Francis Bacon and the True Ends of Skepticism

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Francis Bacon and the True Ends of Skepticism

Long ago, Bacon asserted that science must begin with doubts in order to end in certainty, a paradox that stills leads to misunderstandings about Bacon and about science.

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Detractors of modern science sometimes refer to themselves as skeptics, because they dare to question long-accepted doctrine. But skepticism as a method is not just a resolve to disagree. It is the presumption of error and fallibility on which our science is based. This paradox was first put forth by Francis Bacon in *The New Organon* (1620), building on his previous *Advancement of Learning* (1605). He announced that great things were possible in science, provided that nearly all the old methods and beliefs were cast away. What struck him was the mixture of unproductive dogma and unresolved controversy over basic theory in science despite long centuries of data-collecting and thought. He had ideas about a remedy, yet he believed no
the Grand Canyon in one black-and-white snapshot." Poet, historian, biographe, novelist, musician, essayist—Sandburg, son of a railroad blacksmith, was a and more. A journalist by profession, he wrote a massive biography of Abraham Lincoln that is one of the classic works of the 20th century.

To many, Sandburg was a latter-day Walt Whitman, writing expansive, evocative and patriotic poems and simple, childlike rhymes and ballads. He traveled all over the country and recording his poetry, in a lilting, mellifluous voice that was a hit. At heart he was totally unassuming, notwithstanding his national fame. Wha from life, he once said, was "to be out of jail...to eat regular...to get what I printed,...a little love at home and a little nice affection hither and yon over American landscape;...(and) to sing every day."

A fine example of his themes and his Whitmanesque style is the poem "Chicago"

Hog Butcher for the World,
Tool Maker, Stacker of Wheat,
Player with Railroads and the Nation's Freight Handler;
Stormy, husky, brawling,
City of the Big Shoulders...

Vachel Lindsay (1879-1931)

Vachel Lindsay was a celebrant of small-town midwestern populism and creosote strong, rhythmic poetry designed to be declaimed aloud. His work forms a c

between the popular, or folk, forms of poetry, such as Christian gospel song vaudeville (popular theater) on the one hand, and advanced modernist poet other. An extremely popular public reader in his day, Lindsay’s readings were accompanied by jazz poetry readings of the post-World War II era that were accompanied by jazz.

To popularize poetry, Lindsay developed what he called a "higher vaudeville music and strong rhythm. Racist by today's standards, his famous poem "P'gongoo" (1914) celebrates the history of Africans by mingling jazz, poetry, and chanting. At the same time, he immortalized such figures on the American li Abraham Lincoln ("Abraham Lincoln Walks at Midnight") and John Chapman Appleseed), often blending facts with myth.

Edwin Arlington Robinson (1869-1935)

Edwin Arlington Robinson is the best U.S. poet of the late 19th century. Like Masters, he is known for short, ironic character studies of ordinary individu Masters, Robinson uses traditional metrics. Robinson's imaginary Tilbury To Masters's Spoon River, contains lives of quiet desperation.

Some of the best known of Robinson’s dramatic monologues are “Luke Havergal” (1896), about a forsaken lover; “Miniver Cheevy” (1910), a portrait of a romantic dreamer; and “Richard Cory” (1896), a somber portrait of a wealthy businessman who commits suicide:

Whenever Richard Cory went down town,
We people on the pavement looked at him:
He was a gentleman from sole to crown,
Clean favored, and imperially slim,

And he was always quietly arrayed,
religion as "anticipations of nature" which had always prevented sound discoveries. Specifically, he rejected attempts to use the book of Genesis as an authority for science (1690, 65).

But in the heyday of natural theology (the eighteenth century), this was forgotten, and it was possible for a geologist to think he was heeding Bacon just because he lacked in physical evidence, though his purpose was to vindicate the account in Genesis. The historians of science Charles Gillispie points out the discrepancy while offering another dis- tinction: He denies Bacon for his "popular" notion that science required "not difficult abstract thought but only patience and the right method." He makes the common mistake of assuming that some mechanical ascent from experiment to theory is all that Bacon proposed (Gillispie, 1951, 62–66; 1960, 81–82).

