentality, cherished the same opinion. Frederick the Great, who as a warrior and general is unexcelled in the history of mankind, had a great contempt for hunting, and declared that there was as little enjoyment in killing deer as there was in a butcher's killing calves. But Frederick was an exception on the throne, for hunting has always been, and is still, a royal sport, and the slaughter of game is by many sovereigns looked upon as a most important event in their lives.

The only hunting worthy of man is the lion or tiger hunt, which is heroic and means salvation of life by the destruction of those creatures that are destructive to it. But most of the hunting that is actually done is little better than mere slaughter, the worst sport being coursing, for which the animals are first caught and are then let loose for the purpose of being hunted to death.

MISCELLANEOUS.

HUMAN DOCUMENTS FROM THE EARLY CENTURIES.

The discovery of the *Logia Iesou* at Oxyrhynchus in 1897 aroused world-wide interest in the archæological explorations being conducted in Egypt. But the Logia were by no means the only manuscripts found at that time and place. The Egypt Exploration Fund, under whose auspices this work was being done by Messrs. Grenfell and Hunt, has just published under their editorship a whole volume, containing more than a hundred and fifty ancient texts found at that time.

Among these is a single page of the Gospel of Matthew, which is older than any other MS. of the New Testament now known. Although only a few verses of the first chapter its text tends to prove the correctness of the conclusions of Westcott and Hort, and to show the incorrectness of the accepted text. Some other theological texts of no special value were also discovered, but the most interesting "find" was a lost poem by Sappho. Professor Blass has restored the somewhat mutilated text, which is translated thus :

" Sweet Nereids, grant to me
That home unscathed my brother may return,
And every end for which his soul shall yearn
Accomplished see !

" And thou, immortal Queen,
Blot out the past, that thus his friends may know
Joy, shame his foes,—nay rather, let no foe
By us be seen !

" And may he have the will
To me, his sister, some regard to show,
To assuage the pain he brought, whose cruel blow
My soul did kill,

" Yea, mine, for that ill name
Whose biting edge, to shun the festal throng
Compelling, ceased awhile ; yet back ere long
To goad us came."

Fragments of a treatise on metre by Aristoxenus of two lost comedies, of a chronological work, elegiacs, and epigrams, together with fragments of Thucydides, Homer, Plato, Demosthenes, and other extant authors have also been brought to light.

But none of these is so interesting as the large number of private and public documents which were found, filled as they are with so much of the "Eternally Human" that they cannot fail to appeal to us. An account of the trial of an em-

issary from Oxyrhynchus before the emperor in Rome is so dramatic in its effect as to prove itself the relation of an eye-witness. The scene is laid in the famous gardens of Lucullus, where the Emperor Marcus Aurelius and his council are seated in judgment.

"As he (the emperor) was saying this, Appianus turned around, and, seeing Heliodorus, said, 'Heliodorus, when I am being led off to execution, do you not speak?' Heliodorus: 'And to whom can I speak, when I have no one to listen to me? Onward, my son, to death; it is a glory for you to die for your beloved country. Be not distressed. . . .' The Emperor recalled Appianus and said, 'Now do you know whom you are addressing?' Appianus: 'I know very well: I, Appianus, am addressing a tyrant.' The Emperor: 'No, a king.' Appianus: 'Say not so! the deified Antoninus, your father, deserved imperial power. Listen; in the first place he was a lover of wisdom; secondly, he was no lover of gain; thirdly, he was a lover of virtue. You have the opposite qualities to these; you are a tyrant, a hater of virtue, and a boor.' Cæsar ordered him to be led away. Appianus, as he was being led off, said, 'Grant me this one favor, lord Cæsar.' The Emperor: 'What?' Appianus: 'Order that I may wear the insignia of my nobility on the way.' The Emperor: 'Take them.' Appianus took up his band, placed it on his head, and put his white shoes on his feet, and cried out in the midst of Rome, 'Run hither, Romans, and behold one led off to death who is a gymnasiarch and envoy of the Alexandrians.' The veteran (who was accompanying Appianus) ran and told his lord, saying, 'Lord, while you are sitting in judgment, the Romans are murmuring.' The Emperor: 'At what?' The consul: 'At the execution of the Alexandrian.' The Emperor: 'Let him be sent for.' When Appianus entered he said, 'Who has recalled me when I was now saluting my second death, and those who have died before me—Theon, Isidorus, and Lampon? Was it the senate or you, the arch-pirate?' The Emperor: 'We, too, are accustomed to bring to their senses those who are mad or beside themselves. You speak only so long as I allow you to speak.' Appianus: 'I swear by your prosperity I am neither mad nor beside myself, but I appeal on behalf of my nobility and of my rights.' The Emperor: 'How so?' Appianus: 'Because I am a noble and a gymnasiarch.' The Emperor: 'Do you, then, mean that we are ignoble?' Appianus: 'As to that, I do not know, but I appeal on behalf of my nobility and my rights.' The Emperor: 'Do you not now know that we are noble?' Appianus: 'On this point, if you really are ignorant, I will instruct you. In the first place, Cæsar saved Cleopatra's life when he conquered her kingdom, and, some say, . . .'"

