Not only will the number of those who can be interested in the works of the mind be greater, but the taste for intellectual pleasures will descend by degrees even to those who in aristocratic societies do not seem to have either the time or the capacity to engage in them.

When there are no longer inherited wealth, class privileges, and prerogatives of birth, and each draws his force only from himself, it becomes visible that what makes the principal difference among the fortunes of men is intelligence. All that serves to fortify, enlarge, and adorn intelligence immediately brings a high price.

The utility of knowledge is revealed with a very particular clarity even to the eyes of the crowd. Those who do not taste its charms prize its effects and make efforts to attain it.

In democratic, enlightened, and free centuries, men have nothing separating them or keeping them in their place; they rise or fall with singular rapidity. All classes see each other constantly because they are very close. They communicate and mix with each other every day, they imitate and envy each other; that suggests a host of ideas, notions, and desires to people that they would not have had if ranks had been fixed and society immobile. In these nations the servant never considers himself entirely a stranger to the pleasures and works of the master, nor the poor man to those of the rich; the man in the fields strives to resemble someone in the towns, and the provinces, the metropolis.

Thus no one easily lets himself be reduced to the mere material cares of life, and the most humble artisan casts some eager and furtive glances at the superior world of the intellect from time to time. They do not read in the same spirit and manner as in aristocratic peoples; but the circle of readers is constantly extended and in the end contains all citizens.

From the moment when the crowd begins to be interested in works of the mind, it is discovered that a great means of acquiring glory, power, or wealth is to excel in some of them. The restive ambition equality gives birth to is immediately turned in this direction as in all others. The number of those who cultivate the sciences, letters, and arts becomes immense. A prodigious activity is awakened in the world of the intellect; each one seeks to open a path to it and strives to bring the public eye in his wake. Something analogous to what happens in the United States in political society takes place; works are often imperfect, but they are innumerable; and although the results of individual efforts are ordinarily very small, the general result is always very great.

It is therefore not true to say that men who live in democratic centuries are naturally indifferent to the sciences, letters, and arts; one must only rec-

Chapter 10 WHY THE AMERICANS APPLY THEMSELVES TO THE PRACTICE OF THE SCIENCES RATHER THAN TO THE THEORY

If the democratic social state and institutions do not stop the ascent of the human mind, it is at least incontestable that they steer it in one direction rather than another. Their efforts, thus limited, are still very great, and I hope I will be pardoned if I stop for a moment to contemplate them.

When we treated the philosophic method of the Americans* we made several remarks of which we must take advantage here.

Equality develops the desire in each man to judge everything by himself; it gives him in all things a taste for the tangible and real and a contempt for traditions and forms. These general instincts are displayed principally in the particular object of this chapter.

Those who cultivate the sciences in democratic peoples always fear losing themselves in utopias. They distrust systems, they like to hold themselves very close to the facts and to study them by themselves; as they do not allow themselves to be easily filled with respect for the name of anyone like themselves, they are never disposed to swear by the word of the master; on the contrary, one sees them occupied constantly with seeking the weak side of his doctrine. Scientific traditions hold little dominion over them; they never stop for long at the subtleties of a school and they are not easily fobbed off with big words; they penetrate as much as they can to the principal parts of the subject that occupies them, and they like to expose them in vulgar language. The sciences therefore have a freer and surer but less lofty style.

The mind, it seems to me, can divide science in three parts.

The first contains the most theoretical principles, the most abstract notions, those whose application is not known or is very distant.

The second is composed of general truths which, still depending on pure theory, nevertheless lead by a direct, short path to practice.

* DA II 1.1.
The processes of application and the means of execution fill out the third. Each of these different portions of science can be cultivated apart, even though reason and experience make it known that none of them can prosper for long when it is absolutely separated from the other two.

In America the purely practical part of the sciences is cultivated admirably, and people attend carefully to the theoretical portion immediately necessary to application; in this way the Americans display a mind that is always clear, free, original, and fertile; but there is almost no one in the United States who gives himself over to the essentially theoretical and abstract portion of human knowledge. In this the Americans show the excess of a tendency which I think will again be found in all democratic peoples, though to a lesser degree.

