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Poetry's California:

Hans Christian Andersen's scientific optimism

by Michelle Rasmussen

If our society were to escape the stranglehold of the past - it's deathly spider web of speculative debt leading to economic collapse, and old geopolitical power games leading to war, we must totally change our reference point; from the most destructive elements of the past, to the most constructive elements of the future. If our society were to arise, like the bird Phoenix, out of the ashes, we must cast off the deathly shroud of cultural pessimism, and anti-science, anti-growth ideology, and replace it with cultural and scientific optimism.

To aid us in our quest, take Hans Christian Andersen's waiting hand, and let him be our guide. Let us imbibe his cultural optimism, due, in large part, to a special synthesis of his creative poetical spirit, filled with love and agape of the heart, and his future-oriented scientific reason of the mind.

The path to the future

But before we meet Hans Christian Andersen, let us make a detour to visit Lyndon LaRouche. The centerpiece of LaRouche's economic thought is that human creativity is the source of progress in society. Scientific and artistic discovery are the two inseparable interweaving domains most reflective of the human ability to create new ideas - the realm of the imagination. Making the possible actual - transforming our spiritual thoughts into material progress, in turn, creates the conditions to develop our entire population's creative abilities.

LaRouche stresses that mankind is the only species which reflects the Creator's ability to look into the future. On the one side, we see the present from the eyes of the future. What do we need to discover in order to get to that future place we imagine? And, on the other side, we can put on our special prognosis glasses, which enable us to imagine the future realization of the discoveries of the present.

The future lives in the imagination - it is here we must seek it. Now, let Hans Christian Andersen take us there.

Andersen meets Ørsted

In the wake of Denmark's 1813 state bankruptcy, the cross-fertilization amongst a group of brilliant artists and scientists created a Golden Age. A significant role was played by the extraordinary, epoch-making collaboration between the discoverer of electromagnetism, the gateway to the electronic age of the future, Hans Christian Ørsted (1777-1851), and a young, creative, sensitive, poetic soul, whose fairy tales would become an immortal contribution to world literature, Hans Christian Andersen (1805-1875).¹

Ørsted was convinced that scientific discovery could, and should be, a subject of poetical expression. In Andersen, Ørsted found his instrument to accomplish that. Through their discussions, Ørsted infused Andersen with scientific and technological optimism. Ørsted assigned Andersen that mission: to use scientific discovery as a wellspring of poetical inspiration. And, as a guidepost, Ørsted wrote in Andersen's album: "Reason within Reason is The Truth; Reason within the Will is The Good; Reason within the Imagination is The Beautiful."² Could the poet combine the True, the Good and the Beautiful?

Andersen's fairy tales, Ørsted thought, could "build a bridge for the people between art and science. Between belief and knowledge."³

Ørsted's and Andersen's goal was nothing less than to raise the scientific, cultural, intellectual, moral, and social level of society through their works and influence. The means was to bring science and culture to the people. For Ørsted, through science and poetry. For Andersen, through poetry and science. The result was a Golden Age.

Friedrich Schiller, Andersen's great role model,⁴ called for the aesthetical education of the population. Surrounding people with beauty, to ennoble their emotions, would enable them rule themselves. In this case, science could not only inspire the poet,

¹ See *Lesson for Copenhagen Today: Hans Christian Ørsted's Scientific Method*, article by Tom Gillesberg, chairman of The Schiller Institute in Denmark:
http://www.21stcenturysciencetech.com/Articles_2010/Orsted_Scientific_Method.pdf

² Inscription from Ørsted to Andersen, April 21, 1833. *H.C. Andersens Album*: <http://www.andersen.sdu.dk/brevbase/brev.html?bid=20306>, Gillesberg translation.

³ *Andersen, en biografi* (2 volumes), Jens Andersen, Gyldendal, Copenhagen, 2003, vol. II, page 145

⁴ Andersen was fond of telling that he was born the same year that Schiller died, in 1805, and sought to carry on the Schiller tradition.

but the poet could also spread his enthusiasm for science to the people, ennobling their reason.

