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*MuseLetter #236 / January 2012 by Richard Heinberg*

*Welcome to the 20th anniversary edition of the Museletter. This month's edition includes a short Muse memoir, two new pieces, and two reprints of favorites from the past. Thanks for your continued support.*

## **MuseLetter: The 20<sup>th</sup> Anniversary Issue**

The first issue of *MuseLetter: A Journal of Cultural Renewal* appeared in January 1992 as a four-page monthly xeroxed mailer available by subscription (\$10/year). I had compiled an address list of folks with whom I had come in contact via my first book (*Memories and Visions of Paradise: Exploring the Universal Myth of a Lost Golden Age*, 1989) and sent out a sample copy (Issue Number 1) with a subscription query. Nearly three hundred replies (and checks) came back, enabling me to avoid a day job and keep writing.

These days blogs are commonplace, and this publication has morphed (somewhat uncomfortably) to fit the prevailing standards; however, in its original form it staked out a unique territory bordering the formats of broadside, pamphlet, and newsletter.

I started *MuseLetter* as a venue for exploring whatever topic seemed interesting at the moment. During the past two decades, it has focused on issues related to energy, deep ecology, history, politics, geopolitics, comparative religion, and ecopsychology—with occasional forays into subjects as disparate as music, economics, art, and anthropology. A couple of my personal favorites from the archives are "Chaconne" (Number 88, April 1999), which uses the music of Johann Sebastian Bach as a Rorschach for a discussion of civilization and creativity; and "[Teaching, Schooling, and Learning](#)" (Number 105, October 2000), whose title is self-explanatory.

The only article by another author to have shown up in this publication so far is "Musing on Muses" (addendum to Number 3, March 1992), an exploration of the etymology of the word *muse* by the late anthropologist/linguist Roger Williams Wescott—a friend, mentor, and initial subscriber.

Unfortunately I'm no longer able to supply back issues in either electronic or print form. However, as a way of marking the anniversary, I'm re-publishing "Chaconne" and "Musing on Muses" as supplements to this issue of *Museletter*.

Two books began as compilations of *MuseLetter* essays: *A New Covenant with Nature: Notes on the End of Civilization and the Renewal of Culture* (1996) and *Peak Everything: Waking Up to a Century of Declines* (2007, 2010); however, draft chapters of most of my other books (including last year's *The End of Growth: Adapting to Our New Economic Reality*) appeared serially in *MuseLetter*. Pre-publishing book chapters this way has enabled me to take advantage of feedback from readers and has made *The Party's Over*, *Powerdown*, and *The End of Growth* better books than they would otherwise have been.

Right from the start, *MuseLetter* somehow managed to attract smart, generous subscribers who taught me as much as I could have hoped to teach them. Many early readers were authors in their own right, or college lecturers, or independent hobby intellectuals—which is what I myself was until Michael McAvoy, the academic dean of New College of California, encountered an issue of *MuseLetter* that had made its way to Spain (where he was on sabbatical) and invited me to help design a degree-completion program on Culture, Ecology and Sustainable Community at a new branch campus of his school, planned to open in, of all places, Santa Rosa—where my wife Janet and I happened to be living. I taught at New College from January 1998 until that institution closed its doors for financial reasons in late 2007.

In the early days, putting out *MuseLetter* entailed not only writing and editing text, but designing, laying out, photocopying, and folding the publication itself, as well as stuffing, addressing, and stamping envelopes. A few intrepid volunteers—notably Mary Henderson and Ken Rose—helped with the latter tasks, and mailing days were always filled with conversation and laughter.

In more recent years, *MuseLetter* has existed only in its electronic version, but (thanks to my association with Post Carbon Institute, and to the e-publishing skills and efforts of Simone Osborn) it is now available free to anyone with Internet access.

It's not my intent with this little memoir to make too big a deal of what is after all still a small and fairly insignificant publication. But *MuseLetter* has persisted, and it has borne numerous and (if I may say so) interesting fruit. It deserves to have its milestone marked.

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## Looking Forward to 2012

Originally published at [ASPO USA](#)

Last year, in a contribution to ASPO's annual predictions for the coming year, I played it safe with a forecast for a 30 percent increase in Asia Pacific coal prices. Check. A less cautious reading of omens is called for in 2012: even though the variety and severity of risks at play makes for uncertainty, mapping those risks may at least help us prepare ourselves psychologically, if not practically, for what's in store.

It will be truly miraculous for Europe to avoid at least a recession this coming year, if not a fully-fledged financial meltdown, and ensuing economic contagion from the EU will almost certainly infect US markets.

This makes forecasts for oil prices difficult-to-pointless. Tightness of supply—which would otherwise push prices up—may be more than counterbalanced by an economic downturn, which will reduce energy demand and therefore energy prices. Gold and silver prices may likewise take a hit. Look for continued low natural gas prices in the US to take a toll on the fracking gas industry, with at least one major player selling out or going bankrupt.

Look also for declining economic strength in China. That country is aiming for a soft landing, but events in Europe and in Beijing's own real estate markets may turn cushions to anvils.

Predicting when and whether tensions between Iran and Israel will go ballistic is a fool's game. However, only someone on an extended media fast could have failed to notice that those tensions ratcheted up way beyond factory specs in 2011. If hostilities erupt, all bets are off. No doubt there are trolls in Langley and the State Department hard at work this very moment trying to figure out how to keep an isolated aerial attack from spinning into global economic and geopolitical mayhem, but it will be a challenge to keep even the best-laid contingency plans on track. Relations between the US and Pakistan seem set to deteriorate further, and disputes surrounding oil and mineral rights in the South China Sea are likely to intensify, clouding the geopolitical crystal ball to opacity and making nasty surprises more likely.

