Beauty and the Botanist

By Stan Rowe

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This article examines the major dangerous shortcomings of Science as a way of knowing. Science does not reveal truths about vital values such as beauty, goodness and ethical conduct.

Flowers stir our sense of beauty and lend a special charm to botanizing, whether in our gardens caring for roses and sweet peas, or rambling in nature's paradise searching for rarer blooms. Flowering plants evolved along with our mammal ancestors; we grew up together during the last few hundred million years, and the roots of the attraction we feel for fragrant blossoms and bouquets lie deep within us.

Professional botanists shy away from the subject of beauty in the plants they study. Such neglect by science's practitioners deserves attention in a fading world where the common un-beautiful arguments for preserving wild landscapes, and the plants that are parts of them, continually fail.

We have heard again and again the reasons for preservation of at least a few viable parts of the non-humanized landscape, reasons that always emphasize benefits to the human race. The arguments rely on the logic of economic utility, stressing usefulness to people, to society, to science. Their weakness lies precisely here, for everyone, with a little thought, perceives that the utility of wild things as such - of landscapes in their original forms and of the native plants and animals within them - is small compared to the utility that interventions and developments will yield in material "goods". Strict protection, hands off the natural world, butters no parsnips.

Better to farm and lumber, mine and hunt over all of Canada. Unless of course the land is relatively valueless for agriculture, forestry, mining and hunting. Then society concedes that, yes, perhaps a park is in order - to draw in tourists and give a boost to the local economy. The promise of profitability-through-use seems today the only acceptable excuse for salvation of the world. But acceptance of that rationale opens the door to judging "best use" by market values, against which the "let it be" philosophy cannot compete.

The economic justification is weak because it is wrong. The battle for preservation will be won, if it can be won, in the arena of non-utilitarian values, with no price tag attached. Only immaterial values - appreciation of landscape beauty, the sense of intrinsic values in Nature - will finally serve.

The time has come to champion the aesthetic sense and trust it, rather than relying on the economic sense that calculates short term market profits and discounts the future. Enough of crass assertions that humanity can profit from protected areas because eventually they "pay off": as benchmark sites by which we can gauge the extent of the world's deterioration; as models for reconstituting ecosystems we have ruined; as gene pools from which to engineer productive organisms; as sources of still undiscovered crops, domestic animals, pharmaceuticals. These shabby arguments will not preserve the natural world - although they may successfully preserve the public funding of research. The alternative is faith in the affections that gently lead us on to a sympathy reaching out beyond the human race.

Unaffectionate Biologists

Professional biologists make no concessions to beauty. By a conscious effort they exclude from both subject matter and personal attitude all considerations of beauty and such soft-hearted affective values. The reasons are hard-headed. Control of phenomena, not sensitivity to them, is the goal of science. Scientists search for mechanisms within not aesthetic emanations without. Quantitative measurement is the written language, and neutral numbers and formulae - no matter how elegant - are incapable of expressing beauty. Aesthetic feelings, if countenanced, would distract from the accepted analytic methodology. Further, scientists are cut-ups, and dissection is their proper tool. To ask if the living whole might not be more beautiful than the dead parts would subvert the entire enterprise.

The danger of the scientist's belief system is its mechanistic materialism, its goal of control, and its dispassionate stand-apart-from-the-world methods. They erode and eventually eradicate those non-utilitarian instincts that we must rely on and trust, if the non-humanized natural world is to be preserved. The peril has long been recognized by the radical fringe, and the poetry of Blake expresses it with profound insight:

> To see a World in a grain of sand,
> And a Heaven in a wild flower,
> Hold Infinity in the palm of your hand,
> And Eternity in an hour ...
> A skylark wounded in the wing,
> A cherubim does cease to sing.
> The wild deer wandering here and there,
> Keeps the human soul from care. (1)

How dull on purpose are the abstracts of the papers from the annual meetings of the Canadian Botanical Association! No one discusses "The Beauty of the Flower", "The Esthetics of Riparian Vegetation", or "Sensory Delight in the Study of Organelles". Smart young botanists soon discern the range of legitimate interests dictated by a professional career: acceptability by the established peer group and the necessity of publishing in reputable journals. They learn the lesson that science's content excludes beauty and has naught to do with qualitative aspects, with emotions and feelings. Such fuzzy aspects of experience are not merely banished to the realms of art and culture; they are obliterated.

Science excludes Quality

The rational mind of science has a terrible failing. If it cannot cope with aspects of experience that are un-measurable it declares them meaningless, unimportant. They are unsubstantial epiphenomena. Feelings, the promptings of emotions, are distrusted because no white-coated savant has corked the incontrovertible evidence of them in a test tube. The better humanity becomes at

science and its kind of rationality, the less room remains for non-cognitive things of the spirit. Values still call society's shots but they are debased to those values that can live with science and those with which science can live. Truth is one such precept, but truth-in-science is a peculiarly denatured form of the real thing. The history of science explains this incongruity.