Ørsted infected Andersen not only with the excitement and promise of his 1820 discovery of electromagnetism, but the whole world of science, their close relationship beginning soon after Andersen's 1819 arrival in Copenhagen, at the age of 14. As Andersen wrote in a poem after Ørsted's death, "He will never be forgotten, For by his Thought-lightning a Light was lit, That shows Treasures, so immeasurable!"⁵

Andersen's enthusiasm for the new technological age, made possible by the application of the steam engine, and electromagnetism: the "universal, timeless beauty"⁶ of industrial machinery, railroads ("Fire-dragon"), the telegraph, and hot-air balloons, etc., is revealed in the first person in his letters, diaries, and autobiographies. These new technologies not only brought forth a passionate joy in man's ability to discover new physical principles and inventions, but also sublime devotional wonder, when the creativity of the Creator of these natural laws was thus revealed.

During a telegraph demonstration, he felt as if he were "under the beating wings of an infinitely powerful spirit," as the operators in Shakespeare's *Elsinore* sent him the first lines of an early poem he had written there.⁷ Listen to the retrospective description

⁵ *At the Cemetery: After H.C. Ørsted's death*, by Hans Christian Andersen, online in Danish

⁶ *Andersen*, volume 2, page 141

⁷ Andersen's letter to Carsten Hauch, June 3, 1853. "I felt so strangely overwhelmed by the greatness of the invention; it was as though I stood beneath the beating wings of an infinitely powerful spirit; so many thoughts went through my soul... it was a magnificent moment for me... I also feel and see God's infinite love in every new insight which he grants us into the laws and powers of nature, and the elevated power he thereby gives mankind. Many say that we only advance, in our time, in the material field. I do not agree with them, but even if I would, well, the material substance we gain is, after all, like the framework for building the temple of the spirit; people are drawn closer to each other; ideas may be exchanged more easily, more and more, we become one people, one nation of spirit.

"During the past few years, I have become so very interested in science. I am convinced that had I been as aware of its magnificence twenty years ago, as I am now, I would probably have taken an avenue in life other than the one I now follow, or rather; I would have attained knowledge

of his first ride on a railroad, written in 1842:

"Oh, such a Masterpiece of the Spirit is this production! One feels so powerful, like an Ancient Sorcerer! We hitch our magic Horse to the Wagon, and Space disappears; we fly like the Clouds in a Storm, like the flight of Migratory Birds! Our wild Horse snorts and snuffs, the black Steam rises from his Nostrils."⁸

Andersen poetically describes how it was one of only a few times in his life that he felt as if he were standing face to face with God. He continues by saying that in the land of poetry, the truths foretold by human reason must go hand in hand with feelings and fantasy. Reason "preaches the eternal Truth, and therein lies Greatness and Poetry!"⁹

Here, in the link between reason and poetry, we see the glimmer of gold in what Andersen would later call "Poetry's California." In a polemic against the Danish poet Ingemann's rejection of the importance of the material for poetry, Andersen wrote that the age of discovery, would not only give birth to the material, but that the material was "the necessary foundation for the spiritual,

within such fields, that my authorship would have blossomed quite differently than is now the case. You can understand how your picture of Robert Fulton [inventor of the steamboat] has occupied me, his endeavor, his struggle, his happiness." Edited version, from the original Danish and: http://www.andersen.sdu.dk/liv/tidstavle/vis_e.html?aar=1853

⁸ *A Poet's Bazar*, 1842, Hans Christian Andersen, chapter "Railroads."

⁹ "Mephistopheles could not fly faster with Faust on his cloak! We are, with natural means, equally as potent in the present age, as those in the Middle Ages thought that only the devil himself could be! With our ingenuity, we are at his side, and before he knows it, we are past him.