Another interesting minute of court proceedings shedding light upon the life of the year 49 in Egypt is this account of a law-suit for the possession of a child. "From the minutes of Tiberius Claudius Pasion, strategus (judge of the nome or district). The ninth year of Tiberius Claudius Cæsar Augustus Germanicus Imperator, Pharmouthi 3. In court, Pesouris *versus* Saræus. Aristocles, advocate for Pesouris, said: 'Pesouris, my client, in the seventh year of our sovereign Tiberius Claudius Cæsar, picked up from the gutter a boy foundling, named Heracles. He put it in the defendant's charge. This nurse was there for the son of Pesouris. She received her wages for the first year when they became due, she also received them for the second year. In proof of my assertions there are the documents in which she acknowledges receipt. The foundling was being starved, and Pesouris took it away. Thereupon Saræus, waiting her opportunity, made an incursion into my client's house and carried off the foundling. She now justifies its

removal on the ground that it was free-born. I have here firstly, the contract with the nurse; I have also, secondly, the receipt of the wages. I demand their recognition.' Saraeus: 'I weaned my own child, and the foundling belonging to these people was placed in my charge. I received from them my full wages of eight staters. Then the foundling died, and I was left with the money. They now wish to take away my own child.' Theon: 'We have the papers relating to the foundling.' The strategus: 'Since from its features the child appears to be that of Saraeus, if she and her husband will make a written declaration that the foundling entrusted to her by Pesouris died, I give judgment in accordance with the decision of our lord the praefect, that she have her own child on paying back the money she has received.'

The custom of manumitting slaves for a monetary consideration is reflected in this letter of the year 86. "Chaeremon to the agoranomus, greeting. Grant freedom to Euphrosyne, a slave, aged about thirty-five years, born in her owner's house of the slave Demetrous. She is being set at liberty under . . . by ransom by her mistress Aloine, daughter of Komon, son of Dionysius of Oxyrhynchus, under the wardship of Komon, the son of Aloine's deceased brother Dioscorus. The price paid is ten drachmae of coined silver and ten talents, three thousand drachmae of copper. Farewell."

A letter touching upon a shortage in the accounts of an official is a fresh reminder of the constancy in human traits. "Good men went wrong," or, rather, rogues were found out then as now. "Aurelius Apolinarius, strategus of the Oxyrhynchite nome, to his dear friend Apion, ex-strategus of the Antaeopolite nome, greeting. Dioscorus, strategus of the Antaeopolite nome, has sent me a despatch which has been delayed until Epeiph 13 of the past third year, explaining that Potamon, also called Sarapion, the collector of the nome, among the receipts of the revenue of the third year when you were in office, received towards the completion of the survey of the dykes and canals in the second year the sum of three thousand one hundred and eighty-seven drachmae, three obols, which he did not pay over to the revenue office within the appointed time. Dioscorus now wishes me to ask that this should be refunded, and to credit it to the nome. In order, therefore, that you may be acquainted with these facts and lose no time in repaying the money in accordance with this letter . . ."

A report of a robbery in which the victim seems to have his doubts as to the efforts made by the police to catch the thieves, is suggestive of the idea that Tammany methods are pretty ancient. ". . . they broke down a door that led into the public street and had been blocked up with bricks, probably using a log of wood as a battering-ram. They then entered the house and contented themselves with taking from what was stored there ten artabae of barley, which they carried off by the same way. We guessed that this was removed piecemeal by the said door from the marks of a rope dragged in that direction, and pointed out this fact to the chief of the police of the village and to the other officials. I am therefore obliged to put in this petition, and beg you to order that the chief of the police and the other officials be brought before you, and to make due inquiry about this robbery, so that I may be able to recover the barley."

A declaration by an egg-seller is rather quaint reading. "To Flavius Thenyras, logistes of the Oxyrhynchite nome, from Aurelius Nilus, son of Didymus, of the illustrious and most illustrious city of Oxyrhynchus, an egg-seller by trade. I hereby agree on the august, divine oath by our lords the Emperor and the Cæsars to offer my eggs in the market-place publicly, for sale and for the supply of the

said city, every day without intermission, and I acknowledge that it shall be unlawful for me in the future to sell secretly or in any house. If I am detected so doing (I shall be liable to the penalty for breaking the oath)."