Nothing is more necessary to the cultivation of the advanced sciences or of the elevated portion of sciences than meditation, and there is nothing less fit for meditation than the interior of a democratic society. One does not encounter there, as in aristocratic peoples, a numerous class that stays at rest because it finds itself well-off and another that does not move because it desairs of being better off. Everyone is agitated: some want to attain power, others to take possession of wealth. In the midst of this universal tumult, the repeated collision of contrary interests, the continual advance of men toward fortune, where does one find the calm necessary to the profound combinations of the intellect? how does each man bring his thought to a stop at such and such a point, when everything moves around him and he himself is carried along and tossed about every day in the impetuous current that swirls all things along?

One must discriminate well between the kind of permanent agitation that reigns in the heart of a tranquil, already constituted democracy and the tumultuous, revolutionary movements that almost always accompany the birth and development of a democratic society.

When a violent revolution takes place among a very civilized people, it cannot fail to give a sudden thrust to sentiments and ideas. This is above all true of democratic revolutions, which, while stirring up at once all the classes of which a people is composed, give birth at the same time to immense ambitions in the heart of each citizen.

If the French suddenly made such admirable progress in the exact sciences at the very moment when they were succeeding in destroying the remains of the old feudal society, one must attribute this sudden fruitfulness not to democracy, but to the unexampled revolution that accompanied its developments. What came about then was a particular case; it would be imprudent to see in it the indication of a general law.

Great revolutions are no more common in democratic peoples than in other peoples; I am even brought to believe that they are less so. But a slight, bothersome movement reigns within these nations, a sort of incessant rotation of men over one another that troubles and distracts the mind without animating or elevating it.

Not only do men living in democratic societies give themselves over to meditation with difficulty, but they naturally have little esteem for it. The democratic social state and institutions bring most men to act continually; yet the habits of mind suited to action are not always suited to thought. The man who acts is often reduced to contenting himself with what is nearly so because he would never arrive at the end of his design if he wished to perfect every detail. He must constantly rely on ideas that he has not had the leisure to fathom, for it is much more the timeliness of the idea he makes use of than its rigorous exactness that helps him; and all in all, there is less risk for him in making use of some false principles than in wasting his time in establishing the truth of all his principles. It is not by long and learned demonstrations that the world is led. There, the quick look at a particular fact, the daily study of the changing passions of the crowd, the chance of the moment and the skill to seize it decide all affairs.

In centuries in which almost everyone acts, one is therefore generally brought to attach an excessive value to rapid sparks and superficial conceptions of the intellect and, on the contrary, to deprecate immoderately its profound, slow work.

This public opinion influences the judgment of men who cultivate the sciences; it persuades them that they can succeed at them without meditation or it diverts them from those sciences that require it.

There are several manners of studying the sciences. In a crowd of men one encounters a selfish, mercenary, industrial taste for the discoveries of the mind which must not be confused with the disinterested passion that lights up in the hearts of a few; there is a desire to utilize knowledge and a pure desire to know. I do not doubt that an ardent and inexhaustible love of truth that nourishes itself and enjoys itself incessantly without being able to satisfy itself arises now and then in some men. It is that ardent, haughty, and disinterested love of the true that guides men to the abstract sources of truth from which to draw out mother ideas.

If Pascal* had envisaged only some great profit, or even if he had been moved by the desire for glory alone, I cannot believe that he would ever have been able to assemble, as he did, all the powers of his intellect in order better to discover the most hidden secrets of the Creator. When I see him tear his

*Blaise Pascal (1623–1662), French philosopher, mathematician, and physicist, and author of the Pensees and Provincial Letters.
soul in a way from the midst of the cares of life to tie it wholly to that search, prematurely breaking the bonds that hold it to the body, so as to die of old age before forty, I halt in wilderment and understand that it is no ordinary cause that can produce such extraordinary efforts.