"I can remember only a few times in my life that I felt as moved as I was on this railroad journey: thus with all my thoughts, it seemed like I beheld God face to face. I felt a devotion, as I have only felt as a child in church, and when older, in the sun-illuminated forest, or on a dead-calm sea during a starlit night. In the realm of poetry, Feeling and Imagination are not the only ones that reign: they have a brother equally powerful; he is called Reason: he proclaims the eternal truth, and that is where greatness and poetry reside." Edited from the online English version, page 13:

http://archive.org/stream/poetsbazaar00ande/poetsbazaar00ande_djvu.txt

providing great branches upon which poetry may blossom."¹⁰ Andersen even wrote a review of Ørsted's telegraph lecture at the Polytechnic College in 1839, published in *The Copenhagen Post*,¹¹ and a cantata for the Scandinavian Science Researcher's last meeting in 1840. Andersen also penned what is probably the only verse version of the Pythagorean Theorem in *The Eternal Magic of Shape: A Poetical Make-Believe*. And he met leading European scientists on his many travels.¹²

Andersen's scientific and technological optimism shines through many of his fairy tales.¹³ Read *Thousands of Years from Now* (a trip from America to Europe "on wings of steam"), *The Drop of Water* (the fascinating microscopic world), *The Bell* (about Andersen and Ørsted), *The Galoshes of Fortune* (which includes a discussion of the speed of light and electricity), *The Great Sea Serpent* (laying of the transatlantic telegraph cable), *Great-Grandfather* (on the telegraph, where Ørsted appears), *The Stone of the Wise Man* (on The Truth, The Good, and The Beautiful), and others. (While you are at it, also read *The Old Church Bell*, Andersen's fairy tale about Friedrich Schiller, written for the 100th anniversary of

¹⁰ From a letter to Henriette Wulff, June 5, 1853: "Each day I have a minor dispute with Ingemann about the significance of inventions, as he values poetry higher than science, which I do not. He admits that ours is the great age of inventions, but only at a mechanical level, a material level; I consider this to be the necessary foundation for the spiritual, providing great branches upon which poetry may blossom. The fact that people draw closer to one another, that countries and towns are connected, through steam and electromagnetism, into one great community hall, seems to me so spiritually great and wondrous, that the thought of it elevates me to such heights as the song of any poet has ever been able". Online in English:

http://www.andersen.sdu.dk/liv/tidstavle/vis_e.html?date=1853-06-08&kvartal=2&mark=662&sord=&PHPSESSID=bc2ed4cb9709c8785d07f9ecee61e5b2

¹¹ *Kjøbenhavns-Posten, Andersen*, volume 1, p. 105

¹² Including "the French physicist Dominique Arago, the Swedish chemist Jacob J. Berzelius, the German chemist Justus von Liebig and his countryman, the famous geographer and naturalist Alexander von Humboldt." *H.C. Andersen, Ørsted og Naturvidenskaben*, by Helge Kragh. Online in Danish:

<http://webcache.googleusercontent.com/search?q=cache:w78r93n97CYJ:www.gamma.nbi.dk/Galleri/gamma139/Andersen.ps.gz+&cd=7&hl=da&ct=clnk&gl=dk>

¹³ Most are available in English online at:

http://www.andersen.sdu.dk/vaerk/hersholt/index_e.html

Schiller's birth.) As Schiller thought, while playing, is the best time to raise the sights of children, and the adults who read to them, to the stars.

These stories, the view from the stars, are also a good antidote for today's destructive zero- and negative-growth ideology.

Andersen's manifesto

But now, I want to especially point the reader in the direction of two lesser-known works, which serve as a manifesto of Andersen's scientific outlook - a peek into the principles behind these fairytales. The first are the chapters *Belief and Science: The Sermon about Nature*, and *Poetry's California*, from the book *Pictures of Sweden*,¹⁴ written as Andersen read the proofs of Ørsted's *The Spirit in Nature* in 1850, which Ørsted completed just before his death. Andersen even writes that reading Ørsted's book had slowed down his literary productivity, because he was spending so much time reading scientific books.¹⁵ The other, is his novel *To Be, or Not to Be*,¹⁶ written seven years later.

