



RUBINOFF ON ART | THE COLLECTED WRITINGS OF SCULPTOR JEFFREY RUBINOFF



Rubinoff on Art  
The Collected Writings of Sculptor Jeffrey Rubinoff

**Rubinoff on Art:  
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Both photos courtesy of the artist.

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## JEFFREY RUBINOFF: A BRIEF BIOGRAPHY

Jeffrey Rubinoff studied fine art in the United States and completed his M.F.A. in 1969. Subsequently, he returned to Canada to pursue his artistic career, which included one-man shows at The (Helen) Mazelow Gallery (Toronto), The Ontario Science Centre (Toronto), The Nathan Manilow Sculpture Park (Chicago), Queen's Park (Toronto), York University (Toronto), and Two Sculptors (New York).

In the early 1970s, Rubinoff moved to a 200-acre farm on Hornby Island, living and working on site for the next four decades to create the majority of his work. His works range in scale from human to monumental, and are created from welded or cast stainless steel, and welded Corten steel. Rubinoff creates all his sculptures unassisted. His studio includes a one-man steel foundry, which makes it possible to cast the organic forms found in the later series. Rubinoff has also designed many landscape alterations that have reshaped the farm to suit the exhibition of his sculpture.

During the 1990s Rubinoff participated in historical group exhibitions, including David Smith, Anthony Caro, Alexander Calder, Nancy Graves, Mark di Suvero, Tony Smith, George Rickey, Beverly Pepper, and Robert Murray. With regard to the predominant art of his time, Rubinoff has stated:

For my generation of artists, culture was defined by marketing. The art market defined originality as novelty. I realized that to make original art with artistic depth I would have to return to the lineage of the ancestors—the history of art by artists. So began a dialogue with the ancestors, artist to artist via the work itself.<sup>1</sup>

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<sup>1</sup> [http://en.wikipedia.org/wiki/Jeffrey\\_Rubinoff](http://en.wikipedia.org/wiki/Jeffrey_Rubinoff)

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## PREFACE

The Jeffrey Rubinoff Sculpture Park was opened to the public in May of 2008 with the inaugural event of an ongoing forum series entitled The Company of Ideas. Its themes for discussion were a set of concentrated statements on history, art, and science by sculptor Jeffrey Rubinoff.

Rubinoff explained that these statements were “insights that evolved with and from the sculpture work.” He felt it important to clarify that they emerged from the creative process itself, and did not exist prior to making the sculptures.

The term ‘insights’ was also chosen on the advice of art writer and essayist Mark Cohen, who reviewed early drafts. Rubinoff agreed that as insights from the perspective of an artist, they could function as a point of departure for new ideas, which might in turn generate new knowledge.

It is important to note that it was not Rubinoff who first suggested the idea of the forum, or of using the insights as its themes. It was his daughter Leba who suggested holding an annual symposium, when she realized that her peers were interested in the insights that her father had been discussing over the years.

So Leba approached one of her friends, Karun Koernig, to help organize the forum. Karun found Rubinoff’s ideas compelling and began transcribing them during their initial meetings.

After Rubinoff had edited the transcriptions to his satisfaction, Karun suggested they be used as the themes for discussion at the annual forum.

Had the history of the park evolved otherwise, these insights would have been known only to the artist and those close to him. As it turned out, they became an important contribution to the intellectual context of the Sculpture Park.

Over the years the insights were explicated, contested and discussed by many scholars, students and others attending the forums.

Expanding on the insights, Rubinoff also contributed essay presentations to the 2010, 2011, and 2012 forums, at which he also gave important introductory remarks.

This book is a collection of the insights, essays and forum introductions presented by Rubinoff over the first five years of the Company of Ideas. Some of Rubinoff's writings reference essay presentations of other forum participants that are not reproduced in this book.