Some of the Greek and Latin documents deal with the every-day life of the people in the most concrete fashion. Here, for instance, is the monthly meat bill of a cook, affording more than a glimpse at the bill of fare of the second century. "Cook's account. Thoth 4th, 24th year, 4 pounds of meat, 2 trotters, 1 tongue, 1 snout. 6th, half a head with the tongue. 11th, 2 pounds of meat, 1 tongue, 2 kidneys. 12th, 1 pound of meat, 1 breast. 14th, 2 pounds of meat, 1 breast. 16th, 3 pounds of meat. 17th, 2 pounds of meat, 1 tongue. 18th, 1 tongue. 21st, 1 paunch. 22nd, 1 paunch, 2 kidneys. 23rd, 2 pounds of meat, 1 paunch, 2 trotters. 26th, 1 tongue. 30th, 1 breast. And before this, on Mesore 18th, 2 pounds of meat, 1 paunch, 2 kidneys. 21st, 1 breast. 23rd, 1 half a head with the tongue 2 kidneys. 24th, 2 pounds, 2 trotters. 25th, for Tryphon 2 pounds, 1 ear, 1 trotter, 2 kidneys. 29th, 2 pounds, 2 trotters, 1 tongue. 2nd intercalary day, 1 tongue. 3rd, 1 breast."

The formal invitations of the second and third century were so much like those issued to-day that, with the names and dates changed, they might be copied and used as models of elegance in any social circle. This invitation to dinner, for instance: "Chaeremon requests your company at dinner at the table of the lord Serapis in the Serapeum to-morrow, the 15th, at 9 o'clock."

A less formal letter of invitation to a festival was also found: "Greeting, my dear Serenia, from Petosiris. Be sure, dear, to come up on the 20th for the birthday festival of the god, and let me know whether you are coming by boat or by donkey, in order that we may send for you accordingly. Take care not to forget. I pray for your continued health."

A letter of consolation written in the second century is no less interesting; "Irene to Taonnophris and Philo, good cheer! I was as much grieved and shed as many tears over Eumoeus as I shed for Didymas, and I did everything that was fitting, and so did all my friends, Epaphroditus and Thermouthion and Phillion and Apollonius and Plantas. But still there is nothing one can do in the face of such trouble. So I leave you to comfort yourselves. Good-bye. Athyrl."

There were pawn-shops in those days to which some of the ladies had recourse when in need, and they were compelled to pay the usurious interest of four per cent. per month. Here is a letter from one of the victims: "Now please redeem my property from Serapion. It is pledged for two minae. I have paid interest up to Epeiph, at the rate of a stater per mina. There is a casket of incense-wood, and another of onyx, a tunic, a white veil with a real purple border, a handkerchief, a tunic with a Laconian stripe, a garment of purple linen, two armlets, a necklace, a coverlet, a figure of Aphrodite, a cup, a big tin flask, and a wine-jar. From Onetor get the two bracelets. They have been pledged since Tybi of last year for eight . . . at the rate of a stater per mina. If the cash is insufficient owing to the carelessness of Theagenis, if, I say, it is insufficient, sell the bracelets to make up the money. Many salutations to Aia and Eutychia and Alexandra. Xanthilla salutes Aia and all her friends. I pray for your health."

Most natural of all this epistolary literature is an ill-spelled and ungrammatical letter written by a spoiled boy to his father: "Theon to his father Theon, greeting. It was a fine thing of you not to take me with you to the city! If you won't take me to Alexandria with you I won't write you a letter or speak to you or say good-bye to you; and if you go to Alexandria I won't take your hand or ever

greet you again. That is what will happen if you won't take me. Mother said to Archelaus, 'It quite upsets him to be left behind.' It was good of you to send me presents . . . on the 12th, the day you sailed. Send me a lyre, I implore you. If you don't I won't eat, I won't drink; there now."

I wonder if he got the lyre.

CLIFTON HARBY LEVY.

THE GOESCHEN SERIES OF POPULAR CLASSICS, AND LITERARY AND SCIENTIFIC TEXT-BOOKS.

