Rameau's Nephew
and Other Works

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ENCYCLOPEDIA, noun, feminine gender. (Philosophy.) This word signifies unity of knowledge; it is made up of the Greek prefix EN, in, and the nouns KYKLOS, circle, and PAIDEIA, instruction, science, knowledge. In truth, the aim of an encyclopedia is to collect all the knowledge that now lies scattered over the face of the earth, to make known its general structure to the men among whom we live, and to transmit it to those who will come after us, in order that the labors of past ages may be useful to the ages to come, that our grandsons, as they become better educated, may at the same time become more virtuous and more happy, and that we may not die without having deserved well of the human race.

It would have been difficult to set for oneself a more enormous task than this of dealing with everything that relates to man's curiosity, his duties, his needs and his pleasures. Accordingly, some people, accustomed as they are to judging the feasibility of an enterprise by the poverty of their own resources, have asserted that we would never finish our task. (See the latest edition of the Jesuits' Dictionnaire de Trévoux, at the word encyclopédie.) Our only answer to them will be the following passage from the writings of Chancellor Bacon, which seems to be addressed especially to them: "Those works are possible, which may be accomplished by some person, though not by every one; which may be done by many,
though not by one; which may be completed in the succession of ages, though not within the hour-glass of one man's life; and which may be reached by public effort, though not by private endeavor." (The Advancement of Learning, Book II, Chapter 1)

When one comes to reflect upon the vast subject matter of an encyclopedia, the one thing that can be perceived distinctly is that it cannot be the work of a single man. For how could one man, in the short space of his lifetime, hope to know and describe the universal system of nature and of art, seeing that the numerous and erudite society of academicians of La Crusca* has taken forty years to compose its dictionary, and that the members of our French Academy worked sixty years on their Dictionary before publishing its first edition? Yet what is a linguistic dictionary, what is a compilation of the words of a language, assuming that it is executed as perfectly as possible? It is a very exact résumé of the articles to be included in a systematic encyclopedic dictionary.

But a single man, it may be said, can master all existing knowledge and can make such use as he desires of all the riches that other men have piled up. I cannot agree with this assumption. I am unable to believe that it is within the power of a single man to know all that can be known; to make use of all the knowledge that exists; to see all that is to be seen; to understand all that is comprehensible. Even if a systematic dictionary of the sciences and of the arts were to be nothing but a methodical collection of elementary principles, I should still want to know who is capable of discerning what is fundamental, and I should still ask who is the proper person to compose the elementary explanations; whether the description of the fundamental principles of a science or art should be a pupil's first attempt or the mature work of a master.

But to demonstrate, with the utmost degree of clarity, how difficult it is for one man ever to bring to completion a syst-
who show the most discrimination in their use of the term luxury—a discussion which has never taken place and which is perhaps beyond the capacities of the persons concerned.

All terms must be defined, excepting only the radicals, that is to say, those which refer to simple sensations or to the most abstract general ideas. If any have been left out, the dictionary is incomplete. . . . And who will furnish an exact definition of the word congruent unless it be a geometrian? of the word conjugation unless it be a grammarian? of the word azimuth unless it be an astronomer? of the word epic unless it be a man of letters? of the word exchange unless it be a merchant? of the word vice unless it be a moralist? of the word hypostasis unless it be a theologian? of the word metaphysics unless it be a philosopher? of the word gouge, unless it be a man well-versed in the manual arts? Whence I conclude that if the French Academy did not unite in its assemblies all the various kinds of human knowledge and the most diverse talents, it would be impossible for it not to overlook a large number of expressions which one would search for in vain in its Dictionary; or for it not to allow false, incomplete, absurd, or even ridiculous definitions to creep in.

I am fully aware that these views are not shared by those who lecture to us about everything and who nevertheless know nothing; who are not members of our academies and who never will be because they are not worthy to be members; yet who take it upon themselves to decide who should fill vacant places; who, while they presume to set limits to the subjects which the French Academy should consider, are almost indignant to see men like Mairan, Maupertuis, or D'Alembert enter that company; and who do not know that the first time one of these men spoke in the Academy it was to rectify the definition of the word noon. One would think, to hear them talk, that they would like to restrict linguistic science and the Dictionary of the Academy to those few words which are familiar to them. And, indeed, if they looked a little more closely, they would find a large number of terms even among these—such as tree, animal, plant, flower, vice, virtue, truth, force, laws—for a rigorous definition of which they would have to call the philosopher, the jurist, the historian, or the naturalist to their assistance. In sum, they would need the help of men who know the real or abstract qualities that make a thing what it is and give it its individual or specific character, depending upon whether the thing is unique or one of a class.