Actually, Bacon's wishful thinking was at best a hope for what reason and reasoning on one's own could lead to a../

In fact, Bacon feared that people would judge his ideas wholly by his retrospective suggestions for moving from data to low-level hypotheses. And that is exactly what has happened. Those proposals (which have some limited value) are usually called the Baconian method, then dismissed as inadequate.

Often, as Henry Bauer and others show in "Scientific Literacy and the Myth of Scientific Method," critics proceed to their own view of what is important, ending up with reflections similar to Bacon's about prills in the mind (Bauer 1992, 14, 147–50). Bacon himself said that his positive proposals should be thrown out if they didn't serve. What mattered was the empirical testing of each theory's assumptions and conclusions, neither accepting old dogmas nor hesitating to form new ones. The "art of discovery" would also improve as science advanced.

The point is that Bacon's "method" is really a meta-method, a set of principles underlying method. He assumed that science would generate theories and that the real problem was to discipline them (1690, 130).

But the false "Baconization" is not the only shadow blotting out Bacon's meaning. A common misconception is that he wanted science to aim at power instead of truth. He is associ- ated with the modern slogan, "knowledge is power," which he did not say. Usually, people mean by it that knowledge will bring us to worldly triumph. Or, at base, that knowledge brings power to humanity in the form of useful technology. Bacon did want to achieve the latter eventually. But he was referring to the proof of scientific theories in saying:

Knowledge and power move in one; for where the cause is not known, the effect cannot be produced. Nature to be con- sidered must be sought; and that which is contemplated is the cause in it operation as the rule. (1605, 2)

That is, only by making nature act a certain way (controlling "power") can you be sure that you understand how it does act, and only by knowing that you can control it.

This simple idea, like Dewey's "learning by doing," is far-reaching in implication. It reflects an appreciation of how people usually do behave: they seek highbrow instead of as often as facts, it is in Bacon's famous trial, they produce "fantastical," "conceited," or "delicate" learning statements that are false, scientifically perma- nent only, or purely aesthetic (1874, Ill, 282).

Bacon's hope of needed technology is regularly fulfilled with his methodological concern with experience (power) to verify knowledge. He didn't want people to stop at quick practice gains. To shrive from intellectual challenge was an "ugly" as far as he feared tearing out his suppositions against reality. "Works"

Bacon feared that people would judge his ideas wholly by his tentative suggestions for moving from data to low-level hypotheses.

They themselves are of greater value as pledges of truth than as contributing to the comfort of life. Yet he did believe that to ease because misery was a noble purpose. More people, he said, seek knowledge for professional advancement, profit, or to triumph over rivals sometimes for idle curiosity. The benefit of one's country was higher end, and hence for all, the good of mankind (1660, 70, 124, 129, 1874, 294–95).

In "The Advancement of Learning," Bacon explained that by "use" he didn't mean achieving wealth or success, but what would be "solid and fruitful" as opposed to " vain and fantastical." If it is real knowledge, it has implications it leads to, and makes one want to try it out. The hypothetical part is concrete reality should be intelligible, however complex. Sometimes people embrace dense ideologies of politics or psychoanalysis while avoiding the questions, "How exactly will any of this help?" even though their stated purpose is social reform or healing. Good philosophical systems are the fruit of struggle or some bonanzas. If their adherents return to altruism, often they have failed and refuse to admit it. When Kluxehmers (a Baconian at times) asserted that there is "no Communism with- out sausages," the Marine-Leninite experts in Moscow saw him as a buffoon. But his down-to-earth concern about hunger was part of a drive to truth that also made him speak out about Stalin and recognize the madness of nuclear war.

What is called "reality" or "progress" can be given different slants. Without James tended to accept the practical value of ideas (loosely applied) that might not strictly be true. George Orwell, in 1984, showed the danger everyday conse- quences of living by lies. For Bacon, practice proved the worth of ideas, but also (as for Orwell) showed the failure of false ones. Bacon saw clearly the dichotomy between the sloppy language of men and man's power, which could not be bought off by flattery or incitement. "To overcome not an adversary in argument, but nature in action" was his aim and the most important distinction he made (1660, Pref., 36). He knew he was surrounded, as we are now, by absurd rhetoricians who refused to accept that words sometimes succeed and some- times fail so get close to the things they purport to describe, and that it matters. The idea that thought can never be anything but chaotic or "conversation" will only satisfy those who never feel obliged to act, and therefore to get reality rights.
Warton's and James's dissections of hidden sexual and financial motives in society link them with writers who seem superficially quite different: Stephen Crane, Jack London, Frank Norris, Theodore Dreiser, and Up Like the cosmopolitan novelists, but much more explicitly, these naturalists to relate the individual to society. Often they exposed social problems and were influenced by Darwinian thought and the related philosophical doctrine of de which views individuals as the helpless pawns of economic and social forces out of control.