For those interested, all forum essays and presentations can be found online at The Jeffrey Rubinoff Sculpture Park website:

[www.rubinoffsculpturepark.org/publications.php](http://www.rubinoffsculpturepark.org/publications.php)

— *Karun Koernig*  
*Educational Curator*  
*Jeffrey Rubinoff Sculpture Park*

## THE INSIGHTS THAT EVOLVED WITH AND FROM THE WORK OF JEFFREY RUBINOFF

by Jeffrey Rubinoff

First published in 2008

Presented at the inaugural Company of Ideas Forum  
at The Jeffrey Rubinoff Sculpture Park  
May 3-4<sup>th</sup>, 2008 on Hornby Island, BC, Canada

Changes and additions made in 2009 and 2011 as indicated

## **Tribalism**

Tribal behaviour is an ancient evolutionary trait. By definition, a human tribe recognizes descent from a common ancestor. From this recognition, rules of membership are created. As populations grow and genetic distance evolves, the tribe becomes wholly metaphorical.

At the metaphorical level, tribalism is realized in religion, nationalism, and racism.

Tribal myths of origin are distributive memories of existence that substantiate the rules that separate tribes.

## **The End of the Age of Agriculture**

The domestication of animals is believed to have begun 13,000 years ago. However, with crop cultivation beginning 9,000-10,000 years ago, a large majority of the population was required to be bound to the land. Cultivation led to the first continuously settled villages and to civilization itself.

Security and continuity, rationalized by the need for predictable food production, originate specialized political, civil, religious, and military institutions. Institutionalizing a warrior class was the most dangerous necessity of this social sea-change. If the military were not directed outward, it would threaten the stability of the non-military institutions. Thus, a constant state of war became inevitable, and indeed the history of city-states and empires appears to confirm perpetual states of war.

The feasibility of escalating war has become absurd with the advent of strategic bombing and nuclear weapons. No military institutions can claim to guarantee security of territory.

Moreover, at the end of the age of agriculture only a minute fraction of the population is required to produce the current surpluses of food. Thus the fundamental assumptions of the age of agriculture—security of territory as the means to secure food production—must be revised to apply to the era of global vulnerability.

## **Resurgent Tribalism**

Agriculture not only failed to supplant tribalism, it extended tribalism through periods of technological development. As agricultural and civil practices advanced, continuously larger populations could be supported, and larger armies with more sophisticated weapons deployed.

From the Renaissance through the mid-20th century, Europe led the world to modernity, scientifically and technologically, warring endlessly in ancient and re-invented tribal rivalries. Finally, much of Europe lay in smouldering ruins bearing the moral degradation of the Holocaust: mass theft and murder precisely organized and recorded by collaborating modern states.

The culmination of World War II was the profoundly ironic gift of nuclear weapons, given to us by science. With the reality of mutually assured destruction (MAD) becoming the ongoing policy of the nuclear-armed nations, modernity would have to adapt to a balance of terror if the human experiment were to survive.

As nation-states recognize the potential suicide of all-out war, the danger is that extant tribalism can continue to trigger genocide, and continue the attempt to draw modernist nations into apocalyptic confrontation.

## **The Importance of the History of Science**

The history of the universe is the collective memory of the universe. The science of cosmology probes the limits of what we can know of the collective memory. At the root of science is the simple idea that there can be a methodology by which intelligent people can agree on what they observe and, as a corollary, agree to disagree without murdering each other. Science itself evolved in the West as a necessity for stopping the ongoing murderous tribal wars lodged in separate arguments about divine truth and divine favour. Science is a process that creates conventions of truth. It is the process that itself must be either accepted or denied. Necessarily, to accept science is to accept the process that has led to the scientific concept of evolution. The evolution of life is the collective memory of life on our planet, and it determines what, at any point in history, we are capable of knowing of the collective memory of the universe.

### **Evolution**

Evolution is directional and progresses to ever more complex and adapted orders of organization.

Quite elegantly, the concept is constantly evolving rigorously validated evidence of itself. As rigorously validated evidence expands the idea of evolution, the human mind itself can evolve, thereby contributing to the collective memory of life itself. Arguably, the theory of evolution supports the concept of the potential value of all humanity, as opposed to theistic or other rationalizations for the ascendancy of specific tribes.