We shall have to conclude, then, that a good dictionary can never be brought to completion without the co-operation of a large number of men endowed with special talents, because definitions of words are in no way different from definitions of things, and because a thing cannot be well defined or described except by those who have made a long study of it. But if this is admitted, how much more would be required for the execution of a work which, far from being limited to the definition of words, aims at describing in detail all that pertains to things!

A systematic universal dictionary of the arts and sciences cannot, therefore, be the work of one man alone. I will go further and say that I do not believe it can be done by any of the learned or literary societies that now exist, taken singly or together.

The French Academy could furnish an encyclopedia only with what pertains to language and its usage; the Academy of Inscriptions and Belles-Lettres, only knowledge relating to ancient and modern profane history, to chronology, to geography, and to literature; the Sorbonne, only theology, sacred history, and superstitions; the Academy of Sciences, only mathematics, natural history, physics, chemistry, medicine, anatomy, and the like; the Academy of Surgery, only the art of the surgeon; that of Painting, only painting, sculpture, engraving, drawing, architecture, and related topics; the University, only that which we understand by the humanities, scholastic philosophy, jurisprudence, printing, and the like.

Run through the other societies that I may have omitted and you will find that each is occupied with a single field of knowledge—a field that is doubtless within the purview of an encyclopedia—but that each neglects an infinite number of other subjects that must be included. You will not find any single society that can provide you with that fund of general
knowledge which you want. Better yet, lay them all under tribute, and you will discover how many things are still lacking; you will be obliged to have recourse to a large number of men of different sorts and conditions—men of genius to whom the gates of the academies are closed by reason of their low rank in their social scale. There are too many members of these learned companies if one's need is simply for human knowledge; there are not enough in all these societies if one is in search of a general science of man.

Without doubt it would be very useful to have all that one could obtain from each particular learned society; and the sum of what they could all provide would advance a universal dictionary a long way toward completion. There is, indeed, a task which, if undertaken, would render the academicians' labors even more directly subservient to the purpose of such a dictionary, and which the academies ought to be asked to do. I can conceive of two ways of cultivating the sciences: one is to increase the general fund of knowledge by making discoveries, and it is by this method that one comes to deserve the name of inventor; the other is to bring past discoveries together and reduce them to an ordered scheme so that more men may be enlightened and that each may contribute within the limits of his capacity to the intellectual progress of his age; we use the term writers of texts to apply to those who succeed in this second kind of enterprise, which is by no means an easy one. I am convinced that if the learned societies that exist throughout Europe would bestir themselves to collect all ancient and modern knowledge with a view to linking it all together by publishing complete and systematic treatises on all subjects, it would be an excellent thing—at least the disappointing results thus far obtained in this direction lend support to such a judgment. Compare the twenty-four quarto volumes compiled by the Academy of Sciences, permeated as these are by the outlook that dominates our most famous academies, with eight or ten volumes to be prepared as I have suggested, and see if it would not be easy to choose between the two sets. The latter would contain a vast amount of excellent information now dispersed in a large number of works, locked up where it can have no useful effect, like scattered coals which can never make a fire. And of these ten volumes you could scarcely put together one or two out of the most voluminous academic collection now in existence. One need only glance at the Mémoires of the Academy of Inscriptions and calculate how many pages one would borrow for a scientific treatise on history. What shall I say of the Philosophical Transactions or of the Actes des curieux de la nature? It is for this reason that all these enormous collections are beginning to lose their prestige, and there is no doubt that the first compiler of abridgments who happens to have some skill and good taste will drive them completely off the booksellers' shelves. This is bound to be their ultimate fate.

Having thought very seriously about the matter, I believe that the special task of an academician should be the advancement of the branch of learning to which he is attached. He should strive for immortality by writing books that would have nothing to do with the academy and would not form part of its collections, but would be published under his own name. The academy, for its part, should take as its task the assembling of all that is published on each subject. It should digest this information, clarify it, condense it, arrange it in an orderly way, and publish it in the form of treatises in which no topic would occupy more space than it deserves nor assume any importance except that which cannot be denied it. How many of the memoirs that now burden our collections would furnish not one single line to treatises of this kind!