Naturalism is essentially a literary expression of determinism. Associated with realistic depictions of lower-class life, determinism denies religion as a moral force in the world and instead perceives the universe as a machine. Eighteenth-century Enlightenment thinkers had also imagined the world as a machine; but as a machine invented by God and tending toward progress and human betterment. Naturalism imagined society, instead, as a blind machine, godless and out of control.

The 19th-century American historian Henry Adams constructed an elaborate history involving the idea of the dynamo, or machine force, and entropy, or force. Instead of progress, Adams sees inevitable decline in human society.

Stephen Crane, the son of a clergyman, put the loss of God most succinctly:

A man said to the universe:
"Sir, I exist!"
"However," replied the universe,
"The fact has not created in me
A sense of obligation."

Like Romanticism, naturalism first appeared in Europe. It is usually traced to Honoré de Balzac in the 1840s and seen as a French literary movement, with Gustave Flaubert, Edmond and Jules Concourt, Émile Zola, and Guy de Maupassant, which daringly opened up the seamy underside of society and such professions of divorce, sex, adultery, poverty, and crime.

Naturalism flourished as Americans became urbanized and aware of the impact of economic and social forces. By 1890, the frontier was declared officially ended. Most Americans resided in towns, and business dominated even remote farm areas.

Stephen Crane (1871-1900)
Stephen Crane, born in New Jersey, had roots going back to Revolutionary War clergyman, sheriffs, judges, and farmers who had lived a century earlier. Prior to being a journalist who also wrote fiction, essays, poetry, and plays, Crane saw life in the slums and on battlefields. His short stories — in particular, "The Open Boat," and "The Bride Comes to Yellow Sky," — exemplified that literature-haunting Civil War novel, *The Red Badge of Courage*, was published to great acclaim, but he barely had time to bask in the attention before he died, at 29, neglected and destitute. He was virtually forgotten during the first two decades of the century, but was resurrected through a laudatory biography by Thomas B. Bee. He has enjoyed continued success ever since — as a champion of the communist movement, and a symbolist.

Crane's *Maggie: A Girl of the Streets* (1893) is one of the best, if not the earliest, naturalistic American novels. It is the harrowing story of a poor, sensitive girl whose uneducated, alcoholic parents utterly fail her. In love and eager to es
Iron and Love, Science and Art

Our literary-aesthetic traditions place great value on the metaphorical use of words that reach beyond their meaning in the poetry of Bacon's day. This drew on the very habit of symbolizing that Bacon saw must be eliminated from strict science, which uses language differently. The query, "Is this really love?" will never fully parallel, "Is this really true?" We have agreed-upon terms to determine that a thing is true. Love is an open concept, and love, since modern chemistry, a closed one.

Science adds knowledge by showing what can't be. Mystical thinking and such boundless. Its glory is to give meaning to every perceived pattern, and its method permits any number of meanings apply. Sensitivity in pursuing metaphor is essential to art; it is needed only sparsely in science. Today, the revival of pre-scientific medicine often uses language evocatively, as an advertisement, piling on terms without indicating and governing what thing does what. Attempting to heal by suggestion or placebo is not alternative, but "sensitized." In seeing himself against such habits, Bacon was indeed saying that the aesthetic way of thought could not be the scientific one, and people have been saying "ouch!" ever since. But should they? Must we have one big thing, the unified arctic science that has become so fashionable, waging, rather than two different, equally valuable things? Must the universe melt down into a beautiful dream of our own—can it not be seen as a separate thing that we must specially equip our minds to decipher?

