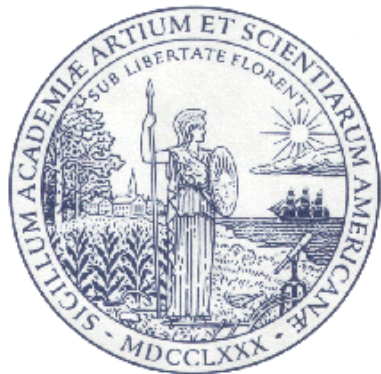




On Reducing Discontinuity

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On Reducing Discontinuity

Charles and Ray Eames, widely acclaimed for their trend-setting furniture design, have also devoted special attention to films and exhibitions. Their current exhibit, "The World of Franklin and Jefferson," opened in Paris in the fall of 1974 and toured several European cities before returning to New York, Chicago, and Los Angeles in 1976 as a celebration of the American Bicentennial. At the November Stated Meeting Mr. Eames presented the initial showing of a film developed from the Bicentennial exhibit. Following is a summary of Mr. Eames' introductory remarks together with abstracts from the text of the film. Mr. Eames began by giving some background to place the film as a product of the Eames Office.

In practice, we think of ourselves as *tradesmen* — it's a kind of custom trade; people come to us for things. The products, for the most part, are *models*, in one sense or another. There are "models before the fact" — like an architect's proposal model for a building that's not yet built — and there are "models after the fact" — like a scientist's model of a giant molecule or a galaxy. In both cases, the model is something you build in order to communicate about a structure that interests you.

If there was a particular training that prepared us for this trade, it was the training and the concerns of architecture. The exhibition "The World of Franklin and Jefferson" was an architectural problem: how do you treat a space so as to convey a certain kind of experience? And how do you report on a mass of material about a particular group of characters in a special situation?

From the beginning, we thought it was important to build the show around two people rather than one, and these two — Franklin and Jefferson — worked together particularly well. They were of different generations, backgrounds and styles, but they were also the two early Americans who seemed to stand for the connection between

European culture and American immediacy. We welcomed this excuse to find out more about Franklin's physics and Jefferson's natural history — and his architecture, for that matter.

By the nature of the occasion we were committed to talk about *circumstances* — the needs that people faced, the constraints and the advantages with which they worked. The next step then was the decision to open the exhibition with a group of “friends, acquaintances and adversaries” rather than building two isolated personalities and reciting their achievements.

By the time the exhibition came back from Europe to the United States, at the beginning of 1976, we had begun to think of it and to feel it as an out-and-out celebration — a celebration, above all, of a robust quality of “non-discontinuity” in the lives of almost all of Franklin's and Jefferson's circle. There was no discontinuity between their work — their part in public affairs — and their personal concerns, pleasures, and passions. And this quality seemed to be bound up with their willingness to “act on the assumption that their society could be what they made of it.”

Following is part of the narration of the film, “The World of Franklin and Jefferson.”

Together the lives of Benjamin Franklin and Thomas Jefferson span 120 years that pivot on the year of independence. Perhaps more than any of the great Americans before or after these two — Franklin with his sociable, opportunistic good sense, and Jefferson with his insistence on structure and principle — transformed their world by their written words.

Franklin was born in the city and was never really at home outside the city. He always lived in close contact with people, and he had a special knack for bringing them together in ways that multiplied their effectiveness. Without him it might have been much longer before Americans were ready to look after themselves. He was at home in London where he worked for many years, not for American independence, but for “freedom under the Crown” — a family partnership between England and America.

But 1776 found him, at seventy, ready to throw all his weight and experience into the building of a separate nation.

Jefferson grew up within sight of the Blue Ridge Mountains of Virginia, as a planter and surveyor's son. The combination of his active classical scholarship and his day-to-day contact with nature and the land underlay all his ideas of natural order, natural rights, and what a citizen must do to maintain them. In his twenties he was already caught up in the colonies' resistance to England. And by 1776 his eminence had begun with his drafting of the Declaration of Independence.

One of the clues to the character of any public man is the quality of the company he keeps. Around these two there was an impressive network of friends, associates and adversaries—people who acted on the assumption that their society was what they made of it. They are a prologue, and a context, for the lives of Benjamin Franklin and Thomas Jefferson. There were men like *John Adams*, one of Jefferson's earliest and latest friends, a New England lawyer, farmer and philosopher, whose share in the Boston campaign against the Stamp Act made a political man of him; and popular patriots like *Patrick Henry*, Jefferson's most radical colleague in the Virginia Assembly, whose ringing phrases are still a vivid record of the effort that carried American opinion past the point of no return; and *Paul Revere*, the Boston silversmith and publicist whose business grew in scale with the young nation; *George Washington*, the solid hero of the Revolution who bore the burden of the first experiment in governing a federation of republics; *James Madison*, a chief designer and champion of the Federal Constitution; *Alexander Hamilton*, a self-made aristocrat and America's first great economic analyst; *Aaron Burr*, a politician of tremendous personal appeal, Jefferson's adversary in the election of 1800, and Hamilton's lifelong enemy; and *Dr. Benjamin Rush*, who made Philadelphia the center of the medical enlightenment in America—all were part of the network, as were English expatriots like *Tom Paine*, inventor, bridge designer, and political moralist, and *Joseph Priestley*, the man Franklin most trusted in London—an honest heretic in politics, religion, and science who discovered oxygen “by accident” and, at sixty, came to America because in England he was reckoned an enemy of Church and