The future will prove whether those passions, so rare and fruitful, are born and developed as easily in the midst of democratic societies as within aristocracies. As for me, I avow that I have trouble believing it.

In aristocratic societies the class that directs opinion and leads affairs, placed in a permanent and hereditary manner above the crowd, naturally conceives a high-minded idea of itself and of man. It willingly imagines glorious enjoyments for him and fixes magnificent goals for his desires. Aristocracies often do very tyrannical and very inhuman deeds, but they rarely conceive base thoughts, and they show a certain haughty disdain for little pleasures, even when they indulge in them; this lifts all souls to a very high tone. In aristocratic times one generally makes for oneself very vast ideas of the dignity, power, and greatness of man. These opinions influence those who cultivate the sciences as well as all others; they facilitate the natural spark of the mind toward the highest regions of thought and naturally dispose it to conceive a sublime and almost divine love of truth.

The learned of those times are therefore carried along toward theory, and it often even happens that they conceive an inconsiderate scorn for practice. "Archimedes," says Plutarch, "had a heart so lofty that he never deigned to leave any work in writing on the manner of erecting all the machines of war; and holding the whole science of inventing and composing machines and generally every art that ascribes some utility to putting it in practice to be vile, low, and mercenary, he applied his mind and his study to writing only things whose beauty and subtlety were not at all mixed with necessity." That is the aristocratic aim of the sciences.

It cannot be the same in democratic nations.

Most men who compose these nations are very eager for present material enjoyments; as they are always discontented with the position they occupy and always free to leave it, they dream only of the means of changing their fortune or of increasing it. For minds so disposed, every new method that leads to wealth by a shorter path, every machine that shortens work, every instrument that diminishes the costs of production, every discovery that facilitates pleasures and augments them seems to be the most magnificent effort of human intelligence. It is principally in this way that democratic peoples apply themselves to the sciences, understand them, and honor them. In aristocratic centuries, enjoyments of the mind are particularly demanded of the sciences; in democratic, those of the body.

Reckon that the more a nation is democratic, enlightened, and free, the more the number of these interested appreciators of scientific genius is going to be increasing and the more the discoveries immediately applicable to industry will bestow profit, glory, and even power on their authors; for in democracies, the working class takes part in public affairs, and those who serve it have to expect honors as well as money from it.

One can easily conceive that in a society organized in this manner, the human mind is insensibly guided to neglect theory and that it must, on the contrary, feel impelled with unparalleled energy toward application or, at the very least, toward the portion of theory that is necessary to those who apply it.

In vain does an instinctive penchant elevate [the mind] toward the highest spheres of the intellect; interest leads it back toward the middle ones. There it deploys its force and restive activity, and begets marvels. The same Americans who have not discovered a single general law of mechanics have introduced a new machine into navigation that is changing the face of the world.*

Certainly I am far from claiming that democratic peoples of our day are destined to see the transcendent lights of the human mind extinguished, or even that new ones may not be illuminated within them. In our age of the world, and among so many literate nations that the ardor of industry incessantly stirs, the bonds that unite the different parts of science among themselves cannot fail to strike their regard; and the very taste for practice, if it is enlightened, will bring men not to neglect theory. In the midst of so many attempts at application, of so many experiences repeated daily, it is almost impossible that very general laws should not often make their appearance, so that great discoveries would be frequent even though great inventors would be rare.

Moreover, I believe in advanced scientific vocations. If democracy does not bring men to cultivate the sciences for [the sciences'] sake, on the other hand it increases immensely the number of those who cultivate them. It is not to be believed that among such a great multitude some speculative genius whom the singular love of truth inflames will not be born from time to time. One can be assured that he will strive to penetrate the most profound mysteries of nature, whatever the spirit of his country and his times should be. There is no need to aid his ascent; it is enough not to stop it. All that I

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* Cf. "Life of Marcellus," in Plutarch's Lives of the Noble Grecians and Romans (New York: Modern Library, n.d.), p. 278. Archimedes (ca. 287–212 B.C.) was a Greek mathematician and inventor, and author of important works on geometry, arithmetic, and mechanics. The first steamboat was launched by the American John Fitch in 1786. In 1807 American inventor Robert Fulton built his first successful paddle-wheel boat, and boats of this type were soon used extensively in the United States and Great Britain.
want to say is this: permanent inequality of conditions brings men to confine themselves to the haughty, sterile search for abstract truths, whereas the democratic state and institutions disposes them to demand of the sciences only their immediate, useful applications.