Science adds ways to give a definite "hit" to a plausible idea in literature, plausibility is all. If a Shakespeare play has many interpretations, we say it is rich and complex. If a natural phenomenon does, we say science is incompetent. Art fixes its question by creating a fringe against the timeلس, just science fixes by enabling us to "command" by "obeying" her, it is use necessary to create freedom, art uses freedom to create its own formality.

Art may spur us to a scientific inquiry; science to an aesthetic one but that is all. The distinction should be clarified, not broken down. It permits us to value our normal motions for their own sake, or to adapt them for use in action, without confusion or self-deception.

The misgiving and disarray of natural philosophy in his time led Bacon to appreciate two great freedoms of the mind. He can question why some things seem to violate evidence or logic. He does not move how many people were by such beliefs, or for how many centuries they have done so, or do what exercise power. But we can do better than reject the affiliations of the moldy crowd. We can thread our own path through the form of unusual experience, trusting our minds not to give rights, but to devise ways for detectingAlsamen. Bacon did no science that would have won just a Nobel prize. He founded no schools of philosophy. He was not, like Aristotle, the master of these that know. But he was that friend of thinkers who think, and for that rea- son, his writings should not be lost aside.

Notes

1. Reference to the use of aphorisms in Bacon's 1620 give the aphor- isms number p. 1 in Aristotle's syllogism in Book I for convenience in citing other editions. Reference to The Advancement of Learning are cited from Bacon 1674. Vol. III.

References

For a detailed account of how Bacon's actual words are quoted and old mis- conceptions continually altered, followed by critical analyses, see Vickers (1952). As a contemporary he recommends Dukas 1982 and Pfeffer-Rannef 1990.

5. Needless to say, historian cont custom James McCleod claims the "purely scientific" is a moral corruption (inwardly out of ecological need. He suggests "science arose from a type of innovation but was forced to create effective positive science with per se, thus that "scientific" was purely to signify older methods similar to those of today praised as "science" by McCleod (1987, 98).


7. Hume's criticism of Bacon was so unjustified as to be exfoliated by Allen Kelly (1980). Francois Roubaud writes of his disaffection with the paradoxi- jes Jacques Louis in terms that also parallel Bacon's critique of metaphysical systems (though not referring to Hume). The philosophical question, for example, of "the first consciousness of analytical knowledge by the effects of knowledge;" i.e., writing patients (1981, 80).

8. Despite his disavowal of a "noble" in his life, Bacon surely does, says Virginia, have a scientific method, consisting of "daily inquiry," since the Bacon might have said hybrid scientific "triple schema, which we cannot force to believe in any other way than what causes succession." (1986).

9. As by Cyril Howson, who makes a metaphysical concern between Bacon's "wont to preserve" something in "newscourers" and Newton as an "uninter- lect," which "error" applied science. The Bacon might be a scientist and wild ark Newton cast down and reproach expect in Bacon voiced. Hume's (1982) "philosopher says that the Bacon was not "woundful sentiment, moral" and not is "true." But the bloom (1919), he concludes with metaphysical concern similar to Bacon.

10. Elwood's 1754 "The Way of expressing of a new idea in his life, Bacon's Book (1905, 72). Bacon's words and his style and sense (1954), the way his (1958) Elwood said that he was proud to be the one (Freud 1967, 143).

References


Henry James (1843-1916)

Henry James once wrote that art, especially literary art, "makes life, makes makes importance." James's fiction and criticism is the most highly conscious sophisticated, and difficult of its era. With Twain, James is generally ranked greatest American novelist of the second half of the 19th century.

James is noted for his "international theme" -- that is, the complex relations between naive Americans and cosmopolitan Europeans. What his biographer calls James's first, or "international," phase encompassed such works as Transcendentalism (travel pieces, 1875), The American (1877), Daisy Miller (1879), a masterpiece, The Portrait of a Lady (1881). In The American, for example, a Newman, a naive but intelligent and idealistic self-made millionaire industrial Europe seeking a bride. When her family rejects him because he lacks an a background, he has a chance to revenge himself; in deciding not to, he dem his moral superiority.