State. As a matter of course, most of Franklin's and Jefferson's circle kept up with what was going on in the natural sciences. Some were observers and experimenters in their own right like *David Rittenhouse*, celestial mechanic, Master of the Mint, and second president of the Philosophical Society. Others were engineers and architects like *Benjamin Latrobe*, invited to Washington by Jefferson to set the tone for federal architecture. There was also *Charles Willson Peale* of Philadelphia, the most versatile of all: paleontologist, portrait painter, orthodontist, irrepressible draftsman and showman. And the incomparable *Marquis de LaFayette*, at nineteen, a major general in the Continental Army — beloved friend of Franklin, Washington, and Jefferson.

What all those people had in common was an unembarrassed confidence in the natural order of things. All of them had been raised in communities disciplined by religion and accustomed to public discussion of how people should live and why. They were not afraid of trial and error and they had the chance to follow up what they chose from the ideas of the time including John Locke's natural laws of society and Newton's spectacular demonstration of the fruits of reason and experiment.

Franklin above all was a real communicator. Working out of his own shop and study in Philadelphia, he carried out more public information services than anyone else in the colonies. He was printer, publisher, newspaper editor, continental postmaster, and pamphleteer. All his life he kept the spirit of the deadline; and as businessman, scientist, and elder statesman, the tricks of the publicist came to him naturally. His Junto Club began as a solemn confederation of lively apprentices for "mutual improvement"; eventually it grew to give him a strong local base when he moved into city politics. At forty-two, already a man of independent means and solid learning, he wrote: "Now I am taking the proper measures for obtaining leisure to enjoy life with my friends, more than heretofore, having put my printing house under the care of my partner, and removed to a more quiet part of town."

Always part reporter, part booster, Franklin was quick to hand on new-found knowledge to others, and not many had as much as he did to hand on. He started the American Philosophical Society on the model of the Royal Society in London. His science was a personal mixture of pure curiosity,

public usefulness, and dramatic effect. He plotted the course of the Gulf Stream. He made notes on weather prediction and proposed improvements in ship design. He devised magic squares and circles. He examined problems of heat flow that he had encountered as a type caster. He invented a stove that worked by convection. And above all he came to grips with the curious and fashionable phenomena of electricity. He contrived a brilliant set of experiments in the Newtonian tradition that won him honors from Oxford, Cambridge, Edinburgh, and Paris.

Franklin was fifty when he arrived in London as agent for Pennsylvania. He was to spend seventeen years there, gradually broadening his scope until he was the recognized spokesman for all the colonies. Urbane and well informed, he provided convincing evidence that America had reached the age of reason. But in the 1770s, Franklin's part in the publication of the Hutchinson letters was used to discredit him as a colonial petitioner. Discouraged and offended—out of the game for the first time in his life—and the last—he prepared to sail home. He spent his last day in London with Dr. Priestley—going through papers, leaving instructions. He was sure America couldn't lose a war in the long run, but he had little hope of living to see peace.

It was at the Continental Congress that Franklin and Jefferson first met. At first sight, Jefferson's life seems completely different from Franklin's. For one thing Jefferson was born to prosperity—never felt the drive to turn a profit—and left debts to his family; whereas Franklin, starting from nothing, educated himself—made money—put it to work for him—and left a considerable fortune. But both of them knew the practical force of the written word. It's hard to read the Preamble to the Declaration without hindsight. In two hundred years, the words have gathered strength—they have the ring of undeniable truth, bound to prevail.

But in 1776 the people who pledged "their lives, their fortunes, and their sacred honor" did not even feel that the odds were in their favor. They were resolute, but not at all secure, about their chances of surviving on their own. Jefferson, drafting a statement grounded in reason that committed them to total risk, found words that carried a more than rational authority.

Since the age of fourteen, Jefferson had been the

head of his family. He had brought himself up with obstinate habits of study. As a lawyer in his thirties, he had no illusions about the conservatism of his own class or the fatal injustice of its reliance on slave labor. But out of its tradition of self-sufficiency, hospitality, and day-to-day self-government came Jefferson's lifelong conviction that the democracy of freeholders could produce men fit to govern.