With the US lurching inexorably toward elections in November, expect the current administration to make every effort to keep the lid on the economy over the short run, no matter what the long-term cost—and, given the penurious condition of the Treasury, that means all the heavy lifting will be up to the Fed.

As austerity measures take hold, US states, counties, and cities will feel the brunt of the economic impact. Households around the world will increasingly feel pinched. Despite police and army crackdowns, the global end-of-growth uprising (otherwise known as the Arab Spring, the European economic riots, and the Occupy Wall Street movement) can do nothing but grow.

Expect a series of disasters this year to rival or perhaps even surpass the floods, fires, droughts, and industrial accidents (Deepwater Horizon, Fukushima) of 2010 and 2011. Specifics are impossible to predict in this regard, but the momentum of global climate change is increasing, while the environmental costs of maintaining the world's energy supply are burgeoning.

Do not expect the fulfillment of a faked-up Mayan prophecy of doom in December. We have many more years to look forward to, though they'll be mostly characterized by economic, political, social, and geopolitical turmoil—and environmental degradation—until the world finally begins to adapt proactively to tightening resource limits.

However, 2012 will probably feel a bit scarier than the last couple of years, during which the world's political leaders and central bankers made extraordinary efforts to temporarily halt the unraveling that started in 2008 with a historic oil price spike and the popping of the world's biggest-ever credit bubble. The available ammunition (stimulus and bailout packages) is nearly used up, while inherent problems (towering debt burdens and a shrinking resource base) are only intensifying.

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## **Geopolitical Implications of "Peak Everything"**

From [\*Solutions Journal\*](#), January 2012

From competition among hunter-gatherers for wild game to imperialist wars over precious minerals, resource wars have been fought throughout history; today, however, the competition appears set to enter a new—and perhaps unprecedented—phase. As natural resources deplete, and as the Earth's climate becomes less stable, the world's nations will likely compete ever more desperately for access to fossil fuels, minerals, agricultural land, and water.

Nations need increasing amounts of energy and raw materials to produce economic growth, but the costs of supplying new increments of energy and materials are burgeoning. In many cases, lower-quality resources with high extraction costs are all that remain. Securing access to these resources often requires military expenditures as well. Meanwhile the struggle for the control of resources is re-aligning political power balances throughout the world.

This game of resource "musical chairs" could well bring about conflict and privation on a scale never seen before in world history. Only a decisive policy shift toward resource conservation, climate change mitigation, and economic cooperation seems likely to produce a different outcome.

### **America's Resource Geopolitics**

The United States—the world's current economic and military superpower— entered the industrial era with a nearly unparalleled endowment of natural resources that included an abundance not only of forests, water, topsoil, and minerals, but also of oil, coal, and natural gas. Like all other nations, the U.S. has approached resource extraction using the low-hanging fruit principle. Today its giant onshore reservoirs of conventional oil are largely depleted, and the nation's total oil production is down by over 40 percent from its peak in 1970—despite huge discoveries in Alaska and the Gulf of Mexico. Its total coal resources are vast, but rates of extraction probably cannot be increased significantly and will likely begin to decline within the next decade or two. Unconventional hydrocarbon resources (such as natural gas liberated by the hydrofracking of shale deposits) are beginning to be commercialized, but come with high investment costs and worrisome environmental risks. U.S. extraction rates for many minerals have been declining for years or decades, and currently the

nation imports 93 percent of its antimony, 100 percent of its bauxite (for aluminum), 31 percent of its copper, 99 percent of its gallium, 100 percent of its indium, over half its lithium, and 100 percent of its rare earth minerals.[\[1\]](#)

America has much to lose from any substantial reshuffling of global alliances and resource flows. The nation's leaders continue to play the game of geopolitics by 20<sup>th</sup> century rules: they are still obsessed with the Carter Doctrine and focused on petroleum as the world's foremost resource prize (a situation largely necessitated by the country's continuing overwhelming dependence on oil imports, due in turn to a series of short-sighted political decisions stretching back at least to the 1970s). The ongoing war in Afghanistan exemplifies U.S. inertia: most geostrategic experts agree that there is little to be gained from the conflict, but withdrawal of forces is politically unfeasible.

The United States maintains a globe-spanning network of over 750 military bases[\[2\]](#) that formerly represented tokens of security to regimes throughout the world—but that now increasingly provoke resentment among the locals. This enormous military machine requires a vast supply system originating with American weapons manufacturers that in turn depend on a prodigious and ever-expanding torrent of funds from the Treasury. Indeed, the nation's yawning budget deficit largely stems from its trillion-dollar-per-year, first-priority commitment to maintain its military-industrial complex.

The U.S. currently engages in "special operations" in 120 countries[\[3\]](#), using elite commando units skilled in assassination, counterterrorist raids, foreign troop training, and intelligence gathering. These teams can be deployed to support U.S. geopolitical interests in a variety of ways, including influencing elections or supporting factions within revolutions. The U.S. also maintains the world's most lavishly funded (\$80 billion in 2010) intelligence bureaus, the CIA and NSA, which conduct electronic and human information gathering activities in virtually every country on the planet.[\[4\]](#)

Yet despite America's gargantuan expenditures on intelligence gathering and high-tech weaponry, and its globe-spanning ability to project power and to influence events, its armed forces appear to be stretched to their limits having continuously fielded around 200,000 troops and even larger numbers of support personnel in Iraq and Afghanistan for the past decade, where supply chains are both vulnerable and expensive to maintain.