An encyclopedia ought to make good the failure to execute such a project hitherto, and should encompass not only the fields already covered by the academies, but each and every branch of human knowledge. This is a work that cannot be completed except by a society of men of letters and skilled workmen, each working separately on his own part, but all bound together solely by their zeal for the best interests of the human race and a feeling of mutual good will.

I say, a society of men of letters and of skilled workmen, for it is necessary to assemble all sorts of abilities. I wish the members of this society to work separately because there is no
existing society from which one could obtain all the knowledge one needs, and because if one wanted the work to be perpetually in the making, but never finished, the best way to secure that result would be to form a permanent society. For every society has its meetings; there are intervals between meetings; each meeting lasts for only a few hours; part of this time is wasted in disputes; and so the simplest problems consume entire months. . . .

I add: men bound together by zeal for the best interests of the human race and by a feeling of mutual good will, because these motives are the most worthy that can animate the souls of upright people and they are also the most lasting. One has an inward sense of self-approval for all that one does; one becomes enthusiastic, and one undertakes, out of regard for one's friends and colleagues, many a task that one would not attempt for any other consideration. I can certainly testify from my own experience that the success of such attempts is all the more assured. The Encyclopedia has brought together its materials in a very short time. It is no sordid self-interest that has assembled and spurred on the authors; rather they have seen their efforts seconded by the majority of the men of letters from whom they expected assistance, and the only annoyance they have suffered in the course of their work has been caused by persons who had not the talent necessary to contribute one single good page.

If the government were to meddle with a work of this sort it would never be finished. All that the authorities ought to do is encourage its completion. A monarch may, by a single word, cause a palace to rise up out of the grass; but a society of men of letters is not the same thing as a gang of laborers. An encyclopedia cannot be produced on order. It is a task that needs rather to be pursued with perseverance than to be begun with ardor. An enterprise of this sort may on occasion be proposed in the course of a conversation at Court; but the interest which it arouses in such circles is never great enough to prevent its being forgotten amidst the tumult and confusion of an infinite number of more or less pressing affairs. Literary projects which great noblemen conceive are like the leaves that appear in the spring, grow dry in the autumn and fall in a heap in the depths of the forest, where the sustenance they give to a few sterile plants is all the effect they can be seen to produce. Out of a large number of instances in all the fields of literature that are known to me I will cite but a single one. A series of experiments on the hardness of various kinds of woods had been planned. The bark was to be removed and the standing trees were to be left to die. So the bark was stripped off, the trees died, and were apparently cut down; that is, everything was done except to make the experiments on the hardness of wood. And, indeed, how could they possibly have been made? Six years were to have elapsed between the giving of the initial orders and the final operations. If the man to whom the sovereign entrusted the work happened to die or to fall from favor, all work had to be suspended. Nor would it ever be resumed, for a new minister does not as a rule adopt the projects of his predecessor, although to do so would render him deserving of a kind of glory that would be, if not greater, at least more rare, than that of having conceived them. Private individuals are eager to harvest the fruits of what they have sown; the government has none of this economic zeal. I do not know what reprehensible motive it is that leads people to deal less honestly with a prince than with his subjects. One assumes the lightest of obligations and then expects the most handsome rewards. Uncertainty as to whether the project will ever have any useful results fills the workmen with inconceivable indolence. To lend to all these disadvantages the greatest possible force, projects ordered by sovereigns are never conceived in terms of pure utility, but always in terms of dignity of the sponsor; that is to say, the scale is as large as possible; obstacles are continually arising; men, special abilities, and time are needed in proportion to surmount them; and before the end is in sight, there is sure to intervene a change of ministers. . . . If the average life expectancy of an ordinary man is less than twenty years, that of a minister is less than ten. And not only are interruptions more frequent when it is a question of some literary project; they are also more damaging when the government is the sponsor than when the publishing enterprise
is conducted by private individuals. In the event of shipwreck, the individual at least gathers up the debris of his undertaking and carefully preserves the materials that may be of service to him in a happier time; he hastens to salvage something from his investment. But the spirit of monarchy scorns this sort of prudence; men die, and the fruit of their toil disappears so completely that no one can discover what became of it.