Independence for him was a first step towards new government and better laws. Jefferson knew that liberal reforms had their best chance while the momentum of revolution was still strong: "the time for fixing every essential right on a legal basis is while our rulers are still honest and ourselves united. From the conclusion of this war we shall be going down hill."

In the last years of the War for Independence Virginia chose Jefferson as Governor. He gave all his energies to the defense and supply of the state, but he was not the dramatic military leader that the times required. When the war ended it left him shaken and bitter. For the first time he had faced political opposition. His farms had suffered from looting and his wife's health was failing.

With the death of his wife, Martha, in 1782, Jefferson's world and his hopes of a life centered at Monticello were broken. She was thirty-four; he was thirty-nine. He would never remarry. After months of desperate solitude, friends in Congress persuaded him to consider a new departure.

Meantime Franklin was back in Europe. Congress had sent him to win support from the government of Louis XVI. He settled in comfortably, not too far from Paris, as ambassador and impresario of the Revolution — negotiating loans, recruiting, handing out American passports printed on his own press. His autobiography never caught up to those anxious but happy years. The Parisians feted him as a homespun revolutionary sage. Men of science and letters and ladies great and small competed for his company. At last, he had the satisfaction of settling peace terms with England as the representative of a sovereign power.

When Franklin returned home from Paris, a hero's welcome awaited him at Market Street Wharf. He spent his last five years in Philadelphia — living just long enough to congratulate Washington on his inauguration as first President. He himself had long

held the first place among Americans, and at his death, all the city of Philadelphia walked in his funeral procession. Franklin wrote his own epitaph:

“The Body of B. Franklin Printer,
(Like the Cover of an old Book,
Its Contents torn out and stript of its Lettering &
Gilding)
Lies here, Food for Worms.
But the Work shall not be lost;
For it will, (as he believ’d), appear once more,
In a new and more elegant Edition
Revised and corrected, By the Author.”

His closing speech, at the Constitutional Convention, had brought the delegates to an agreement and summed up the work of his long life—his genius for honest compromise without fuss. He and his colleagues knew that this was the first full-scale test of the political philosophy of the Enlightenment. George Washington, their chairman, told them: “The researches of philosophers, sages and legislators . . . are laid open for our use: at this auspicious period, the United States came into existence as a nation, and if their citizens should not be completely free and happy, the fault will be entirely our own.”

Jefferson was abroad during their sessions, but he had this to say: “Free government is founded in jealousy—not in confidence . . . in questions of power, then, let no more be said of confidence in man, but bind him down from mischief by the chains of the Constitution.”

Jefferson followed Franklin as minister to France. After Franklin’s dramatic success, Jefferson worked to secure the export trade that would make independent America solvent. As a cosmopolitan farmer he made notes on rice-growing in Lombardy and measured the bricks of Roman amphitheaters. And he took on Paris as a man of taste; he fitted out his house, and his daughter, to ambassadorial standards.

Like Franklin in another key, he enjoyed his reception as a distinguished philosopher from the wilderness. Young LaFayette and his reform-minded friends made much of Jefferson and looked to him for counsel.

It was in the year of the storming of the Bastille that Jefferson returned on leave to America. This was the beginning of nearly twenty years of service in the federal government. In the capital city he

found the political scene completely changed; men of influence were promoting conservative, Anglo-philic ideas that seemed to him practically a betrayal of the Revolution. Through his years as Washington's Secretary of State, and then as Vice President, his opposition to the policies of the conservatives grew into what he and Washington had most wanted to avoid: two parties in government, each using its best energies to thwart the other.

In the election of 1800, the Jeffersonian party's clear victory over John Adams seemed almost a new Revolution—a return to the faith of 1776. But for ten years, Jefferson had been a hero in opposition: now that he was President, his record as a stickler for principle would make him especially vulnerable. Still, with a friendly majority in Congress, he put through a long run of popular, successful legislation. But at the end of his second term—after desperate measures to stay out of overseas conflicts—he left to his successor James Madison a cold war just about to heat up.

In his years of retirement, Jefferson returned to his long-standing interest in architecture. It would be misleading and wrong to look at Jefferson's architecture as a talent or a hobby, outside the mainstream of his work. At Monticello there is no discontinuity in the consideration he gave to the architecture and the day-to-day pleasures and business of this self-sustaining farming household and the mountain on which it grew.

But the place that best shows Jefferson's sense for planning is the University of Virginia. The man who had always insisted that one generation has no right to bind the next put all his energies into building one last model. He was its architect at every level. His life's convictions went into its library, its program, and the choice of its teachers. He picked its site, designed its buildings, supplied its bricks, and saw to its construction. He was doing what he had always done: giving transmittable form to the best standards he knew, as a starting point for others in the future.