## **Importance of the History of Art**

Art is the map of the human soul; each original piece is proof of the journey. As the artist navigates the unknown, his art adds to the collective memory.

The artist's journey on the path of art history takes him to the farthest reaches of his predecessor as his point of departure. The artist who follows that history then possesses the chart for evolution, which he in his turn is obliged to extend to his successors.

In its turn, art history is one strand wrapped around the historic cable of Modernism.

### **Carryovers from Modernism to the Post-agricultural Age<sup>1</sup>**

There are important carryovers from Modernism to the articulation of human values for a post-agricultural age.

Modernism addressed the entire social spectrum implied by the evolving history of science, including natural history, which continues to yield evidence of important biological drivers of human behaviour.

However, the acceptance of the history of science by Modernism doesn't imply acceptance of blind biological determinism. Indeed, that conscience is manifest in all societies points to the likelihood that it is genetic in origin. Conscience, as well as violent upheaval, can be a prime mover of cultural evolution. Modernism was, by its nature, progressive, valuing the ability and effort to envision and effect a conscionable future.

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<sup>1</sup> Revised by Jeffrey Rubinoff in December, 2011

## **Humanism and Integration**

In a post-agricultural age, political territories can no longer promise security. Globalization demands a common basis of understanding and action over both geographic and ideational space. Humanism is the conceptual thread with which to weave this common understanding.

## **Cultivated Ignorance**

The easy view that truth is only subjective leads to cultural lethargy. This view of reality does not represent ideas but opinions. These opinions are merely a means to intellectual and moral conformity, and to the avoidance of the effort required by independent thought. For some, there is just a cessation of growth, for others a deliberate security of stasis.

## **Leadership**

The highly successful in any field are the masters of convention. In marketing, they are also the masters of the conventional. Learning from original art, true leadership is the quality to navigate beyond the boundaries of convention and to return with the charts of the newly explored. Leaders as navigators continually return to a vision beyond the horizon of convention. Like original art, the highest purpose of leadership is to serve the evolution of human consciousness.

## **Evolution of Mind**

Evolution of mind results from the dynamic engagement of truth with both analogy and metaphor.

Science has created conventions for truth by using analogies to model material reality. For much of their history, artists have been bound by their innate analogical ability to portray external reality. By science externalizing models of underlying structures of material reality, and photography replacing the demand for illustration, art has been liberated to address the internal, intuitive reality of the collective human memory.

Analogies are tools, and as such they are accepted conventions; they are by their nature repeatable, measurable, and predictable. Metaphors exist beyond logic in the realm of intuition; they are the basis for truly original thought and are by their nature unique. Metaphors are self-contained truth, and they cannot be used as analogies.

## **A New Humanism Beyond Prescriptive Narrative<sup>2</sup>**

The social relationships necessitated and maintained by the advent of agriculture have been a central component of structuring human society for over 10,000 years. Seriously considered, the concept of the End of the Age of Agriculture is highly consequential and requires a deeply thoughtful and thorough re-examination of the essential assumptions of our institutions and their evolutionary direction.

A philosophy based on our evidentiary knowledge of evolution and our consequential place in nature can provide a basis for the development of the order of consciousness necessary to over-

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<sup>2</sup> Added by Jeffrey Rubinoff in 2009, revised in 2011

come the virulent metaphorical forms of tribalism such as racism, nationalism, and religion. Overcoming this socially atavistic, dangerous reliance is exigent, given the advent of nuclear weapons.

Modern humans have evidently demonstrated a deep historical sense of awe manifested in perception of the sublime and the sacred.

Tribalism—metaphorically transformed and self-inflated by myths of monopolized divine favour—thrived through the Age of Agriculture by prescriptive narrative. Prescriptive narrative, so used, perpetuated the rule and continuous reward system of the warrior class. In spite of the Enlightenment in the West, this system remained extant through the terrible resurgence in the 20th century, until it was finally and abruptly ended among technologically advanced nations by the deterrence of nuclear war.

Art provides a means to experience the sacred beyond prescriptive narrative.