In short, the United States remains an enormously powerful nation militarily, with thousands of nuclear weapons in addition to its unparalleled conventional forces, yet it suffers from declining strategic flexibility. The nation still retains an abundance of natural resources, but its consumption rates of many of those resources have grown to nearly insatiable levels, necessitating growing flows of resource imports from other nations. Meanwhile, its ability to pay for those imports is increasingly in question as its domestic economy shrinks due to financial system volatility, government spending cutbacks, high unemployment, an aging workforce, and shrinking average household net worth. For all of these reasons, the U.S. is widely

characterized as “an empire in decline.”

## The Global Geopolitical Resource Landscape

China is the rising power of the 21<sup>st</sup> century, according to many geopolitical pundits, with a surging military and plentiful cash with which to buy access to resources (oil, coal, minerals, and farmland) around the planet. Yet while it is building an imperial-class navy that could eventually threaten America’s, Beijing suffers from domestic political and economic weaknesses that could make its turn at the center of the world stage a brief one. These include limits to available coal resources, a domestic real estate bubble, weakness in its banking sector, falling demand for Chinese exports in the U.S. and Europe, and widespread local political corruption.

Even as countries like Venezuela, Bolivia, Ecuador, and Nicaragua reject American foreign policy, the U.S. continues to exert enormous influence on resource-rich Latin America via North American-based corporations, which in some cases wield overwhelming influence over entire national economies. However, China is now actively contracting for access to energy and mineral resources throughout this region, which is resulting in a gradual shift in economic spheres of interest.

Africa is a site of fast-growing U.S. investment in oil and other mineral extraction projects (as evidenced by the establishment in 2009 of Africom, a military strategic command center on par with Centcom, Eucom, Northcom, Pacom, and Southcom), but the continent also a target of Chinese (and European) resource acquisition efforts. Proxy conflicts there between and among these powers may intensify in the years ahead—in most instances, to the sad detriment of African peoples.[\[5\]](#)

The US still maintains a dominant position in the Middle East, but the region is characterized by extreme economic inequality, high population growth rates, political instability, and the need for importation of non-energy resources (including food and water). The revolutions and protests in Tunisia, Egypt, Libya, Bahrain, Syria, and Yemen in early 2011 can be interpreted as showing the inability of young, growing, and largely unemployed populations to tolerate sharply rising food, water, and energy prices in the context of autocratic political regimes.[\[6\]](#) As economic conditions worsen, many more countries—including democratic nations outside the Middle East, the U.S. included—could become destabilized in much the same way.

America’s best shot at expanding its oil interests lie in the deep oceans and the Arctic.[\[7\]](#) However, both military maneuvering and engineering-mining efforts will see diminishing returns as costs rise and payoffs diminish.

Climate change is likely to exacerbate geopolitical rivalry with China, although it's important to recognize that climate risks will not be evenly apportioned. Unstable states will become more unstable, poor nations poorer. Many of the areas of greatest geopolitical risk are also most at risk for impacts from climate change. Equatorial regions are most likely to suffer from extreme drought and occasional catastrophic flooding, while some northern temperate regions may

see some transitory benefit from warming—though unpredictable weather will plague nearly every region. With the melting of Arctic ice, new mineral and energy resources in the northernmost portions of the planet will become accessible, as will new trade routes; this may lead to a “Cold Rush” of economic and military exploitation and open a new theater for international conflict.[\[8\]](#)

Which raises the question: Can such consequences be averted, and how? The answer may hinge on whether, and in what ways, humanity chooses to compete or cooperate in response.

### **Competition versus cooperation**

The world’s governments engage continually in both cooperative and competitive behavior, though sometimes extremes of these tendencies come to the fore—with all-out conflict exemplifying unbridled competition. Geopolitics typically involves both cooperative and competitive strategies, with its long-term goal centering on the furtherance of national interest (including increased control of territory and access to resources). Recent decades have generally seen increasing international cooperation, showing up in the expansion of trade, the proliferation of treaties and conventions, and the development of international institutions for justice and conflict resolution. The UN, WTO, World Bank, International Criminal Court, as well as regional economic (e.g., Shanghai Cooperation Organization, or SCO) and military (e.g., NATO) cooperation groups exemplify this trend. While some of these efforts appear to be geopolitically motivated, others seem to be genuine attempts to reduce both international tensions and global environmental problems while advancing human rights.

This trend toward increasing international cooperation could see a reversal in coming years and decades. As noted above, history is replete with instances of resource scarcity fomenting conflict.[\[9\]](#) In such cases, competitive advantage typically resides either with nations that have domestic resources and the ability to defend them; or with nations that develop a vigorous, flexible, and motivated military force able to take advantage of other nations’ weaknesses in order to seize control of their resources.

In addition to international conflict, a failure of human cooperation in the face of resource scarcity may also manifest as increasing conflict *within* nations. Since 1945, three-quarters of all wars have occurred within nations rather than between them, with most occurring in the world’s poorest countries.[\[10\]](#) About as many people may have died as a result of civil strife since 1980 as were killed in the First World War. Civil conflicts devastate poor nations by destroying essential infrastructure, driving human and capital flight, diverting scarce financial resources toward military spending, undermining social trust, aggravating existing food shortages, and spreading disease.

If the path toward increasing competition leads to both internal and external conflict, then the result—for winners and losers alike, in a “full” world seeing rapid resource depletion—will most probably be economic and ecological ruin accompanied by political chaos.

Yet this is not the only outcome available to world leaders and civil

society. A cooperative strategy is at least theoretically feasible—and its foundations already exist in institutions and practices developed during recent decades.