The most important consideration, however, and one that lends added weight to the previous ones, is that an encyclopedia, like a dictionary, must be begun, carried forward and completed within a certain period of time. But sordid self-interest exerts itself to prolong any work that a king has commissioned. If one should devote to a universal and systematic dictionary all the long years that the vast scope of its subject matter seems to require, it would come about, thanks to the revolutionary changes which are scarcely less rapid in the arts and sciences than in language, that this dictionary would be a hundred years out of date, just as a dictionary of language which was composed slowly could end only by being a list of words used in the previous century.

Revolutionary changes may be less abrupt and less obvious in the sciences and liberal arts than in the mechanical arts, but change has nonetheless occurred. One need only open the dictionaries of the last century. One will not find under the word "aberration" the slightest hint of what our astronomers understand by this term; on "electricity," that extremely promising phenomenon, there will be found but a few lines which contain nothing but false notions and ancient prejudices. How many terms are there relating to mineralogy or natural history of which the same could be said? If our own dictionary had been undertaken a little earlier, we should have been obliged to repeat all the errors of past ages on the diseases of grain and on the grain trade because the discoveries of M. Tillet and the methods of M. Herbert are very recent.

When one discusses the phenomena of nature, what more can one do than summarize as scrupulously as possible all their properties as they are known at the time of writing? But observation and experimental science unceasingly multiply both phenomena and data, and rational philosophy, by comparing and combining them, continually extends or narrows the range of our knowledge and consequently causes the meanings of accepted words to undergo change, renders their former definitions inaccurate, false, or incomplete, and even compels the introduction of new words.

But the circumstance that will give a superannuated appearance to the work and bring it the public's scorn will be above all the revolution that will occur in the minds of men and in the national character. Today, when philosophy is advancing with gigantic strides, when it is bringing under its sway all the matters that are its proper concern, when its tone is the dominant one, and when we are beginning to shake off the yoke of authority and tradition in order to hold fast to the laws of reason, there is scarcely a single elementary or dogmatic book which satisfies us entirely. We find that these works are put together out of the productions of a few men and are not founded upon the truths of nature. We dare to raise doubts about the infallibility of Aristotle and Plato, and the time has come when the works that still enjoy the highest reputation will begin to lose some of their great prestige or even fall into complete oblivion. Certain literary forms—for want of the vital realities and actual custom that once served them as models—will no longer possess an unchanging or even a reasonable poetic meaning and will be abandoned; while others that remain, and whose intrinsic value sustains them will take on an entirely new meaning. Such are the consequences of the progress of reason, an advance that will overthrow so many old idols and perhaps restore to their pedestals some statues that have been cast down. The latter will be those of the rare geniuses who were ahead of their own times. We have had, if one may thus express it, our contemporaries in the age of Louis XIV.

Time, which has somewhat modified our tastes in the matter of critical controversy, has made a portion of Bayle's dictionary seem insipid. There is no other author who has lost so much merit in some respects and gained so much in
others. But if such has been the fate of Bayle, how much worse would have been the fortune of an encyclopedia executed in his generation! With the exception of Perrault, and of several others whose merits that versifier Boileau was unable to appreciate (I mean La Mothe, Terasson, Boindin and Fontenelle, with whom reason and the philosophical spirit—the spirit of doubt—made such great progress), there was in that age perhaps not a single man who could write a page that people would condescend to read nowadays. For let there be no mistake, there is a world of difference between those who by force of genius give birth to works that secure the plaudits of a single nation (which has its momentary greatness, its taste, its ideas, and its prejudices), and those who trace out the fundamental principles of creative art as these arise from real, mature knowledge of the human spirit, of the nature of things, and of right reason, which are the same in all ages. The genius acknowledges no rules; yet he never strays far from them when his efforts succeed. Philosophy knows only rules that are grounded in the nature of things, and this nature is eternal and immutable. Let the last century furnish examples of genius; it is for our own age to prescribe the rules. . . .