Prescriptive narrative will continue to yield ethical as well as analogical solutions for specifically identified localized systems.

However, a new philosophy for the End of the Age of Agriculture cannot overcome tribalism if it attempts to become a universal prescriptive narrative.

Judgments made with the weight of individual conscience encourage the evolution of consciousness and reduce our atavistic dependence on ideologies and other dogma. We have learned in our recent history that there are times when individual conscience must overwhelm group moral certainty.

## INTRODUCTION TO THE 2010 COMPANY OF IDEAS FORUM

Jeffrey Rubinoff

Presented at The Jeffrey Rubinoff Sculpture Park

Company of Ideas Forum

May 2010

I have been asked two important questions about this year's Company of Ideas forum: "What does war have to do with art?" And from my friend, artist Susan Cain: "How do your ideas manifest themselves in your work?"

In answering the first question, I have stated that artists map the human soul. I consider the soul to be the sum of all human knowledge. The artist works at the limits perceived to be the extent of that knowledge in a given time.

War has so permeated the 10,000-year history of agriculture, and so dominated the 5,000-year history of civilization, that it is impossible to map the human soul without navigating it. Navigating the hazards of war itself is the intent of this forum.

The second question is somewhat more complicated. I have argued that original art is not limited to a reflection of culture that is contemporary to it. During the Age of Agriculture—until liberated by the Enlightenment (and then only in measured steps)—the extent of all human knowledge was controlled by the privileged. Only the elite few were literate. The priesthood set the limits of the extent of human knowledge. The narrative of culture was both prescriptive and proscriptive. This served to perpetuate the rule of the warrior class very well.

For my generation of artists, culture was defined by marketing. The art market defined originality as novelty. I realized that to make original art with artistic depth I would have to return to the lineage of the ancestors—the history of art by artists. So began a dialogue with the ancestors, artist to artist via the work itself.

What I learned was that to be able to measure the inherent value of an artist's work is to be able to accept each artist's perception of the extent of the sum of all human knowledge in that artist's

time. Original art is created beyond the limits of that extent and informs rather than reflects.

Consequently, original art itself becomes located on the map of the human soul, and in so doing, adds to the sum of all human knowledge. Original art and the human soul evolve together.

**ART BEYOND WAR:  
DISCUSSION ABOUT PREHISTORIC WAR  
AND THE HISTORY OF ART BY ARTISTS**

By Jeffrey Rubinoff

Presented at The Jeffrey Rubinoff Sculpture Park

Company of Ideas Forum

May 2010

If we are hardwired for war genetically, then war punctuated by peace would be the default condition. We would be steadily working toward our own extinction. Given the Age of Agriculture, the twentieth century wars, and the evolution of weaponry, extinction would appear to be inevitable.

There is another possibility however. As we examine the concept of a history of art by artists, we find that the usual definition of history can no longer apply.

To the history of art by artists, the act of creation of art itself is the historical event being recorded. The inherent value of art is well beyond its apparent content.

Philip de Souza, in his introduction to *The Ancient World at War*<sup>1</sup>, states:

War and history are inextricably linked. The writing of history was first developed in ancient Greece to go beyond a mere account of the events of great wars and try to explain their origins...

It is my view that defining 'prehistory' in relation to written history is not satisfactory, though it remains a persistent habit. Such a division acts as though there is not an evolutionary continuum to history itself.

De Souza follows with: "...Even before that [,] the recording of battles and campaigns had become regular practice among most ancient civilizations..."

This act of recording was left to artists. Utilizing artists' genetic ability to draw and create analogs, these works were illustrations

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<sup>1</sup> Philip de Souza. *The Ancient World at War*. London: Thames and Hudson, 2008, 7.

servicing the victors. In these works—often flat, sometimes three dimensional—the value was placed on storytelling rather than on the inherent value of the art. Occasionally the threshold of that value was crossed, but clearly this was not expected.

These illustrations rapidly became highly stylized to specific cultures, clearly saleable and artistically uninteresting. This ability, and the demand for illustration and later portraiture, would become the bread-and-butter craft for artists, until replaced by the inexpensive photograph.