The world has seen successful efforts to rein in commercial whaling, to ban the use of CFCs, and to respond to natural disasters. If we are to avert deadly resource competition in the future, further agreements on climate change mitigation and non-renewable resource conservation will be needed, along with cooperative efforts to stabilize population and engineer a comprehensive global energy transition. Some of these agreements are already under discussion.

For many years, the UN has led cooperative scientific efforts to understand climate change (via the Intergovernmental Panel on Climate Change, or IPCC) and governmental efforts to combat it (via the United Nations Framework Convention on Climate Change, or UNFCCC). In international meetings beginning with the Kyoto Climate Change Conference of 1997, nations have discussed politically acceptable ways to cap global carbon emissions.

A potential international mechanism for conserving non-renewable resources is outlined in the present author's book *The Oil Depletion Protocol*. An agreement along these lines would require nations each year to reduce oil production and imports by the annual global depletion rate (about 2.5 percent).<sup>[11]</sup> Cooperatively capping and diminishing both petroleum production and consumption in this way would reduce oil price volatility, promote energy conservation and conversion to alternative energy sources, and head off geopolitical struggle over dwindling petroleum supplies. Such a plan would likely work best in combination with national quota rationing programs for individuals and businesses; if annually shrinking quotas were tradable, energy misers would benefit financially while energy gluttons would have to pay extra.<sup>[12]</sup> The Oil Depletion Protocol has been endorsed by several city councils in the U.S. and by the Portuguese Parliament. Similar protocols could be applied to other internationally traded non-renewable resources.

The protocol in itself is not likely to be enough. Measures are also needed to limit population growth, and to convert existing infrastructure to a low carbon future, especially in developing countries, where efforts can be made to bypass fossil fuel-dependent transport and food system altogether.

All of the required effort need not come from governments. Grassroots conservation and cooperation efforts have already sprung up in the form of groups like Transition Initiatives, which have sprung up in hundreds of towns and cities around the world. Transition Initiatives got their start in 2005 in Britain through the work of a Permaculture teacher named Rob Hopkins. In his *Transition Companion*, Hopkins tells how he came up with the strategy, and sets forth a range of useful guidelines for groups.<sup>[13]</sup> Nearly all of Rob's prose is saturated with irrepressible optimism:

Transition Initiatives are not the only response to peak oil and climate change; any coherent national response will also need government and business responses at all levels. However, unless we can create this sense of

anticipation, elation and a collective call to adventure on a wider scale, any government responses will be doomed to failure, or will need to battle proactively against the will of the people. . . . Rebuilding local agriculture and food production, localizing energy production, rethinking healthcare, rediscovering local building materials in the context of zero energy building, rethinking how we manage waste, all build resilience and offer the potential of an extraordinary renaissance—economic, cultural and spiritual. [\[14\]](#)

Taken together, current cooperative efforts toward resource conservation, climate mitigation, and population stabilization are woefully insufficient—as exemplified by failed climate talks, continued global population growth, and ever-heightening international competition for access to dwindling fossil fuels supplies. There are plenty of justifications for pessimism: after all, won't the first nations to engage in resource conservation lose economic advantage to those that engage in conquest and consumption maximization? Wouldn't even one major national holdout undermine a worldwide cooperative effort at climate protection?

Dramatically expanding international and domestic cooperation at this worrisome moment in history may seem like a tall order. The only advantage to doing so is that it is the only path going forward that doesn't end in a global tragedy in which the fate of the "winners" is hardly preferable to that of the "losers."

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[11] Richard Heinberg, *The Oil Depletion Protocol: A Plan to Avert Oil Wars, Terrorism and Economic Collapse* (Canada: New Society Publishers, 2006).

[12] A proposal for tradable energy was proposed in the UK by the late economist David Fleming, and has drawn significant interest from government. See [TEQs](#).

[13] Rob Hopkins, *Transition Companion* (White River Junction, VT: Chelsea Green, 2011).

[14] Hopkins, *Transition Handbook*, (White River Junction, VT: Chelsea Green, 2008), p.15.

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## MuseLetter Number 88 / April 1999: Chaconne

During the past few months I've spent quite a lot of time playing and listening to the six Sonatas and Partitas for solo violin by Johann Sebastian Bach. These monumental pieces are enormously challenging for the violinist, yet also profoundly rewarding. As with other great works of art, one never tires of them. I've been studying the Sonatas and Partitas for the past twenty-five years and can easily imagine myself continuing to grapple with them for the next quarter century, or until my fingers can no longer find their places on the fiddle.

Right now I'm listening to a spectacular recording of the Third Partita by the diminutive, eighteen-year-old virtuoso, Hilary Hahn. Her playing is technically flawless; but what's much more remarkable is the maturity of her interpretation of this glorious music. I also have excellent versions by Heifetz, Milstein, and Szerying—all of whom were revered masters of the instrument earlier in this century. Each version has its strong points, but there's none I'd recommend over Hahn's.

The Sonatas and Partitas are music pared to the bone. The composer—whose first instrument was the violin, but who became famous as an organist and a weaver of works rich in harmony and counterpoint

—deliberately restricts himself to the meager resources of a single four-stringed melody instrument, and then proceeds to spin music suffused with complex chords and intricate inner voices. The emotional and technical centerpiece of the six pieces (three Sonatas, three Partitas) is the last movement of the Second Partita in D minor—the Chaconne. A brief, slow dance melody with sixty-four variations, the Chaconne draws on nearly every technical resource of the instrument. Like a grand architectural structure it rises to a majestic peak (at the end of the D Major section) before returning to its original theme, now powerfully transfigured. Most fiddlers take between thirteen and eighteen minutes to play the Chaconne (depending on the tempo chosen); within that interval practically the entire gamut of human emotions is traversed.