James's second period was experimental. He exploited new subject matters and social reform in The Bostonians (1886) and political intrigue in The Prince Casamassima (1885). He also attempted to write for the theater, but failed embarrassingly when his play Guy Domville (1895) was booted on the first n

In his third, or "major," phase James returned to international subjects, but them with increasing sophistication and psychological penetration. The come almost mythical The Wings of the Dove (1902), The Ambassadors (1903) (w felt was his best novel), and The Golden Bowl (1904) date from this major main theme of Twain's work is appearance and reality, James's constant cor perception. In James, only self-awareness and clear perception of others ye and self-sacrificing love. As James develops, his novels become more psych less concerned with external events. In James's later works, the most impor are all psychological -- usually moments of intense illumination that show cr original previously blindness. For example, in The Ambassadors, the idealistic, as Stretter uncovers a secret love affair and, in doing so, discovers a new cor inner life. His rigid, upright, morality is humanized and enlarged as he disco capacity to accept those who have sinned.

Edith Wharton (1862-1937)

Like James, Edith Wharton grew up partly in Europe and eventually made he there. She was descended from a wealthy, established family in New York saw firsthand the decline of this cultivated group and, in her view, the rise o nouveau-riche business families. This social transformation is the background her novels.

Like James, Wharton contrasts Americans and Europeans. The core of her gulf separating social reality and the inner self. Often a sensitive character f by unfeeling characters or social forces, Edith Wharton had personally exper entrapment as a young writer suffering a long nervous breakdown partly due conflict in roles between writer and wife.

Wharton's best novels include The House of Mirth (1905), The Custom of the (1913), Summer (1917), The Age of Innocence (1920), and the beautifully novella Ethan Frome (1911).

NATURALISM AND MUCKRACING
remedy could be complete because the human mind itself had
faults and limitations that made it almost incapable of being
truly today, when people claim as a novel discovery that sci-
tific out eyes are deceivable, but that thought may be limited by emo-
tions and culture, and that language is not the same as natural
facts, they are merely interesting Bacon's starting assumptions.

We think of the seventeenth century as a golden age of sci-
ence. Yet when Bacon considered the manner, inquiry was busy
but not very fruitful. Cosmology was up for grabs, the old
Scholastic system of four elements offered no definite path
to new discoveries, alchemists were odd about basic laws of chemistry; and when an important
such as Robert Boyle (1627-1691) did achieve knowledge about magnetism, he then
went off on a tangent with mythical extensions of his
discoveries. Whether assessing reason and logic,
symbolic connections and intimation, or hands-
on experiment, the active disciplines had
yielded few outcomes solid enough to be
built upon.

But there was practical progress in
navigation, engineering, and sani-
ency. Empiricism was not discarding, but it did not underlie broad scientific
theories. This tended to soar above, in
obedience to what Bacon called
"idols of the mind" because they deceived men from exam-
ining directly created nature.

What was needed was a
"closer and purer language
between . . . the experi-
mental and the rational (such as
has never yet been made)"
(Bacon, 1960, 95).

Bacon's Paradox

Bacon saw that good thinking is a
sort of paradox. The mind is all too
effective, not only in feeling and imagining,
but even in reasoning. Focusing on one idea, it makes impli-
cations, follows up parallels, leaps to conclusions, and detects
a tight and persuasive system of beliefs. This power can be use-
ful, if properly disciplined, but it tends to shun aside direct
observation of nature. Man, according to Bacon, does not have
a privileged intuition into the construction of the cosmos—a
direct link to the Creator's instructions—as many then believed.

He must let the actions of nature in the uncontrollable future
be the arbiter of his theory's soundness. Initial speculations
must issue in a well-confirmed experiment, and that, in turn,
must yield to a sensory judgment of the experiment's result.

Though Bacon didn't think of double-blind testing, he saw
that these stages must be exact as distinct from each other as
possible (1960, 2, 50).

Bacon called endemic human limitations "Idols of the
 Tribe." Even the cleverest minds leap to generalizations, notice
trivial events more than typical ones, and seek out support-
ive data more than counterexamples. They reason on apparent
patterns too quickly and don't go

"Idols of the Cann" were the individual's limitations and
enthusiasts. He may apply favorite ideas or remedies to every-
thing, like a wonder drug.

"Idols of the marketplace" were the limitations of common
language, suitable for everyday life, but not to describe nature
accurately. "Substance," "heavy," "miasm," and "dose" were all
vague terms. New words must refer to measurable phys-
ical phenomena (1960, 41-60).