From the point of view of the history of art by artists, those works that do not cross the threshold into art are essentially non-events.

Given the need for brevity, I have chosen to link the oldest evidence of art to the earliest pivot point that begins the End of the Age of Agriculture. My argument is that the claim to spiritual monopoly—instituted first by the legalization of Christianity by Constantine, and then becoming the codified state religion of the Empire under Theodosius I—breathed new life into the Roman Empire for another 1500 years. This was a declaration of a spiritual knowledge monopoly providing the universal divine right to rule of the Roman warrior class, protected by capital punishment for heresy.

The schisms in the empire regarding the rightful claim of sovereignty by would-be Caesars would set the European and Asian empires into perpetual war until 1945.

The magnitude of the power of this spiritual monopoly had no historical precedents. This inadvertent cultural hybrid was a contradiction beyond imagination. A pacifist religion of slaves, when crossed with the Roman Legions, created what would prove to be the ultimate warrior class: Christian soldiers.

By 1914, collectively they had conquered or subdued most of the planet. Once again they were poised to take on each other for the ultimate claim to the empire.

The first hairline crack that is the beginning of the End of Age of Agriculture appears in the mid-fourteen-hundreds: the sculpture *Mary Magdalene* by Donatello.

Donatello's repossession of the artist's individual spiritual expression broke the prescription of the monopoly. This expression launched the freedom of the Renaissance. This freedom—always dangerously on the edge of heresy—was the gateway to the Enlightenment.

So began the downward spiral of the feudal age of agriculture. Soon a reactive force of a new spiritual schism would hasten the advent of the empirical principles of modern western science. But first, the monopoly on the extent of knowledge had to be broken. This was done by the great artists of the Renaissance.

This presentation has narrowed its focus to three late-Palaeolithic caves, and six artists from the modern period beginning with the Renaissance. It is a statement of the 35,000-year depth of artists' history.

## THE CAVES

The most ancient of the art is from the Chauvet Cave, previously dated from 32,000 BP, but recently revised to 36,000 BP, utilizing advanced carbon dating.<sup>2</sup>

Geology, Palaeontology, and Evolutionary Science are constantly yielding new historical evidence of the evolutionary history of humans as well as of the life of the planet itself.<sup>3</sup> As a consequence, the extent of the historical record and the extent of human knowledge have been growing exponentially.

Radiometric dating invented in the early 20<sup>th</sup> century was greatly enhanced by radioactive carbon dating in 1949, though relatively large-scale swings in re-evaluated timelines can be confusing. Papers written describing evidence must themselves be constantly updated in relation to estimated time. Accurate carbon dating has now been extended to up to 50,000 years,<sup>4</sup> especially useful to the treks from Africa by modern humans and particularly to the incursion into Europe—now well within its parameters.

Carbon dating citations must accompany cave and rock art if we are to identify its provenance. This is especially true of the Mesolithic and Neolithic period sites where those sites have been used continuously into the modern era.

I have this problem with all of my reference sources regarding this period, and although many drawings have been set as examples of expanding the technology of tools, I have been unable, with the

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2 Balter, Michael. "Did Neandertals Paint Early Cave Art?," Sciencemag.org (online article posted June 14, 2012) <http://news.sciencemag.org/2012/06/did-neander-tals-paint-early-cave-art>, November 5, 2014.

3 Smithsonian National Museum of Natural History, <http://humanorigins.si.edu/human-characteristics/change>, November 5, 2014.

4 Balter, Ibid

best data bases and search engines currently available (JStor for example) to establish the provenance of the published drawings placed as evidence to the sources' individual arguments.

As a consequence, although there is some highly interesting literature on this subject, this lack of provenance of the presented records has caused me to omit their arguments as conjecture rather than evidence.<sup>5</sup>

What sets the late-Palaeolithic caves apart is that the work from the upper-Palaeolithic period was preserved intact.