A central idea in both is the tension between belief and science. Andersen's solution is to look at scientific discovery as a way to reveal God's creative powers, where belief and science form a more elevated synthesis, as Ørsted argued in *The Spirit in Nature* (though with a less personal God), as well as others, like Johannes Kepler, before him.¹⁷

¹⁴ Online in English at: <http://www.gutenberg.org/files/12313/12313-h/12313-h.htm>

¹⁵ *The Spirit in Nature* "has awakened a desire to immerse myself in Science, and during the recent period, I have read a lot in that direction, which has partially interrupted my Productivity" Andersen, vol. 2, p. ???

¹⁶ Online in English:
<http://archive.org/details/tobeornottobean00andegoog>

¹⁷ As Andersen wrote in a letter to Henriette Wulff from 1855, "for me, Science exactly illuminates the Divine Revelation ... Our Lord can certainly bear to be seen with the healthy Reason he gave us." in *H.C. Andersen og Henriette Wulff: en brevveksling*, H. Topsøe-Jensen, II1959, 250. *H. Topsøe-Jensen in Fund og Forskning IX 167)*

Poetry's California

In Poetry's California, Andersen touts science as the golden source of poetical inspiration, a lamp lighting the way to the future, held high by the poet, "the Light-bearer for Times and Generations."

After an allegory attacking superstition, and the Romantic movement's glorification of it, in the third section, Andersen explains his mission to the reader: the wonder of the discovery of scientific principles and inventions will enrich the creative powers of the poet - his or her reason and imagination. (See box)

Box: Yes, Poetry's California lies in science! ... It is not our intention that the poet shall versify scientific discoveries. The didactic poem is, and will be, in its best form, always just a mechanical doll, which does not have the freshness of life. The sunlight of science must penetrate the poet; he must perceive truth and harmony in the small, and in the immensely great, with a clear eye: it must purify and enrich the understanding and imagination, and show him new forms which will animate his words even more. Even single discoveries will cause new flight. What fairy tales the world can unfold under the microscope, when we transfer our human world thereto! Electro-magnetism can be the thread of life for new comedies and novels; and how many humorous compositions will spring forth, as we from our grain of dust, our little earth, with its little haughty beings, look out into the endless universe, from Milky Way to Milky Way!¹⁸ (end box)

The infinite amount of wonders that science will dig up, is a creative source even greater than the poet's own fantasy. Carrying the lamp of poetry - the heart of the poet -- a new Aladdin will enter the cavern of science, and emerge with treasures to build poetry's new castle. Light and truth in everything created radiates with even more divine clarity. Follow the new Aladdin,

¹⁸ Edited version from this chapter online in English at:
<http://www.readbookonline.net/readOnline/40044/> The whole book in
English: <http://www.gutenberg.org/ebooks/12313>

and with he who sings the beauty of truth, wander through Poetry's California.¹⁹ So ends the chapter.

The key to unleashing the creative potential of the poet, is to overcome the artificial dichotomy between art and science, and in reuniting them, enable the herald of the future to trumpet the most advanced notions of man, the universe, and God, as his fellow poet Shelley would later call for.²⁰

To be, or not to be

"To be, or not to be: that is the question," says Shakespeare's Hamlet. "To be, or not to be," asks Andersen's Niels Bryde in his novel about the tension between science and belief, centered on the concept of immortality.²¹ In it, Andersen wanted to fight against the materialistic view that all is matter, divorced from spirit.²²

¹⁹ "O, there is so endlessly much in the sea, in the air, and on the earth--wonders, which science will bring forth!--wonders, greater than the poet's imagination can create! A bard will come, who, with a child's mind, like a new Aladdin, will enter into the cavern of science,--with a child's mind, we say, or else the puissant spirits of the nature's forces would seize him, and make him their servant; whilst he, with the lamp of poetry, which is, and always will be, the human heart, stands as a ruler, and brings forth wonderful fruits from the gloomy passages, and has strength to build poetry's new palace, created in one night by attendant spirits."