In a systematic, universal dictionary, as in any work intended for the general education of mankind, you must begin by contemplating your subject in its most general aspects; you must know the state of mind of your nation, foresee the direction of its future development, hasten to anticipate its progress so that the march of events will not leave your book behind but will rather overtake it along the road; you must be prepared to work solely for the good of future generations because the moment of your own existence quickly passes away, and a great enterprise is not likely to be finished before the present generation ceases to exist. But if you would have your work remain fresh and useful for a long time to come—by virtue of its being far in advance of the national spirit, which marches steadily forward—you must shorten your labors by multiplying the number of your helpers, an expedient that is not, indeed, without its disadvantages, as I shall try to make plain hereafter.

Nevertheless, knowledge is not infinite, and cannot be universally diffused beyond a certain point. To be sure, no one knows just where this limit may be. Still less does anyone know to what heights the human race might have attained nor of what it might be capable, if it were in no way hampered in its progress. Revolutions are necessary; there have always been revolutions, and there always will be; the maximum interval between one revolution and another is a fixed quantity, and this is the only limit to what we can attain by our labors. For there is in every science a point beyond which it is virtually impossible to go. Whenever this point is reached, there will be created landmarks which will remain almost forever to astonish all mankind.

But if humanity is subject to certain limitations which set bounds to its strivings, how much narrower are the limits that circumscribe the efforts of individuals! The individual has but a certain quantity of energy both physical and intellectual. He enjoys but a short span of existence, he is constrained to alternate labor with repose; he has both instincts and bodily needs to satisfy, and he is prey to an infinite number of distractions. Whenever the negative elements in this equation add up to the smallest possible sum, or the positive elements add up to the largest possible sum, a man working alone in some branch of human knowledge will be able to carry it forward as far as it is capable of being carried by the efforts of one man. Add to the labors of this extraordinary individual those of another like him, and of still others, until you have filled up the whole interval of time between one scientific revolution and the revolution most remote from it in time, and you will be able to form some notion of the greatest perfection attainable by the whole human race—especially if you take for granted a certain number of accidental circumstances favorable to its labors, or which might have diminished its success had they been adverse.

But the general mass of men are not so made that they can either promote or understand this forward march of the human spirit. The highest level of enlightenment that this mass can achieve is strictly limited; hence it follows that there will al-
ways be literary achievements which will be above the capacities of the generality of men; there will be others which by degrees will fall short of that level; and there will be still others which will share both these fates.

No matter to what state of perfection an encyclopedia may be brought, it is clear from the very nature of such a work that it will necessarily be found among this third class of books. There are many things that are in daily use among the common people, things from which they draw their livelihood, and they are incessantly busy gaining a practical knowledge of these things. As many treatises as you like may be written about these matters and still there will always come a time when the practical man will know more about them than the writer of the book. There are other subjects about which the ordinary man will remain almost totally ignorant because the daily accretions to his fund of knowledge are too feeble and too slow ever to form any considerable sum of enlightenment, even if you suppose them to be uninterrupted.

Hence both the man of the people and the learned man will always have equally good reasons for desiring an encyclopedia and for seeking to learn from it.

The most glorious moment for a work of this sort would be that which might come immediately in the wake of some catastrophe so great as to suspend the progress of science, interrupt the labors of craftsmen, and plunge a portion of our hemisphere into darkness once again. What gratitude would not be lavished by the generation that came after this time of troubles upon those men who had discerned the approach of disaster from afar, who had taken measures to ward off its worst ravages by collecting in a safe place the knowledge of all past ages! In such a contingency—I may say it without being immodest because our *Encyclopedia* will perhaps never attain the perfection that would make it deserving of such honor—in such a contingency, men would speak, in the same breath in which they named this great work, of the monarch in whose reign it was undertaken, of the minister to whom it was dedicated, of the eminent men who promoted its execution, of the authors who devoted them-

selves to it, and of all the men of letters who lent their aid. The same voice that recalled these services would not fail to speak also of the sufferings that the authors were obliged to undergo, of the indignities that were heaped upon them; and the monument raised to their fame would have several faces where one would see in turn the honors accorded to their memory and the signs of posterity's reprobation for the names of their enemies.