In developing these ideas, Bacon outlined a dem-
ocratic critique that might well do down any science.
But he rejected the immutable preceptions, com-
mon at that time, which doubted whether any human theory about
nature would ever be a clear advance.

Some say, doubt, he said, as lawyers do, without any aim of settling a question.

They may embrace a "deliberate and fac-
 tious detest" of learning anything new,
for the sake of thinking their own
thought perfect.

When the human mind has once
approved of finding truth, it insists
in all things known, and the
mind is thus more and more to
elegant dispersions and dis-
coveries and cases as it were
from object to object . . . a
wondering kind of inquiry
that leads to nothing (Bacon,

Here Bacon aptly depicts that
young indecisiveness of mind
that can masquerade as "being
critical." Today many scade-
rukes, having grown uneasy
about the concept of seeking truth, deal
mainly in ingenious demurrals, aimed at
proving that various forms of supposed excellence are really (but not "in truth") invidious sham (see Haack, 1999). If public
debate is more contentious and disputable is an automatic
reflex with no drive to find central, usable insights, we are ini-
testing the learned men whom Bacon criticized, whose scholar-
ship sought just to try to get by according to some group's limited con-
ventions. But Bacon wanted people to address great issues and
strive to be adequate to their demands.

Just as analyzing government mismanagement should actu-
ally give hope (Bacon wistfully reflected) because it shows the
failure was not invisible; so he will offer "argument of hope,"
by analyzing the bad habits of mind and futile methods so far

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The great tradition of American investigative journalism had its beginning in during which national magazines such as McClures and Collier's published I. Tarbell's History of the Standard Oil Company (1904), Lincoln Steffens's The the Cities (1904), and other hard-hitting exposés. Muckraking novels used e journalistic techniques to depict harsh working conditions and oppression. P. Norris's The Octopus (1901) exposed big railroad companies, while socialist Sinclair's The Jungle (1906) painted the squalor of the Chicago meat-packing Jack London's dystopia, The Iron Heel (1908), anticipates George Orwell's I predicting a class war and the takeover of the government.

Another more artistic response was the realistic portrait, or group of portrait ordinary characters and their frustrated inner lives. The collection of stories Travelled Roads (1891), by William Dean Howells's protégé, Hamlin Garland (1940), is a portrait gallery of ordinary people. It shockingly depicted the poor midwestern farmers who were demanding agricultural reforms. The title sug many trails westward that the hardy pioneers followed and the dusty main s villages they settled.

Close to Garland's Main-Travelled Roads is Winesburg, Ohio, by Sherwood A (1876-1941), begun in 1916. This is a loose collection of stories about resid fictitious town of Winesburg seen through the eyes of a naive young newspaper reporter, George Willard, who eventually leaves to seek his fortune in the ill Main-Travelled Roads and other naturalistic works of the period, Winesburg, emphasizes the quiet poverty, loneliness, and despair in small-town America.

THE "CHICAGO SCHOOL" OF POETRY

Three Midwestern poets who grew up in Illinois and shared the midweste with ordinary people are Carl Sandburg, Vachel Lindsay, and Edgar Lee Their poetry often concerns obscure individuals; they developed technic realism, dramatic renderings -- that reached out to a larger readership. The the Midwestern, or Chicago, School that arose before World War I to challen Coast literary establishment. The "Chicago Renaissance" was a watershed in culture: it demonstrated that America's interior had matured.

Edgar Lee Masters (1868-1950)

By the turn of the century, Chicago had become a great city, home of innov architecture and cosmopolitan art collections. Chicago was also the home of Monroe's Poetry, the most important literary magazine of the day.

Among the intriguing contemporary poets the journal printed was Edgar Lee author of the daring Spoon River Anthology (1915), with its new "unpoetic" style, frank presentation of sex, critical view of village life, and intensely im lives of ordinary people.

Spoon River Anthology is a collection of portraits presented as colloquial epigraphs (inscribed on gravestones) summing up the lives of individual villagers own words. It presents a panorama of a country village through its cemeter people buried there speak, revealing their deepest secrets. Many of the peo related; members of about 20 families speak of their failures and dreams in monologues that are surprisingly modern.