While the human character remains the same, "... science always unfolds something new; light and truth in everything that is created radiates from hence with evermore divine clarity. Mighty image of God, illuminate mankind; and when its spiritual eye becomes accustomed to the luster, the new Aladdin will come, and you shall, together with he who concisely, clearly, and richly sings the beauty of truth, wander through Poetry's California." Edited from the online English version. Read also the beginning of the chapter: <http://www.readbookonline.net/readOnLine/40044/>

²⁰ Percy Shelley: In Defense of Poetry. See the last paragraph here: <http://www.thomaslovepeacock.net/defence.html>

²¹ See footnote 15

²² Andersen became determined to enter the fight against materialism after attending several lectures by D.F. Eschricht in 1885, and reading Friedrich Fabris' *Briefe gegen den Materialismus*.

Niels Bryde is born under the stars, in the apartment sitting atop the Round Tower, just below its astronomical observatory.²³ He dreams of travelling to the moon, though he is told it will take a hundred years to get there. Conflict, and ironic juxtaposition develops between the scientific, but also the materialistic views Niels is exposed to - science detached from God; and the strict, biblical-based beliefs of his adopted family -- God without science. A developing philosophical dialogue between Niels and Esther, a Jewish girl who is in the process of becoming a Christian, about Goethe's *Faust*, and beyond, becomes the vehicle for Andersen's high-level discussion of science, belief, and immortality.

One important concept in the discussions, which Lyndon LaRouche's latest writings have also emphasized, is the tension between the sensual world and reason. Is reality only what we register through our senses? Or, is it in the spiritual world -- the world of ideas - that we find the more fundamental principles behind the mere shadows of the sensual world? Do we look at the world piecemeal, in the here and now? Or, do we envelop ourselves in the idea of the whole future-oriented intentional developing process? Apart from the material brain, is there a spiritual soul in which the creative processes occur, the which influence reaches beyond the grave? For LaRouche, because we have strived to contribute something to future generations with our lives, and in the book, if immortal, Niels and Esther hope that the existence of their souls would be revealed as a tone.

Here are just two examples of the scientific visions of the future presented -- the first, a foretaste of The Schiller Institute's development plan for Southwest Asia:

"'It is the age of vicissitude.' said Esther; 'mankind has obtained power over the elements. The Sahara Desert will soon be turned into a lake; I read lately that an engineer has proposed to allow the Mediterranean Sea, which lies higher, to stream in over the widely-stretched sandy desert, and then steam boats will soon

²³ An observatory was built atop The Round Tower, still under construction in the center of Copenhagen, in 1639. Built under King Christian IV, it is the steeple of the church for the students of Copenhagen University, and the attic of the church was the student library. Danish astronomer Ole Rømer became its director in 1681. The Round Tower also appears metaphorically in Hans Christian Andersen's famous fairy tale *The Tinder Box*.

be flying across that desert, where the bones of camels and caravan travelers lie hidden.'

"'This will take place, said Niels Bryde, 'or else, by boring far down, they will force gushing springs to go through the layer of sand; oasis after oasis will then arise around these springs, and extend themselves more and more, until the desert shall become a blooming plain.'"²⁴

And in another premonition, Niels says that in the future, three great composers, each in a different city, could play four- and six-handed pieces together, using electromagnetic wire, and we could hear the concert in Copenhagen!²⁵

As Niels moves from science to science with belief, and Esther from belief to belief with science, love emerges, which, becomes the guide pointing Niels in the direction of immortality.

But, as an homage to Ørsted, Niels warns that immortality without "Reason within Reason, which is The Truth; Reason within the Will, which is The Good; Reason within the Imagination, which is The Beautiful,"²⁶ would be the most terrible punishment.