Musicologist Karl Geiringer notes that these pieces are “typical not only of Bach’s personality but of the artistic conceptions of the Baroque era. At that time the walls of houses were occasionally decorated with paintings simulating vistas of wide colonnades and formal gardens. Such embellishments require the working of the inner eye, just as the implied polyphony and rich harmonic texture in Bach’s compositions require the co-operations of the inner ear.”

In seven-plus years I’ve devoted only one issue of *MuseLetter* entirely to music (#70, “The Musical Mind”). There is always plenty to discuss from month to month having to do with the ecological crisis and the global economy. And words poorly describe the musical experience; the two languages—the language of words and the language of music—might as well have arisen in two different species, perhaps species from different star systems. For the most part, I’d much rather play music than try to write about it.

But here is the exception. This month I’ve decided to leave aside the distressing news of world affairs and the dreary history of civilization (there’ll be plenty of opportunities to deal with those subjects in the future) and instead to contemplate beauty. There must be some reward for our seemingly endless human struggles, and I can think of one no better than music that is timeless, serene, and uplifting.

What is beauty, exactly? The ancient Greeks pondered the question endlessly, but we in the modern world tend to give the question little thought. Most of us would say simply, “I know it when I see or hear it.” Psychologists who’ve tried to define beauty experimentally have arrived only at the mundane discovery that most people regard symmetrical faces as prettier than asymmetric ones. But of course there’s much more to real beauty than symmetry—which, after all, becomes boring if exhibited in every instance. We like variety and surprise as well as balance. We want just enough of the unexpected to keep us interested but not so much as to be utterly confusing; just enough of the expected to be reassuring but not so much as to be tedious.

In short, we humans are universe builders. Just as every organism is a universe unto itself, so do we build conceptual, artistic, and musical worlds, each a microcosm to remind us of the vastness of which we are a part. By representing the universe in our art works we make the incomprehensible comprehensible, the uncontrollable controllable. We bring totality down to a scale we can contemplate comfortably.

The miracle is that as we do this we experience pleasure. Why should the artistic act be so satisfying?

Wisely, nature makes all survival activities pleasurable: the finch is happy in building its nest, the frog is pleasantly challenged in catching its meal. We humans are similarly pleased by the activities of obtaining food, reproducing, parenting—and by making our art, which, because it gives us so much joy, must also serve some survival need. True, civilization has robbed us of much of our pleasure by segmenting our subsistence tasks, routinizing and commoditizing our creativity; nevertheless, the ghost of satisfaction lingers even for the modern factory worker.

But nature is generous: the mockingbird finds far more pleasure in singing than can be accounted for by the fulfilment of an evolutionary requirement for attracting mates. And we humans likewise obtain far more pleasure from building our little artistic universes than can possibly be explained by the theories of sociobiologists.

Musical works are miniature worlds. The country-and-western song tells a complete story; in its structure it exhibits elements of symmetry, surprise, and reassuring familiarity. But of course, we each want a universe that fits our own imagination—one that's inclusive, interesting, and convincing. If the universe presented to us in a song or painting seems a little too confining or too familiar, or if it is obviously incomplete, satisfaction may turn quickly to irritation.

Bach knew this well; he was a master universe builder. Especially in his sacred works, he tried to knit all his elements together in such a way that even the smallest detail had meaning. For example, in the *St. Matthew Passion* the words "And the curtain of the temple was rent in twain" are accompanied by the strings with a tremolo of 128 notes to the measure, corresponding with Psalm 128—which is the text being quoted. And he often liked to incorporate notes that spelled his own name (in the German musical tradition, B is equivalent to B-flat, while the note B-flat is represented by the letter H, so that B-A-C-H translates to the notes B-flat, A, C, and B). He does this, for example, in the Fugue in the C Major Sonata for solo violin, where he writes the notes backward as well as forward.

Even though I've been studying the Sonatas and Partitas for years, I was until recently unaware of the inner meanings that Bach had woven into these amazing compositions. The young German violinist Christian Tetzlaff, in an interview published in the February-March issue of *Strings* magazine, tells us that he plays the Sonatas and Partitas in chronological order because they tell a story. *A story?* It had always seemed to me that Bach's solo string works were *absolute* music with no programmatic elements whatever. But Tetzlaff makes his case persuasively:

"Yes, there is a very profound, religious story, and Bach supports it with many citations from chorales on the same themes. The three Sonatas are church sonatas in which he is commenting on the cycle of the church year: Christmas, Passion, and Easter. The G-Minor Sonata represents Christmas, with many quotes from Christmas chorales. The 'Siciliano' is a typical pastoral, perhaps implying the shepherds in the field; the downward run at the end of the preceding

Fugue might signify the descent of the angels for the Annunciation. The A-Minor Sonata represents Christ and His Passion, it is focused on His person, again with many references to chorales of which He is the theme. And it is well known that the Fugue theme in the C-Major Sonata is based on the chorale 'Veni, Creator Spiritus,' so that sonata represents Pentecost, again with many references to chorales on that theme. The Fugue begins on a downward line to show that help descends from above; the inversion turns upward, but later turns down again to indicate man's unworthiness. In that movement, Bach quotes from the preceding sonatas, going back to the very beginning of the whole set."