Discovered in late 1994, the art of Chauvet Cave is by far the earliest. Jean Clottes, in *Return to Chauvet Cave*<sup>6</sup>, states that the work falls into two groups: one of 32,000-30,000 BP, and one of 27,000-26,000 BP. This information will clearly have to be updated, but these dates are still much earlier than the Altamira and Lascaux caves.

The Lascaux cave was discovered in 1940. According to Norbert Aujoulat, in *Lascaux: movement, space and time*<sup>7</sup>, carbon dating in the 'Passageway' and the 'Shaft' yields dates c. 17,200 BP and 16,000+/-500 BP respectively. As well, the "...last attempt to enter the cave, which was perhaps merely an occupation close to the entrance left no trace of portable objects or colouring matter. The weighted mean of the five more recent dates is 8380+/-60 BP"<sup>8</sup>

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5 Keeley, Lawrence H. *War Before Civilization*. Oxford: Oxford University Press, 1996, 45 and 134.

6 Clottes, Jean. *Return To Chauvet Cave, Excavating the Birthplace of Art: The First Full Report*. London: Thames & Hudson, 2003, 214.

7 Aujoulat, Norbert. *Lascaux: movement, space and time*. New York: Harry N. Abrams, 2005, 58.

8 Ibid

In 1998 a radiocarbon result of c.18,600 BP was obtained.<sup>9</sup> So although the swings in time exist and may continue, they are well within the relevance of this presentation.

The Altamira cave was found in 1879. Dating of the art varies from 16,480 BP to 14,480 BP.<sup>10</sup>

## THE ARTISTS

A modern hunter considers himself skilful when he can bring down his prey with a single high velocity bullet at a significant distance.

The Palaeolithic hunters of large animals were face to face with a dangerous giant, explosive with adrenaline. The hunters' weapon was a simple spear. The hunters' intimate knowledge of the animals' psyche was an immediate life or death proposition for both.

It is important that we do not look at these art works as pretty pictures. There is a fusion of artist and subject at a ferocious level. It is with this intensity of mutual consumption that the artist becomes the art, and the art becomes the artist.

It is work with this fusion—the disappearance of the distance between the artist and the subject, and between the subject and audience—that is illustrated by the six artists I have chosen of the modern period.

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9 Ibid

10 Bernaldo de Quiros, Federico and Pedro A. Sura Ramos. "The Cave of Altamira: Its Art, Its Artists, and Its Times." In *The Cave of Altamira*. New York: Harry N. Abrams, 1999, 52-53.

## Donatello (1386-1466)

The surprising power and overwhelming presence of Donatello's Magdalene simply is.

## Michelangelo (1475-1564)

I have chosen his drawings for the particular bold line that gives life to modern European art, and of course his sculpture and painting. It is this line that is so powerfully evident in the works in the three caves, and ties these six diverse modern artists to those of the caves.

## Rembrandt (1606-1669)

We are familiar with the use of art to create distance between audience and gods, audience and warrior leaders, and as well in the case of classical art, youth and beauty—something ideal, separate and permanent.

Rembrandt breaks down these barriers and shows us a ferocious internal beauty as he paints his family and lover and himself. We see him age through his own hand, but in his vision, aging adds to his internal force. His strength is in his intimacy.

## **Rodin (1840-1917)**

Rodin revived the life of sculpture that was lost in the Reformation and the Counter-Reformation. While painting survived, sculpture with its materiality had the stink of idolatry, and was stripped of any spiritual value.

Where was the quality of sculpture evolved by Michelangelo? For 300 years after his death, pseudo-classical statuary served to once more glorify the warrior class, and elevate the state and the emerging middle class. It was simply too embarrassing to call art.

By reviving the importance of Michelangelo as his point of departure, Rodin appears to have single-handedly rescued sculpture. His presence in Paris contemporary to Impressionism, Post-Impressionism and Cubism was serendipity at its finest.

Like Donatello, I perceive Rodin as pivotal and so as with Donatello, I chose only one piece: Balzac (1897).

## **Kandinsky (1866-1944)**

Kandinsky brings ferocity directly to the work by abstraction so that the subject becomes the act of fusion itself.