In a third extraordinary philosophical work, *The Muse of the New Century*, written four years later in 1861, Andersen deepens his thoughts about the poetical spirit of the coming age. Linking the muse of the future with the next technological era, he writes, as if pre-announcing the completion of The Eurasian Land-Bridge, "And when will the fullness of time have come? It is long for us, who are still behind here; it is short for those, who flew on ahead. Soon the Chinese Wall will fall; the railways of Europe reach the secluded cultures of Asia, -- the two streams of culture meet!"²⁷

The portal to the future

²⁴ Edited from the online English version.

²⁵ "'I do not at all doubt' said Niels Bryde, in a jesting tone of voice, 'that, in a few years hence, practice may have so improved our knowledge of this medium of communication, that the great geniuses of the day will not need to come to us in person,'" but three great composers will "'make use of the electro-magnetic wires, put in communication with the pianoforte; we may go to the theatre, a concert room here in Copenhagen,'" and the three great pianists in Weimar, Paris and Prague respectively, will "'play two-handed, four- or six-handed music, and we shall hear them at the concert.'" Edited from the online English version.

²⁶ See footnote 15

²⁷ Online in English: <http://visithcandersen.dk/eng-the-muse-new-century%20.htm>

Since the advent of the aptly-named 68'er counter-culture, too many have become infected by the pessimistic, misanthropic image of man that lies at the root of both the radical and soft varieties of the anti-scientific, anti-growth green ideology. 'The world has too many people! There are limited resources! Windmills instead of nuclear power! We have to crawl backwards in time, not run forwards!' cries the crowd.

Yet Andersen knew that as long as we were to continue thinking creatively, and continue looking, humanity would be able to find the keys to the future. Now, if we don't regenerate enthusiasm for science and technology, we will not be able to enable our current, and especially future population, to have the material standard of living necessary to invest in unleashing the creative potential of all of the world's population. As this author's African friend Augustine Tah so movingly expressed it: the graves of Africa are full, when they should be empty. They are filled with the songs that have been left unsung, the poems that have been left unrecited, and the solutions that have been left untried. The mourners shed tears for the great potential that has been left unrealized. (And not only in Africa.)

Reviving Andersen's positive image of man - for him, based on the view of a creative, loving humanity, in the image of a creative, loving God - were needed now more than ever. For LaRouche, the human ability to willfully, creatively change our future, is what makes our species unique.

Over the portal to the future, there is written: 'Let no one who rejects scientific and technological progress enter.'²⁸ If we forfeit that, we sign our own doom. Instead, let us honor the spirit of Andersen, by calling the first maglev train across the Kattegat,²⁹ "Hans Christian Andersen", and the first Danish mission to the moon, "Niels Bryde".

As Einstein's violin was an integral part of his creative process,³⁰ so was the inspiration of scientific and technological progress for Andersen. Here, in the intersection between science and

²⁸ Over the entry to Plato's Academy, was written, "Let no one unversed in geometry enter"

²⁹ the body of water separating the island of Zealand upon which Copenhagen is located, and Denmark's second largest city Aarhus, on the Danish Jutland mainland. Over such a connection, one could travel between the two cities in 25 minutes.

³⁰ For more on Einstein and his violin, see: www.larouchepac.com/einstein

culture, the mutual inspiration based on unleashing mankind's scientific and artistic creativity, we have a treasure map which leads to a Golden Age. Instead of falling more deeply into the death-spiral of collapse and war, let us take that treasure map out of the attic, dust it off, and use it to find the gold still lying buried in Poetry's California. Let us take hold of the scientific and artistic shovels, and create a new Golden Age such as mankind has never seen.

And that is not such a bad thing!

End

Picture caption: An illustration of "on wings of steam," a telescope and microscope from the 19th century, and a Morse-Vail telegraph key (1844-45, from the first American telegraph. (These pictures are not necessarily royalty free.)