It is humbling to imagine Bach writing this magnificent solo violin music—unsurpassed in nearly two-and-a-half centuries (despite strenuous attempts by many other composers to write comparable solo works for strings)—and making the additional effort of inserting obscure meanings and references that only the most diligent musicologists of future generations will be able to appreciate, all with only moderate recognition and appreciation from his peers. Perhaps half of Bach's compositions are lost forever because no one thought it useful to preserve them. In fact, the manuscript of the Sonatas and Partitas was discovered in 1814 in St. Petersburg among a stack of old paper destined to be used as wrappings in a butter shop.

If Bach was writing for the ages, he was also writing merely for the needs of the moment. During the first half of his career he was required to compose a new cantata every week—this in addition to his duties as organist, choir director, and orchestra leader. The Sonatas and Partitas were written in a later period, around 1720, when he was employed as conductor and director of chamber music for Prince Leopold of Anhalt-Cothen. Since the Prince was a Calvinist, and only Calvinist psalms were permitted to be sung in the Reformed Church, there was no need for new sacred music; indeed, the Prince's chapel contained no organ. However, the Prince himself was an accomplished violinist and harpsichordist, and employed a small, well-rehearsed chamber orchestra. For Bach, this situation must have come as a welcome change from the incessant demand for hymns and chorales that he had known while in his earlier service to the Duke of Weimar and the Lutheran Church.

Johann Sebastian Bach's life was divided temporally between a period of writing sacred music, and one in which he wrote mostly secular music. This historical circumstance seems to have reflected a complementarity existing in Bach's own personality; and it is a dualism also encountered in the Sonatas and Partitas. The three Sonatas, as already noted, are essentially church music. They reach heavenward especially in their solemn Adagio and fugal movements. The Partitas, however, which are dance suites, celebrate the earthly side of life.

In the D-Minor Partita, according to Christian Tetzlaff, "the two sides collide." The great Chaconne is a dance, but hardly a bright or cheery one. Tetzlaff notes that "[Bach] wrote the Chaconne the year his wife died—it is a requiem for her; it has citations from many chorales that deal with death." There are other clues buried in the music: Bach sometimes numbered his notes according to the corresponding letters of the alphabet (A=1, B=2, and so on), and the note-numbers in the

first statement of the Chaconne add up to the year of his wife's death.

"There is a clear connection," says Tetzlaff, "between the Chaconne and the movement that follows it, the Adagio of the C-Major Sonata: both have the same meter and dotted rhythm, and the tonality of the Adagio is so ambiguous that it might be a continuation of what came before it. It doesn't settle into C major until the end of the movement, where it offers the first hopeful outlook into a major mode. Then the Fugue, like an apparition from Heaven, steps down as 'help from above.' In the C-Major Sonata, Bach is finding himself again after his anger and despair at his wife's death; it is a purification through religion."

The final Partita in E Major, another dance suite, begins with a brilliant and joyous Prelude; the remainder of the piece is equally buoyant, making no apparent effort toward the conveyance of religious ideas. Tetzlaff regards it as a confirmation of the hope generated in the C-Major Sonata: "Now [says Bach] we may enjoy life."

Through these six extraordinary compositions we enter into the pre-industrial, Protestant, feudal universe that Bach inhabited—a universe I find both fascinating and repellent. It is fascinating in that it is so much more leisurely and so much simpler than the hyper-industrial world of the present; it's a world in which someone might actually have the time not just to compose intricate and beautiful music, but to invest it with layer upon layer of symbolic meaning that has absolutely no commercial utility. On the other hand, it is a world of stark class privilege and exploitation, ruled politically by a hereditary aristocracy and ideologically by the Christian church. Bach was utterly sincere in his devout worship of a transcendent yet immanent Jesus, but I know too much of Christian history and recent New Testament scholarship to share that unquestioning faith. In short, Bach's world and world-view are utterly alien to me. If I were somehow to meet Bach the man, we might have very little to say to one another. And yet I find the little universes he built to be profoundly moving and absorbing. There is something about the tension between otherworldliness and worldliness in his music, between philosophical depth and profundity on one hand and simple peasantlike joyfulness on the other, that speaks across centuries and continents. And, undeniably, a good tune is a good tune regardless of its source.

Bach's creativity depended on the technology of writing—musical notation—and it is really impossible to understand his significance, or to fully appreciate his music, without devoting some attention to the history and the psychological impact of writing itself. Marshall McLuhan and others have made the point that the use of writing, and especially alphabetic writing, tends to nudge our thought processes in certain directions. As the classicist Eric Havelock once put it,

It is only as language is written down that it becomes possible to think about it. The acoustic medium, being incapable of visualization, did not achieve recognition as a phenomenon wholly separable from the person who used it. But in the alphabetized document the medium became

objectified. There it was, reproduced perfectly in the alphabet . . . no longer a function of “me” the speaker but a document with an independent existence.

The earliest important document in alphabetic script was the Bible—The Book. And to this day millions of people regard that document with awe as an almost animate source of absolute wisdom and authority. Bach was himself devoted to the Good Book, and he lived not far from the birthplace of the printing press, an invention that further intensified the psychological impact of the written word by emphasizing (through its movable type) the interchangeability of alphabetic characters, and by enabling the majority of the population to own and read printed Bibles. The printing press also set inventors to contemplating the usefulness of interchangeable parts, thus helping seed the industrial revolution.

If the writing of words made human thinking more rational and sequential, the writing of music had an analogous effect. Rather than being memorized, tunes could be jotted down and read later, perhaps by someone else who had never heard the tune before. Tunes could become more complicated yet still be “remembered” on paper. Tunes could take on an existence of their own; they could be authored, owned, bought, and sold. The composer of tunes could even assign letters to notes and numbers to letters, weaving obscure meanings and messages into tunes.