There was undoubtedly a strong admixture of ethics and philanthropy in the economical reflexions that stirred the heart of Herr G. J. Göschen, the well-known Leipsic publisher, when he conceived the project of publishing his cheap series of *Literary Classics* and *Literary and Scientific Manuals*. But whatever the motive, the World-Spirit moved to good purpose in him. The series is marvelously cheap, costing but 80 pfennigs apiece (20 cents) for volumes some of which run to 300 pages, and all of which are bound in flexible linen covers. It embraces the most varied subjects—histories of literatures, grammars of the most important languages, annotated editions of the German classics of all periods, dictionaries, histories of art, and manuals of all the sciences. The books are not reprints, but independent works by competent authorities—with illustrations, figures, etc.,—and all of pocket-size. The plenitude of material is such that we can mention in this review the mathematical text-books only. A few of the literary manuals will be noticed later. "*Wir können es nicht mit einem Trichter eingiessen,*" as the medieval professor of philosophy petulantly said to his students at the end of a four-years' course on Aristotle.

* * *

The miniature mathematical library of the Göschen series consists of some ten volumes, which are shortly to be increased by several more. The mathematical editor under whose direction these works have been written is Prof. Hermann Schubert, of Hamburg, well known to the readers of *The Open Court* and *The Monist*. Professor Schubert is himself the author of three of the books of the series—all of them models of conciseness, yet exceedingly rich in contents for their size, and of very high didactic value. They are (1) his *Arithmetic and Algebra*, (2) his *Collection of Examples in Arithmetic and Algebra*; and (3) his *Tables of Four-Place Logarithms*. The value of his first book lies in its systematic and logical development of the principles; it embraces nearly all of what is called with us higher arithmetic (excluding the commercial parts), and elementary algebra; it would form an excellent skeleton-course in the hands of elementary instructors. The *Examples* are a companion-book to the *Arithmetic and Algebra*. The *Four-place Logarithms* are unique in several respects: they are printed in two colors red and black; both for the natural numbers and for trigonometric functions, anti-tables are given, dispensing with interpolation, and making it as easy to find the anti-logarithms as the logarithms; tables of physical and mathematical constants have also been added. This book could be used in great part by students quite ignorant of German.

The next volume in order is that of Dr. Benedikt Sporer, on *Niedere Analysis*, and is devoted to such subjects as continued fractions, indeterminate analysis, the theory of combinations and probabilities, series, interpolation, and the elementary theory of equations. The volume has 173 pages, and contains much material

that cannot be found in the common run of text-books on "advanced algebra." It serves as a sort of introduction to the succeeding volumes on *Higher Analysis*.

The first of these is the *Differential Calculus* of Dr. Friedrich Junker (192 pp., 63 figures). This volume contains a brief introductory chapter to the Calculus, which is a sort of *résumé* of the relevant developments of the preceding volumes; a second chapter on differences, differentials, and derivatives of the first order; a third on derivatives and differentials of higher orders; a fourth on the determination of the limiting values of singular forms; a fifth on the convergence and divergence of series; a sixth on the development of functions by exponential series; a seventh on the maxima and minima of functions; an eighth on the applications of analysis to geometry; and a final brief chapter on the application of the differential calculus to mechanics. The treatment, while traditional, is enlivened by many practical and modern points of view.

A volume complementary to the preceding works on analysis is a valuable and extremely convenient *Collection of Mathematical Formulæ* by Prof. O. Th. Bürklen (pp. 129, figures 18). This little book, which is in its second edition, gives in a compact form the most important and the most useful of the formulæ of arithmetic, algebra, and algebraical analysis, including finite and infinite series and the theory of equations, the most important propositions of plain and solid geometry, plain and spherical trigonometry, geodesy, analytical geometry, and the differential and integral calculus. There is a brief bibliography of the best hand-books of the various subjects here summarised, and a table of useful numerical values.

The geometrical part of the series is made up of some four volumes, the first being the *Plane Geometry* of Dr. G. Mahler, professor of mathematics in the Gymnasium of Ulm. The figures of the book, which is now in its second edition, are printed in two colors, black and red, the construction-lines being in red. The treatment is almost entirely modern, and not marred by a vicious straining for artificial rigor. The principle of symmetry has been made use of; the useful arithmetical applications of the principles of geometry have not been neglected; historical matter has been inserted here and there, and a brief but good collection of exercises given. Not the most unimportant feature of the book is the third chapter, on the systematic treatment of geometrical problems. The best modern text-books of geometry do not leave the pupil in the dark when solving geometrical problems, but put in his hands rational methods of attack that give to his labors rather the character of research than that of erratic and haphazard groping.

The volume on *Plane Analytical Geometry* is by Dr. Max Simon, of Strasburg contains 203 pages, and has 45 cuts. For actual amount of useful matter, this little book surpasses many treatises on analytical geometry having twice or three times its bulk. The same author has supplied the treatise on the *Analytical Geometry of Space* (200 pp., 28 cuts).