Carl Sandburg (1878-1967)

A friend once said, "Trying to write briefly about Carl Sandburg is like trying
used in science (1956, 94). Both mind and senses are unreliable, yet the right method of using mind to control mind, as we look from a different angle to correct sight, might repair our faults just enough to achieve reliable theories. And this, in essence, has proven true.

Bacon's Checks and Balances

Unlike most revolutionaries (see like the American founders), Bacon offers not a cure, but 'helps': checks and balances (1966, 37). First is the chancer's deliberate attention to rash pitfalls. Second, his liminal will be bypassed by involving diverse inquirers. And finally, the theory-making urge itself must be challenged by experimental tests of each assumption and conclusion. The inquirer's thinking will also be affected. What counts as a theory or a scientific term will be guided by his awareness that an eventual empirical test is in the offering. And, conversely, dubious scientific thought is influenced by the knowledge that no rigorous test will be applied.

Bacon's paradoxical message—the mind is fallible, the mind can achieve wonders—it usually misunderstood, ignored, or quoted misleadingly! Yet it is at the heart of the initiation of SKEPTICAL INQUIRY. For Bacon grasped that scientific method must be intimately linked with a critique of pseudoscience, and that such a critique was not to be just a neat-up routine for modern science, but would be of continuing, even increasing, importance. The more that inquiry prospered, the more its intellectual, semantic, and institutional offshoots would be vulnerable to the flaws of the mind.

Bacon saw that the three minds might generate whole systems of belief, tightly intertwined, fiercely defended, securely institutionalized, and thus hard to dislodge. His fourth category, "Ideals of the Theorist," referring to the "view show" of such a system, incorporates all the others. Though familiar initially with the Scholastic system, he expected that as free thought was permitted, many new, specific systems would arise (1900, 61–66, 44). The force of his initiating role for modern science has obscured his concern with the potential. Even Stephen J. Gould, in his recent article, maintains only "snowmound," or "oldest, traditional" systems as Bacon's targets, rather than the system-making propensity of the human mind.

Bacon did not envisage the mathematical physicist to come; indeed, he could hardly know what a powerful theory would look like. Thus he thought more generally about the search for meaningful patterns in the confusion of phenomena, making his ideas particularly relevant to fledgling and would-be sciences. He hoped that ethics and politics would also yield to his ideas. But the notion of creating a science of society tended to make people aim for universal laws, exact measurements (of something), and the depiction of a system. Soon after Bacon's death, Thomas Hobbes attempted such a science, with simple mechanical principles in the style of physics. But such efforts ought to be "scientific" first in according Bacon's warnings about staying from the fact and clinging to assumptions or terminology that cannot lead to new, testable insight. Bacon would have us spend more time with immutable "rudimentary principles." Popeyes such as Feser, eager to make their ideas science, are in danger of taking any plausible mechanisms to be a universal principle. Bacon's reluctance to assume uniformity, though misplaced in physics, is stone pertinent in studying human nature.

Bacon's last feature in Scholasticism that held back inquiry is surprisingly up-to-date. For example, he includes the idea of anticipating the worship of the new: picking on goings for arguments rather than new discoveries; didactic presentation of what is not yet understood; pressure for formulizing of dubious beliefs; and the search for a "key" or "cure" in elaboration of trivial ideas (1874, III, 289–295).

We still rash to call things knowledge and trade formally what we cannot yet be sure of. In alternative medicine the ancient and the modern are equally valued for that truism alone. Excessive quoting of a founder (whether Lenin or Feser) whose experience has superseded suggests that one is not trying too soon. Bacon thought Aristotelian and others should be treated as "counselors" to give advice, not "dictators" to enforce belief. True, he himself offered "not an opinion to be held, but a word to be done" (1874, 289, 1960, 16).

What Bacon called "counterions" learning originated in the twelfth century as a valuable attempt to consider more than one view. But the formal debate had become a mere contest in whichflowing an opponent took precedence over gaining new insight. Similarly, modern lists show, debates, and documentations may virtually state contrasting views without working them over to reach new insights.