Galileo is one of the heroes of rational thought, and the story of his persecution by the Church is legendary. Time has acquitted him of the Inquisition's charge that he blasphemed in rejecting the idea that the solar system revolves around Earth. But Galileo did commit a serious crime: the rejection of total human experience. He divided experienced reality into an objective quantifiable sphere, the real world of Primary Qualities and science, and a subjective qualitative sphere of feeling and meaning, comprising unreal and unimportant Secondary Qualities:

> "But I hold that there exists nothing in external bodies for exciting in us tastes, odors and sounds but size, shape, quantity and slow or swift motion. And I conclude that if the ears, tongue and nose were removed, shape, quantity and motion would remain but there would be no odors, tastes or sounds, which apart from living creatures I believe to be mere words."(2)

Note that all but shape, quantity and motion are "mere words." Galileo elevated sight and touch as the senses that connect us to reality, thereby dismissing the more emotive mind, the aesthetic mind.

From Galileo's time to the present, the world's physical scientists- acclaimed as the weighty thinkers - have insisted that Nature speaks only the language of quantity, of mathematics, in a mechanistic way. Nature is not organic but mechanical. In this century, the philosopher- mathematician Alfred North Whitehead objected to the non-organic world view, characterizing materialistic scientific thought as "one-eyed reason, deficient in its vision of depth." Nevertheless, despite Whitehead, and before him those in the tradition of Rousseau and Thoreau, scientific materialism has dominated and spread around the world. In the 20th Century the majority of people value power and control over the material universe above all else, and science delivers that power and control in spades.

This is not to attack science in all its human knowledge forms. As conscious beings, we will have knowledge, inescapably, of one kind or another. But criticism of a certain kind of power-seeking knowledge -- science as commonly understood -- is merited, as is the widespread belief that the pursuit of this control-oriented rationality is the most important human endeavour, to which all others - including search for the good and the beautiful -- are subordinate. Fortunately, intelligence is not so confined.

Science Fills the Faith Gap

Journals regularly run articles decrying the few numbers of women in science, particularly in the physical sciences. By implication women are the halt and the lame who need to be healed and made whole by better education that will turn them into what they ought to be: researchers and academics. True, women have suffered from inequality in our educational system; they have been denied access to various fields and have been short-changed by sexual stereotyping. Nevertheless, to fasten on the unjust socializing process as the sole reason for relatively few women in science is as unwise as to blame school curricula for not making all men mathematicians, physicists and engineers -- a goal that the Science Council of Canada would doubtless approve.

I suspect that many women, and a large number of men too, get bad vibrations from science. Substantial numbers of both sexes do not pursue science careers because in a deep and intuitive way they sense that dispassionate intellect, quantitative rationality, leave out too much of what is real,

vital and believable in their lives. They sense that science is not the solution to the human predicament but a problematical part of it.

Each of us has to believe in something that helps make sense of the world, for the absence of ways to rationalize events, to impose order on disorder, to create a world of meaning, is the road to madness. Caring for things beyond our immediate selves is another requirement of sanity. Organized religion used to fill these dual needs for many, explaining life's purpose and providing an outlet for unselfishness. Now, for many, the old beliefs have faded. Astronomers searched the heavens and found them dead and mindless; Kruschev reported that USSR astronauts had spotted no God in outer space. Many people were left with nothing to believe in, nothing worthy of worship but their own kind. Species selfishness was enthroned. The popular religious sects preach a Dale Carnegie brand of success through personal salvation. Secular society is pragmatic, concerned with the economic and social welfare of its members.

The vacuum left when old-time religion was discarded has been filled without fanfare by the religion of Humanism whose goal is service to humanity and nothing else. Today all right-thinking people and all right-acting institutions make helpfulness and service their motto. Notice all the selfless assistance offered by the banks and other corporations, the fraternal clubs, the insurance agents, your friendly corner service station. When service to people is paramount, disservice to everything else in the world follows close behind. How ridiculous the suggestion that we should stop using animals in research! Without cutting them up and dosing them with chemicals how would we ever serve people medically, how find cures for their diseases?

The accent on service has been co-opted by commercialism and greed. The world of advertising makes a mockery of beauty and altruism and sacrifice. Reading the ads turns the sensitive cynical and sick. What is left? Where can idealistic young people turn, if they reject the hypocrisy of the business world and a merely personal salvation?

Science seems to offer a worthwhile escape, for it holds up a selfless banner promising truth, progress, freedom, a better world. Science in fact has become Humanism's chief religious sect, not lacking in dogmas and Latin maxims. The motto of my Alma Mater -- Quaecumque Vera -- "Whatsoever Things are True," has a nice ring. But now we are told by such philosophers as Kuhn that "truth" in science means correspondence with the latest theory, with the paradigm of the month. Such truth has little relevance to the preservation of a habitable world, or to creating a decent society within it. Science's truth is not the "Beauty is Truth, Truth Beauty" of the poet.