In these same last years at Monticello, Jefferson's correspondence with John Adams was reopened—with a vigor that gave great pleasure to them both and a treasure to us all. They reviewed the events of the past, with the clarity of old and well matched adversaries. Adams summed up: "Nevertheless, according to the few lights that remain to us, we

may say that the Eighteenth Century, notwithstanding all its Errors and Vices, has been, of all that are past, the most honorable to human Nature."

On the morning of July 4th, 1826—fifty years to the day after signing the Declaration—John Adams composed himself for death. His last words were: "Thomas Jefferson still survives." Jefferson had died only a few hours earlier.

You get the feeling that these were educated people—in a way that made a difference to what happened around them. They took their pleasures seriously; they were not afraid of trial and error; they were quick to hand on new-found knowledge to others, and they "acted as if they owned the place." In the nature of things, there was only a limited amount of high-quality *teaching* available. And yet you have this impression of a really high level of *learning* going on—of people finding out about things piece by piece, in pursuit of their own needs, loves, and curiosities. (John Bartram finding a neighboring schoolmaster to teach him "enough Latin to read Linnaeus.")

There's a kind of reliable texture about this kind of "found education." The background fills up with accidental discoveries that become cherished landmarks, things that you turn to in time of need. This is the kind of learning that goes on through the whole of one's life, and I think it's part of the quality of "non-discontinuity" that I spoke of earlier—the quality of people taking personal responsibility for themselves and their equipment.

Two hundred years later, the balance seems to have tilted the other way: as a society, we now put much more of our total energy into teaching than into learning. In some ways, a found education is harder to come by today than it was when Benjamin Franklin's father took him to see all the trades of Boston at work. "It has ever since been a pleasure to me to see good workmen handle their tools." (Now, few children have a chance to watch even their father at his work.)

It begins to seem like a fairly urgent national need — to increase the quantity and quality of the available material for a new kind of found education — urgent because there's an explosive growth of "universal expectation" from people who, as things stand, are not being offered a very interesting range of covetable goods. Yet at the same time, everybody is invited, as a citizen, to take part in decisions concerning fairly complex issues — and few of us seem to be properly prepared for this.

This is where "models" come in. If a model is something you build in order to communicate about a subject that interests you, then, as a society, our data-gathering techniques are way ahead of our modeling techniques (say, in city management problems).

There is universal exposure to a very powerful source of found education — television — for better or for worse. If a society seriously wanted to upgrade the ideas that are offered to its younger generation, this would be the obvious place to start. And there is a growing category of large institutions which do not have a commitment to teaching, but which hold great resources for a found education. Some of them, like the Metropolitan Museum of Art, or the Smithsonian, or Colonial Williamsburg, or the Library of Congress (I pick these because they are all examples we've been talking with recently, in our capacity as model-makers) are committed to providing elements of a found education. Others, like IBM or Bell Labs, are recognizing that they have the opportunity to contribute and that it's in their interest to do so.

At the same time you feel that if today a small college (or a large one) had the courage to take on a cable franchise with thirty or forty channels — and the wit to develop some really informative material on the forward edge of each of its disciplines — and a healthy stock of remedial packages — mixed with some lively current reporting on its interests, its successes and its problems — then even a teaching institution could get in on the found education act.

This new kind of “found education” that we’re evoking is of course, in one sense, a cheat. Considerable resources, complex institutional structures, and a whole range of techniques, go into *producing* these models, these found objects. The criterion is that these things are out in the world at large — where people can come upon them, without having enrolled in a course — without having chosen to become an initiate.

Frank Oppenheimer’s Exploratorium in San Francisco; some of the Nova series on public television; *Scientific American* — these are some of the successes. The touchstone is the same that we’ve tried to apply in all our own projects — to convey *our own* understanding, limited though it may be, in such a way that it has meaning for a non-specialist but isn’t trivial or embarrassing for the person who knows most about the subject.

The Franklin-Jefferson film has an epilogue, which we didn’t show on this occasion — about Jefferson and the West: the Louisiana Purchase, the Lewis and Clark Expedition, the Northwest Ordinance and the Land Ordinance. And it ends with a hint that the very success of Jefferson’s vision for the wilderness had, within his lifetime, already begun to destroy Jeffersonian America. By 1826, the United States was on the edge of a new kind of wilderness — a new complexity of enterprise — where the Jeffersonian freedoms would no longer apply in their original form; they would have to be *reinvented*.

Celebration of past advantages calls for reinvention. We can’t simplify back to the continuities of Franklin’s and Jefferson’s circle — when one educated person could be acquainted with most of what was known in his society. But that doesn’t mean we have to resign ourselves to discontinuity. There is a level of cogent, current, non-trivial ideas, such that people with curiosity and involvement can report to each other across specialist boundaries. Naturally, the process of reporting isn’t easy. But the real difficulty at present is that not enough people with something to say are even beginning to get into the conversation.