Bacon's value is in pressing us to question the systems or rhetorical habits of many modern gurus, from Hegel, Marx, and Feser to Descartes, Foucault, and Lacan. Posing questions of pre-consumption is, to be sure, a central intellectual skill. Mastering it may require a long struggle with one or more slippery systems finally abandoned. Alexandre Heimon, in nineteen-century Russia, discovered in Bacon's New Organon a rationalism more exact than the left-wing Hegelianism of his time. This quasi-metaphysical liberal critique of right and left erroneous for surprising affinity with Bacon's thought, as we may also.

Dilution and Misunderstanding of Bacon's Method

Bacon's ideas were both broad and ignored in the centuries following. His insistence that theory be in continual adjustment with experience is fundamental to science and was assumed by Galileo, Kepler, and Newton. Yet the rise of mathematical physics, which seems to contain its own safeguards against error, encouraged renewed trust in reason alone. Descartes's influence also gave authority to the mathematical mind and measured the old Stoics for intelective century, in contrast with Bacon's portrayal of a weak, self-doubting, cautious space.

In the sixteenth, promoters of experimental methods in England hoped that direct study of nature would offer a refuge from the theological wrangle and ensuing violence of the Civil War. Bacon's talk of enchanted mirrors and idolatry is not of mind has an almost Calvinistic ring to those eager to link religion with the clear light of reason. Even Robert Boyle, who was closest to Bacon in his methods, intentions, and interests, wanted science and religion manually to vindicate one another in "natural theology." But Bacon regarded scientific assumptions derived from
violent home life, she allows herself to be seduced into living with a young man who soon deserts her. When her self-righteous mother rejects her, Maggie becor

prostitute to survive, but soon commits suicide out of despair. Crane's earthy
matter and his objective, scientific style, devoid of moralizing, earn Mark Mag
naturalist work.

Jack London (1876-1916)
A poor, self-taught worker from California, the naturalist Jack London was c
from poverty to fame by his first collection of stories, The Son of the Wolf (largely in the Klondike region of Alaska and the Canadian Yukon. Other of hi
sellers, including The Call of the Wild (1903) and The Sea-Wolf (1904) made
highest paid writer in the United States of his time.

The autobiographical novel Martin Eden (1909) depicts the inner stresses of American dream as London experienced them during his meteoric rise from poverty to wealth and fame. Eden, an impoverished but intelligent and hard
sailor and laborer, is determined to become a writer. Eventually, his writing
rich and well-known, but Eden realizes that the woman he loves cares only for money and fame. His despair over her inability to love causes him to lose faith in nature. He also suffers from class alienation, for he no longer belongs to the class, while he rejects the materialistic values of the wealthy whom he works
in the South Pacific and commits suicide by jumping into the

Theodore Dreiser (1871-1945)
The 1925 work An American Tragedy by Theodore Dreiser, like London's Ma
explores the dangers of the American dream. The novel relates, in great det
of Clyde Griffiths, a boy of weak will and little self-awareness. He grows up in
poverty in a family of wandering evangelists, but dreams of wealth and the
beautiful women. A rich uncle employs him in his factory. When his girlfriend
becomes pregnant, she demands that he marry her. Meanwhile, Clyde has f
with a wealthy society girl who represents success, money, and social acceptance. Carefully plans to drown Roberts on a boat trip, but at the last minute he be
change his mind; however, she accidentally falls out of the boat. Clyde, a ga
swimmer, does not save her, and she drowns. As Clyde is brought to justice
replays his story in reverse, masterfully using the vantage points of prose and
defense attorneys to analyze each step and motive that led the mild-mannered
with a highly religious background and good family connections, to commit

Despite his awkward style, Dreiser, in An American Tragedy, displays crush
its precise details build up an overwhelming sense of tragic inevitability. The
scathing portrait of the American success myth gone sour, but it is also a ur
about the stresses of urbanization, modernization, and alienation. Within it is
romantic and dangerous fantasies of the dispossessed.

An American Tragedy is a reflection of the dissatisfaction, envy, and despair
afflicted many poor and working people in America's competitive, success-d
society. As American industrial power soared, the glittering lives of the well
newspapers and photographs sharply contrasted with the drab lives of the ordin
and city workers. The media fanned rising expectations and unreasonable di
problems, common to modernizing nations, gave rise to muckraking journa
penetrating investigative reporting that documented social problems and pr
important impetus to social reform.