Often, the earliest explorations of a new medium tend to be the most enduring. Perhaps that’s because the people who make the initial reconnoitering, finding a new world spread before them, naturally proceed to pick all the lowest-hanging and tastiest fruit, leaving only the higher branches for others to glean. Or maybe it’s simply because the first users of the medium manage to establish themselves as authorities. In any case, just as the earliest iteration of alphabetically written thought (the Bible) is still the world’s most influential book, Bach’s compositions—while not the earliest written music, still the first to explore fully the harmonic possibilities opened up by the tempered scale—remain at the core of the Western musical canon. Similarly, the earliest use of the recording studio as a musical instrument (the Beatles with producer George Martin in “Rubber Soul” and “Sergeant Pepper”) set the standard by which all later pop recordings would be judged.

Of course, every new technological advantage implies the loss of some former ability. Writing, as Plato noted, saps the memory. Similarly, reliance on musical notation does little to foster the ability to improvise. Everyone who has ever played in a professional orchestra knows that most classical string players are spectacular sight-readers but utterly inept improvisers. How many times have I been requested to “Play us a tune,” only to hear myself reply ineptly, “But I don’t have any music with me.”

If written music is like a book or an essay, improvised music is more like a conversation. It is possible to be both a competent author and a lousy conversationalist (my partner can vouch for this).

If Bach’s music is the quintessence of written composition, then good jazz represents the epitome of improvisation. Not long ago Janet and

I heard a live performance by the Lincoln Center Jazz Orchestra. Its leader, trumpet wizard Wynton Marsalis, has organized a world tour based on an all-Ellington program. Marsalis argues that Edward Kennedy ("Duke") Ellington is our greatest American composer, as much the master of the language of jazz as Bach was master of the written idiom of the European Baroque period. The LCJO makes that case with eloquence and force, underscoring not only the range of Ellington's contributions but the raw communicative power of jazz improvisation per se.

Bach was a jazzer too, in his own way: he was acknowledged by his peers as the greatest improviser of his day. What a revelation it must have been to hear him hold forth on organ or harpsichord or violin!—but those notes are have long dissipated into the ether. We have recordings of the Duke, but of Bach we have only what he committed to paper. Fortunately, both Ellington and Bach were prolific: the former is credited with about two thousand compositions and arrangements, the latter with over a thousand that survive. Both also had powerful personalities and appetites: Ellington was a notorious ladies' man, while Bach fathered twenty children.

At this moment I have Heifetz on the stereo. Now there's a violin hero: the impeccable intonation; lean, taut, muscular tone; and effortless, glossy, expressive shifts of position on the fingerboard make his sound instantly recognizable. So pervasive was the influence of his Olympian instrumental technique that, from the second decade of the century onward, all of violin playing came to be divided into the periods "before Heifetz" and "after Heifetz." As with nearly everything he performed, his Chaconne goes by at a rather quick tempo. Yet his playing still explores the emotional heights and depths and commands the listener's full attention for its purely musical qualities. The version I have was recorded in 1935, yet despite the thinness of the recorded sound and a bit of surface noise the interpretation remains convincing, and the sheer technical brilliance of the playing is unsurpassed even by today's mature masters like Perlman and Zuckerman—who grew up listening to (who else?) Heifetz.

Jascha Heifetz was a man of contradictions—passionate in his music, yet utterly cold and impassive toward his audience; capable of devastatingly wry humor yet often taciturn and forbidding even to those who knew him well. I'm reminded of the contradictions of Bach—devout yet earthy; and of civilization itself—resting on unimaginably corrupt foundations, yet rising occasionally to exquisite heights of artistic expression. But how could Heifetz have been Heifetz if he had not been forced as a child to play scales and exercises for eight hours a day? How could Bach have been Bach if he had not been both enabled and required by socio-economic circumstances to churn out new compositions on a weekly basis? How could civilization have produced its cathedrals, frescoes, and symphonies but for its relentless division of labor—which simultaneously enriched a few aristocratic parasites and impoverished multitudes? From a certain perspective it's all bonsai beauty—twisted, forced, mutilated, and grotesque, yet so very perfect, so ornamental, so precious.

And then there's Hilary Hahn: an intelligent young woman devoting her life to a pure and exacting art in a time of extraordinary excess and ugliness. Is she perhaps unaware of the disintegrative global forces—the ecological devastation, the military madness, the institutionalized greed—that may well dissolve the world of civilized pleasures before she has had much of an opportunity to contribute to it? Is it better for her to know, or not to know?

While some people spend their hours and days producing beauty, others scheme for power and wealth. For the most part it is the latter who shape history, and who shape daily circumstances for the rest of us. It is no fun watching them do it. These days, for example, I find it painful to pay attention to what's happening in the former Yugoslavia, where Clinton and his allies have decided to pursue the ancient strategy of divide and conquer under the guise of humanitarian aid. The idea that we can end violence by compounding it seems ridiculous, yet the American news media hardly think to question the logic. When was the last time that stated American reasons for the use of military force reflected the actual strategic objectives being pursued? I can't think of a single instance, going as far back as the Revolutionary War. Why should this case be different? Yet so few ask the obvious questions.

To ask them oneself and then to seek answers is a time-consuming process that sometimes tends, unfortunately, to turn one increasingly bitter and cynical. Truth, in such instances, is not beauty. Yet I ask myself: Would I prefer to know, or not to know? I've decided I'd rather attempt to know—even if my knowing will always be partial and imperfect—because only by knowing the nature and source of the historical panorama unfolding before us will we understand how to respond to it wisely and creatively, and how to sow the seeds for a very different future based not on greed but on compassion.