This tendency is natural and inevitable. It is interesting to know and perhaps necessary to point out.

If those who are called upon to direct the nations of our day perceived clearly and from afar the new instincts that will soon be irresistible, they would understand that with enlightenment and freedom, men who live in democratic centuries cannot fail to perfect the industrial portion of the sciences, and that from now on all the effort of the social power must be brought to sustain advanced studies and to create great scientific passions.

In our day one must detain the human mind in theory; it runs of itself to practice, and instead of constantly leading it back toward the detailed examination of secondary effects, it is good to distract it from them sometimes in order to raise it to the contemplation of first causes.

Because Roman civilization died following the barbarian invasions, we are perhaps too much inclined to believe that civilization cannot die in any other way.

If the lights that enlighten us ever came to be extinguished, they would be obscured little by little and as if by themselves. By dint of being confined to application, one would lose sight of the principles, and when one had entirely forgotten the principles one would follow the methods derived from them badly; one would no longer be able to invent new ones, and one would employ without intelligence and without art the erudite procedures that one would no longer understand.

When the Europeans landed in China three hundred years ago, they found that almost all the arts there had reached a certain degree of perfection, and they were astonished that having arrived at that point, they had not gone further. Later they discovered the vestiges of some advanced knowledge that had been lost. The nation was industrial; most of the scientific methods had been preserved within it; but science itself no longer existed. That explained to them the singular kind of immobility in which they had found the minds of this people. The Chinese, in following the trail of their fathers, had forgotten the reasons that had directed them. They still made use of the formula without seeking the sense of it; they kept the instrument and no longer possessed the art of modifying and reproducing it. Therefore the Chinese could not change anything. They had to renounce improvement. They were forced to imitate their fathers always and in everything, so as not to be cast into impenetrable darkness if they strayed for an instant from the path these latter had traced. The source of human knowledge had almost dried up; and al-

though the river still flowed, it could no longer swell its waters or change its course.

Nevertheless, China subsisted peacefully for centuries; its conquerors had adopted its mores; order reigned there. A sort of material well-being let itself be perceived on all sides. Revolutions were very rare, and war was so to speak unknown.

One must therefore not reassure oneself by thinking that the barbarians are still far from us; for if there are peoples who allow the light to be torn from their hands, there are others who stifle it themselves under their feet.

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Chapter 11  IN WHAT SPIRIT THE AMERICANS CULTIVATE THE ARTS

I would believe I was wasting readers' time and my own if I applied myself to showing how the general mediocrity of fortunes, the absence of superfluity, the universal desire for well-being, and the constant efforts in which each engages to procure it for himself, make the taste for the useful predominate over the love of the beautiful in the heart of man. Democratic nations, in which all these things are encountered, will therefore cultivate the arts that serve to render life convenient in preference to those whose object is to embellish it; they will habitually prefer the useful to the beautiful and they will want the beautiful to be useful.

But I intend to go further, and after having indicated the first feature, to sketch several others.

It ordinarily happens in centuries of privilege that the exercise of almost all the arts becomes a privilege and that each profession is a world apart where not everyone is permitted to enter. And even though industry is free, the natural immobility of aristocratic nations makes all those who are occupied with the same art nonetheless in the end form a distinct class always composed of the same families, all of whose members know each other and in which a public opinion and a corporate pride are soon born. In an industrial class of this kind, each artisan has not only his fortune to make but his status to guard. It is not only his interest that makes the rule for him, nor even that of the buyer, but that of the corporation, and the interest of the corporation is that each artisan produce masterpieces. In aristocratic centuries, the aim of the arts is therefore to make the best possible, not the quickest or the cheapest.