Both the real universe and the world of ideas have an infinite number of aspects by which they may be made comprehensible, and the number of possible "systems of human knowledge" is as large as the number of these points of view. The only system that would be free from all arbitrariness is, as I have said in our "Prospectus," the one that must have existed from all eternity in the mind of God. Hence the plan according to which one would begin with this eternal Being and then descend from Him to all the lesser beings that have emanated from His bosom in the course of time. This plan would resemble the astronomical hypothesis in which the scientist transports himself in imagination to the center of the sun so as to be able to calculate there the behavior of the heavenly bodies that surround him. It is a scheme that has both simplicity and grandeur, but one may discern in it a defect that would be serious in a work composed by men of science and addressed to all men in all ages to come. This is the fault of being too closely tied to our prevailing theology—a sublime science and one that is undoubtedly useful by reason of the knowledge that the Christian receives from it, but even more useful by reason of the sacrifices it demands and the rewards it promises.

As for a general system from which all that is arbitrary would be excluded—something we mortals can never hope to possess—it might not, perhaps, be so great an advantage to possess it. For what would be the difference between reading a book in which all the hidden springs of the universe were laid bare, and direct study of the universe itself? Virtually none: we shall never be capable of understanding more than a certain portion of this great book. To the extent that our im-
patience and our curiosity—which overmaster us and so often break up the course of our observations—disturb the orderly conduct of our reading, to that extent is our knowledge liable to become disjointed, as it now is. Losing the chain of inductive logic, and ceasing to perceive the connections between one step and those before and after, we would speedily come upon the same lacks and the same uncertainties. We are now busy trying to fill up the voids by means of the study of nature; we would still be busy trying to fill them up if we possessed and could meditate upon that huge book of which I have spoken; but the book would seem no more perfect to our eyes than would the universe itself, and the book would therefore be no less exposed to our presumptuous doubts and objections.

Since an absolutely perfect general plan would in no way supply the deficiencies arising from the weakness of our understanding, let us instead take hold of those things that are bound up with our human condition, being content to make our way upward from them toward some more general notions. The more elevated the point of view from which we approach our subject, the more territory it will reveal to us, the grander and more instructive will be the prospect we shall survey. It follows that the order must be simple, for there is rarely any grandeur without simplicity; it must be clear and easy to grasp, not a tortuous maze in which one goes astray and never sees anything beyond the point where one stands. No, it must rather be a vast, broad avenue extending far into the distance, intersected by other highways laid out with equal care, each leading by the easiest and shortest path to a remote but single goal.

Another consideration must be kept in view. I mean that if one banishes from the face of the earth the thinking and contemplating entity, man, then the sublime and moving spectacle of nature will be but a sad and silent scene; the universe will be hushed; darkness and silence will regain their sway. All will be changed into a vast solitude where unobserved phenomena take their course unseen and unheard. It is only the presence of men that makes the existence of other beings significant. What better plan, then, in writing the history of these beings, than to subordinate oneself to this consideration? Why should we not introduce man into our Encyclopedia, giving him the same place that he occupies in the universe? Why should we not make him the center of all that is? Is there, in all infinite space, any point of origin from which we could more advantageously draw the extended lines which we plan to produce to all the other points? With man at the center, how lively and pleasing will be the ensuing relations between man and other beings, between other beings and man!

For this reason we have decided to seek in man's principal faculties the main divisions within which our work will fall. Another method might be equally satisfactory, provided it did not put a cold, insensitive, silent being in the place of man. For man is the unique starting point, and the end to which everything must finally be related if one wishes to please, to instruct, to move to sympathy, even in the most arid matters and in the driest details. Take away my own existence and that of my fellow men and what does the rest of nature signify?

Although I believe that there is a point beyond which it is dangerous to add further material, I also think that one should not stop until one is very sure that this point has been reached. All the arts and sciences have their metaphysical principles, and this part is always abstract, elevated and difficult. None the less this part must be the main concern of a philosophical dictionary; and one must admit, too, that no matter how much remains to be done in this field, there will still be phenomena that cannot be explained. . . . It happens inevitably that the man of letters, the savant, and the craftsman sometimes walk in darkness. If they make some small amount of progress it is due to pure chance; they reach their goal like a lost traveler who has followed the right path without knowing it. Thus it is of the highest importance to give a clear explanation of the metaphysical basis of phenomena, or of their first, most general principles.

By this means the rest will be made more luminous and more certain in the reader's mind. Then all those alleged mysteries, for which some sciences are so much blamed—and