In unraveling the causes of war, oppression, and environmental destruction it may even be necessary for us to make ourselves aware of how our quest for beauty is subtly or grossly shaped by the imperatives of commerce and conquest, and by the very techniques and tools we use—from writing to word processing; from the bowed string to the digital recording studio.

And yet that quest remains the most potent antidote I know of to the bitterness and cynicism, the pain and ugliness of the human experience. It's all there in the Chaconne: intense sorrow, grief, resignation, hope, and renewal. Despite their bonsai woundedness—inevitable, given the nature of the world we inhabit—Hahn, Heifetz, Ellington, and Bach do far more than distract or entertain us; they remind us what our struggle ultimately is for: the freedom and beauty of the human spirit.

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## Musings on Muses

by Roger W. Wescott

There are two *muses* in English. This is not to say that there is precisely one pair of inspirational agents for all Anglo-Americans (since there may be many more), but rather that there are two historically distinct words spelled *muse* in our language. One is a verb, meaning "reflect" or "wonder." It comes, by way of French, from Medieval Latin *musum*, "snout." The apparent semantic bridge here was the notion of "sniffing around."

The other *muse* is a noun. It comes from Classical Greek *mousa*, "divine patroness of the arts." Its reconstructed Proto-Greek form is *\*mont(h)ya* (where the asterisk indicates that the word starred is unattested). The meaning of the base *\*mon-* in Proto-Indo-European, the mother tongue of many western Eurasian languages, is "remind." It recurs in the Latin-derived noun *monument*, literally "a reminder." The form *\*mon-*, in turn, is a variant of the root *\*men-*, "think," which occurs most transparently in the Greek-derived word *mentor*, "advisor," and the Latin-derived word *mention*.

Not all English words cognate with the noun *muse*, however, come from the two Classical languages of southern Europe. Some are Germanic, examples being the native English noun *mind* and the German term *Minnesinger*, "chanter of loving remembrance." Others are Indo-Iranian, such as the Sanskrit borrowing *mantra*, "prayer," and the Avestic name *Mazda*, literally "wise one."

Nonetheless, most such words do come from either Latin or Greek. Further examples are *monitor*, "overseer," and *monster*, "spectre" (originally, "a show"), both borrowed directly from Latin; and *muster*, "mobilization" (originally, "a demonstration"), borrowed indirectly, by way of French. The two Greek-derived words whose connection with *muses* is most obvious are *music*, which initially designated any of the fine arts, and *museum*, which meant a temple of the Muses before it meant a palace of arts or a repository of antiquities. Less obvious sister words of Hellenic provenance are *mantis*, which meant "seer" before it came to denote a prayerful-looking insect, and *mathematics*, which originally meant learning of any kind before it came to denote quantitative or numerical science. In addition, classicists still cite Hellenic proper names that begin with the root of the noun *muse*. One such is the word *Maenad*, "a wild worshipper of Dionysus." An even more appropriate cognate is the personal name *Mnemosyne*, "Remembrance," designating the mother of all the Muses.

So we see that the Proto-Indo-European root *\*men*, "think" (with variants *\*mon-*, "remind," and *\*mn-*, "remember") is well represented in the Germanic, Italic, Hellenic, and Indo-Iranian branches of the Indo-European family. And all of these sources have lent vocabulary to English. In addition, *\*men-* has derivatives in other such branches of Indo-European as Balto-Slavic, Celtic, Albanian, and Armenian, even though English has not borrowed any of these derivatives.

It is uncertain whether the Indo-European root *\*men-/\*mon-* is itself related to other and similar Indo-European roots. One of these

possible cognates is *\*man-/\*mon-*, meaning "man" or "human being." From this root we have two Germanic derivatives: the native English noun *man* and the loan-word *minx*, "wench," borrowed from North Sea German. If these two Indo-European roots are related, *man* is probably to be interpreted as having meant "the thinker." (If the root of *man* is not cognate with that of *mind*, it may instead be cognate with Proto-Indo-European *\*men-/\*mon-*, "protrude," from which, through Latin and French, we derive the words *mount* and *menace*. In this case, we would probably have to assume that the meaning "male" is older than the meaning "human" and that the masculine threat is either phallic or weaponry-related.

Another possible internal cognate for *\*men-/\*mon-*, "think," is Proto-Indo-European *\*man-*, "hand," from which, by way of Latin, we have derived the word *manual*. If this link is valid, thinking is to be understood as cognitive manipulation.

These two internal linkages, however, need not be regarded as mutually exclusive. Man may have been thought of by the Proto-Indo-Europeans as the creature that handles both tools and ideas.

But enough of etymology, however revealing the Greeks themselves regarded it as being. Etymology is necessarily oriented toward the past. What future is there for muses?

Dennis Gabor, the Hungarian originator of radar, once declared that "the future cannot be predicted; it must be invented." Taking my cue from him, I am emboldened to invent a muse. Noting that the nine muses of classical antiquity did not patronize all the arts, either verbal or non-verbal, I perceive a lacuna in the area of sentential literature and hope to fill it by creating Euepia, goddess of proverbs and aphorisms. To Euepia, whose name means "she of good speech" or "lady of excellent words," I here dedicate the following apothegms.

**MINDS:** Too many minds are museums. Too few are gardens.

**NOBLE SAVAGERY:** The Noble Savage, like the Kingdom of God, is within us.

**ODYSSEY:** The good life is a perpetual voyage of self-exploration.

**THE SPIRIT-WORLD:** Did early man populate his world with spirits? Or did we depopulate it?

**WISDOM:** Wisdom is the contemplation of sunlight on foliage.