He speaks of the spiritual fusion of the artist with his work best in his own words in *Concerning the Spiritual in Art* first published in 1911.

I think so highly of it that JRSP offers a link to it on its website, under Publications:

[www.rubinoffsculpturepark.org/publications.php](http://www.rubinoffsculpturepark.org/publications.php)  
(Under the *Non-JRSP Publications* link).

The works shown are from 1903 to 1914, beginning with *The Blue Rider*.

## **Otto Dix (1891-1969)**

Dix was conscripted in Dresden in 1914 and was sent into action a year later, in September of 1915. He fought in a machine gun unit until the end of the war in 1918.<sup>11</sup>

In 1924, 50 prints in the portfolio *Der Krieg* (War) were published. Some of these are selected for the presentation.

This part of the presentation ends with the triptych *Der Krieg*, painted in 1932. In a fusion of artist and subject in all its ferocity, war has replaced God. The hunter and hunted are indistinguishable, inextricably bound in eternal horror. This is not a cynical voice. It is the voice of the artist. It is the warning of the witness.

To explain this, I will present my introduction to Series 6. This introduction is part of a letter to another artist:

I have taken a much larger view of history, one that contains more mysteries and spirituality than any tribal mythology that harbours divine favour at its center. (I

<sup>11</sup> Schubert, Dietrich. "Death in the trench : the death of the portrait? Otto Dix's wartime self-portraits, 1915-1918" in *Otto Dix*. ed. Olaf Peters. Munich ; New York: Prestel, 2010, 37.

regard tribalism not as a genetic inevitability but as a cultural pathogen.)

Eventually, *On the Origin of Species* became a handbook for creativity in the studio. Few of the people that I know have actually read it but instead have read others' interpretations. Darwin has thus been commonly misrepresented from "cultural Darwinism" to eugenics, and through the ultimate tribal theft and murder of the Holocaust.

Reading it in detail (1872 edition) is crucial to reconciling the restless nature of creativity and the apparent restiveness of history. All that exists is in the unforgiving forward direction of time and the nature of that existence creatively reshaping history.

Nature, by the passage of time and by the genetic sculpting of life has created a history that is crushingly honest and constantly probing the future. It is thus simultaneously innocent and guilty of the most destructive crimes that lead to the most magnificent creations. Without life there is no witness to this awesome and terrifying creative unfolding of the universe.

As far as we know, we fragile humans are the only fully cognizant witnesses. With this capability comes the great responsibility of this knowledge. This responsibility is a priori in those who are born artists. The act of will that I describe in my definition of art is the act of witnessing and recording this knowledge. This is the highest of human values—the recognition of the value of life itself. Therein resides the mature conscience. This is the essence of our being. Art is the map of the human soul.

Evolution in time will continue with or without human existence. Progress will remain—inexorable and unrelenting—even if we manage to destroy our necessary environment and perish in a nuclear winter. Art is the authentic internal scream against the suicidal nature of our rooted tribal culture.

#### EDITOR'S NOTE ON THE VISUAL PRESENTATION

*Rubinoff's original essay presentation included a slide show in which the images of the works of Donatello, Michelangelo, Rembrandt, Rodin, Kandinsky, and Dix were juxtaposed to their late palaeolithic European cave artist predecessors. What follows is an abbreviated version of that presentation, with the cave art being representative of the original presentation, but not exactly the same (due to licensing constraints).*