Temples of Science

In the golden age of universities, early in the century, Einstein wrote these words honoring Max Planck:

> "In the temple of science are many mansions, and various indeed are they that dwell therein and the motives that have led them thither. Many take to science out of a joyful sense of superior intellectual power; science is their own special sport to which they look for vivid experience and the satisfaction of ambition; many others are to be found in the temple who have offered the products of their brains on this altar for purely utilitarian purposes. Were an angel of the Lord to come and drive all the people belonging to these two categories out of the temple, the assemblage would be seriously depleted, but there would still be some men, of both present and past times, left inside. Our Planck is one of them, and that is why we love him." (3)

Einstein's imagery of temple, altar and angel places science in a religious context that the gothic architecture of many university campuses reflects. Humanity progresses under the leadership of an unselfish, dedicated priestly elite. The direction is unquestioned. Twenty three years later, however, in 1941, a more pessimistic but clear-sighted Einstein wrote of science:

> "Whatever this tool in the hand of man will produce depends entirely on the nature of the goals alive in this mankind. Once these goals exist, the scientific method furnished means to realize them. Yet it cannot furnish the very goals...Perfection of means and confusion of goals seem -- in my opinion -- to characterize our age." (3)

Einstein came to recognize that science is instrumental, a tool, a means. As long as we are sure where we want to go with science, it is wonderful. Science will take us in whatever direction we choose, toward worthy or unworthy goals with equal facility.

From this proposition a corollary truth: science left to itself and setting its own expedient directions will do as much evil as good. Nevertheless, every professional worth her/his salt argues that s/he should yearly be given a bundle of money by the National Science and Engineering Research Council and then be left alone to do his/her thing. This is the dream of all scientists, endorsed by prestigious Nobel Laureates, that society regularly and unquestioningly provide ample no-strings funding for the pursuit of "basic" or "curiosity-oriented" research. Be assured, says the National Research Council, that nothing but good will result.

But hold on a minute. Where did brain-washing, thought-control, acid rain, ozone holes and nuclear weapons come from? Ah, the scientists reply, you are failing to distinguish between our spotless, dispassionate, objective science and the unfortunate and messy technological uses to which it is sometimes put. Do not blame us if the pure and neutral knowledge we deliver is sometimes misused.

That answer is at odds with Einstein's conclusion. In none of its forms is science isolated from society. It is a means, tightly tied to the technology it spawns, and both are power tools serving human goals. Science cannot escape the blame when the potency it releases is used destructively.

A New Goal for Science

A vital question, then, concerns the ends that science/technology serves: the question of goals and guiding values. Although these can be examined rationally, the intellect is not their source. The leading goals for society derive much more from sensibilities -- feelings of harmony, beauty, sympathy and justice -- than from pure intellect. The temples mistakenly erected to science on university campuses should be rededicated to value-oriented wisdom, to a new faith that transcends instrumental knowledge.

An attractive belief in the importance of Nature is resurfacing. Tribal cultures and those of our ancestors have conceived humanity and the world as organically one. Today, ecological insights are buttressing the credibility of this ancient faith. A recent restatement is the Gaia Hypothesis by James Lovelock, identifying the Earth as a vital being of which all organisms along with the air, water, soils and sediments are dependent parts.(4) Gaia in Greek mythology is the Earth Goddess, and humanity is likened to her son Antaeus who retained his strength as long as he was in touch with his mother. Whatever separates humanity from its Earth roots - present-day Herculean technology, for example -- saps health and wholeness. (In the myth, Hercules overcame Antaeus by holding him aloft, so that he could not touch the Earth). Enlightened science/technology will strengthen the bonds between people and the Earth, not destroy them.

To conceive the Earth as the creative centre requires another Copernican revolution, a new paradigm shift that removes the focus from people and places it on their Home Place, the planetary Ecosphere. A greater than human reality would then revolve around the Earth, recognized as the source of creativity, life and health. An expanded religious sense, recognizing divinity in surrounding nature again, would relieve our inturned, suffocating and stultifying preoccupation with The One Important Species.

With such a faith how optimistic the future will be; our science and technology under control, both the twins guided in a healthy direction as humanity harnesses its intellectual powers to rescue the planet, to rehabilitate and maintain its beauty, permanence and productivity. Reconciliation with the Earth will expose the foolishness of death-wish military technology that currently wastes a trillion dollars a year and destructively employs half the world's scientists.

The beauty perceived in Nature is the fragrant aura of the old/new Gaia myth. The perception of beauty in the world is the proof of our belonging, the bridge to a wider sympathy extended beyond our own kind. Beauty is not only what we perceive to be harmonious and healthy; it is a central aspect of whatever we love.(5)

Imagine how a softer science, infused with affection for the world and its marvelous parts, could contribute to compassion for all things, both living and supportive of life. Why not a symbiotic science of botany that marvels at the beauty of flowering plants, and explores their many meanings? Botanists of the world, wake up and smell the flowers.

Citations

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4. James Lovelock. The Ages of Gaia: A Biography of our Living Earth. 1988. W. W. Norton and Co., New York.

5. Kathleen Raine. "A Sense of Beauty." Resurgence, Issue 114: 8-12. Jan./Feb. 1986.

Other Ecocentric Texts