The volume on *Projective Geometry* is by Dr. Karl Doehlemann, of Munich, (162 pp., 57 figures, some of which are in two colors). Dr. Doehlemann has given a brief bibliography of the subject, and supplied an index. His booklet is particularly to be noted, as the study of projective geometry is rarely cultivated outside of technical and professional schools.

We have finally to mention the excellent little manual of Kurt Geisler, on *Mathematical Geography* (pp. 183). The matter contained in this little volume would form an excellent supplement to the subjects ordinarily treated in American text-books on physical geography, and properly forms an integrant branch of this

last subject. It encroaches on the domains of astronomy and physics, and had better be studied in connexion with the text-books of these sciences.

Both the publishers and authors are to be highly complimented on the general character of the series, and it can only be wished that its circulation will ultimately justify them in their undertaking. It is so cheap that almost any one can afford to purchase all the books in his department, and, so far as we have examined them, they will be found in every case to be modern productions, incorporating the best knowledge of the age.¹

T. J. McC.

NOTES.

The readers of *The Open Court* will remember the correspondence published some time ago from the Rev. Peter Rijnhart, Christian missionary among the robber tribes near the border of Tibet. A dispatch, which has recently gone the rounds of the daily papers, announced his assassination and the flight of Mrs. Rijnhart to more civilised parts of China. The Rev. Chas. T. Paul, pastor of the Church of Christ, Toronto, Canada, an intimate friend of Mr. Rijnhart, writes, in reply to an inquiry, as follows:

"Up to the present I do not feel at all compelled to believe that he was killed. The dispatches say he left his wife to visit a camp at an hour's distance, but never returned. His wife then fled to Ta-chien-lu, being pursued by brigands, and believing of course that her husband had been murdered.

"I have received a telegram and two letters from Mrs. Rijnhart's sister, Dr. Jennie Carson, of Chatham, Ont., in which I am informed that no such news of any kind has come to Mrs. Rijnhart's home. I think, too, that some message would have come to me if things were as bad as stated in the dispatches.

"Strange to say, this morning's mail brings me a letter from Fort Wayne Ind., stating that Mrs. Rijnhart's friends in that city have heard direct from her. She writes from Ta-chien-lu, China, under date of December 1. She believes her husband dead and is now on her way to America. I am making up a purse of money to bring her from Shanghai to Canada. My Fort Wayne correspondent adds:

"Mr. Rijnhart may be alive; he may have been taken prisoner and escaped in another direction, and we may hear from him again when he reaches some civilised place; we cannot believe he is dead."

"My last news from Mr. Rijnhart was dated in May, 1898. He was just then leaving on a long journey to the interior. He expected to cross the Kuenlun Mountains and make his way gradually toward the capital. He had ample supplies for a year and a considerable company of men. Among other purposes of the journey was that of doing medical mission work and distributing New Testaments *en route*.

"Mr. Rijnhart is good as gold, simple in faith, and heroic in deed."

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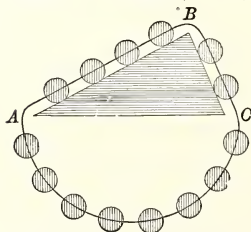
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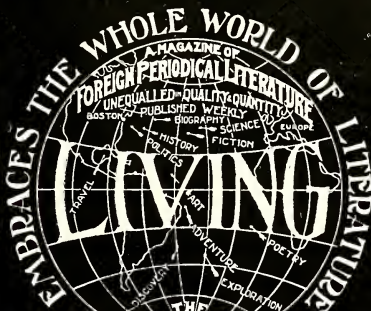
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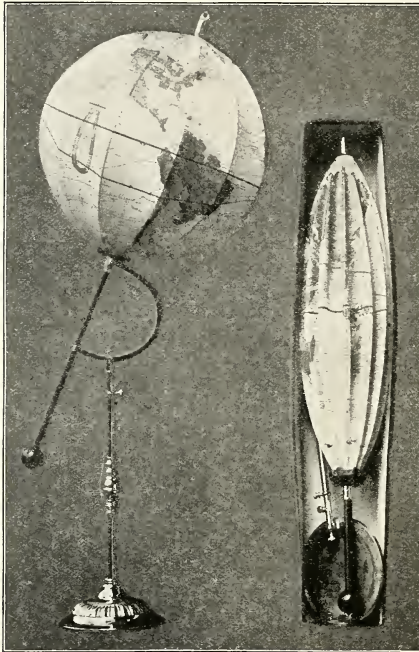
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