*Photo credits and rights information can be found on pages 53-55.*

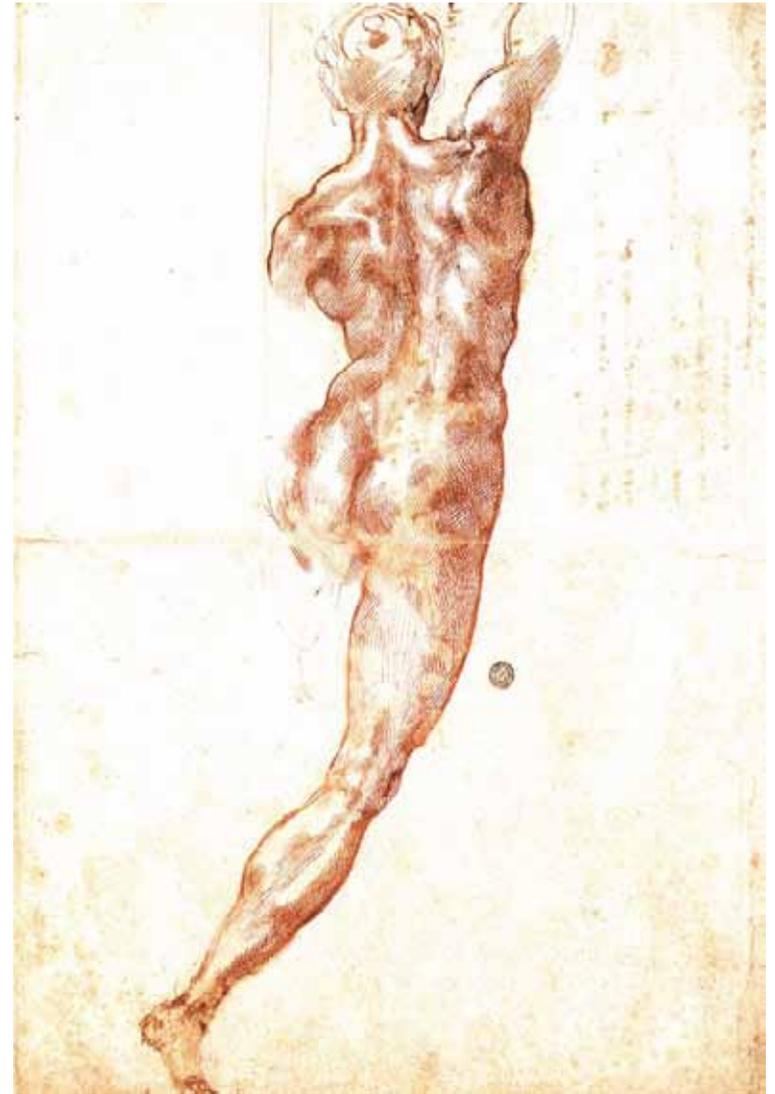
*A video thumbnail version of Rubinoff's original slide presentation can be found at:*

*[www.rubinoffsculpturepark.org/coi/  
2010Rubinoff\\_PresentationWeb/Rubinoff\\_PresentationWeb.html](http://www.rubinoffsculpturepark.org/coi/2010Rubinoff_PresentationWeb/Rubinoff_PresentationWeb.html)*

THE ARTISTS: DONATELLO, MICHELANGELO, REMBRANDT,  
RODIN, KANDINSKY, DIX



*Mary Magdalen*, circa 1457  
Donatello



*Study for Battle of Cascina*, 1504  
Michelangelo Buonarroti



*Study for Libyan Sibyl*, circa 1508  
Michelangelo Buonarroti



*Artist as a Young Man*, 1629  
Rembrandt Harmenszoon van Rijn



*A Woman bathing in a Stream (Hendrickje Stoffels?), 1654*  
Rembrandt Harmenszoon van Rijn



*Self-portrait, 1655*  
Rembrandt Harmenszoon van Rijn



*Titus van Rijn, the Artist's Son, Reading*, circa 1656-1657  
Rembrandt Harmenszoon van Rijn



*Self-Portrait as Zeuxis, Laughing*, circa 1663  
Rembrandt Harmenszoon van Rijn



*Monument to Balzac, 1892-1897*  
Auguste Rodin



*The Blue Rider, 1903*  
Wassily Kandinsky

Kandinsky, Wassily (1866-1944) © ARS, NY. The Blue Rider. Oil on Cardboard (55 x 65cm). Foundation E.G. Buehrle Photo Credit : Erich Lessing / Art Resource, NY



*Panel for Edwin R. Campbell, No 1, 1914*

Wassily Kandinsky

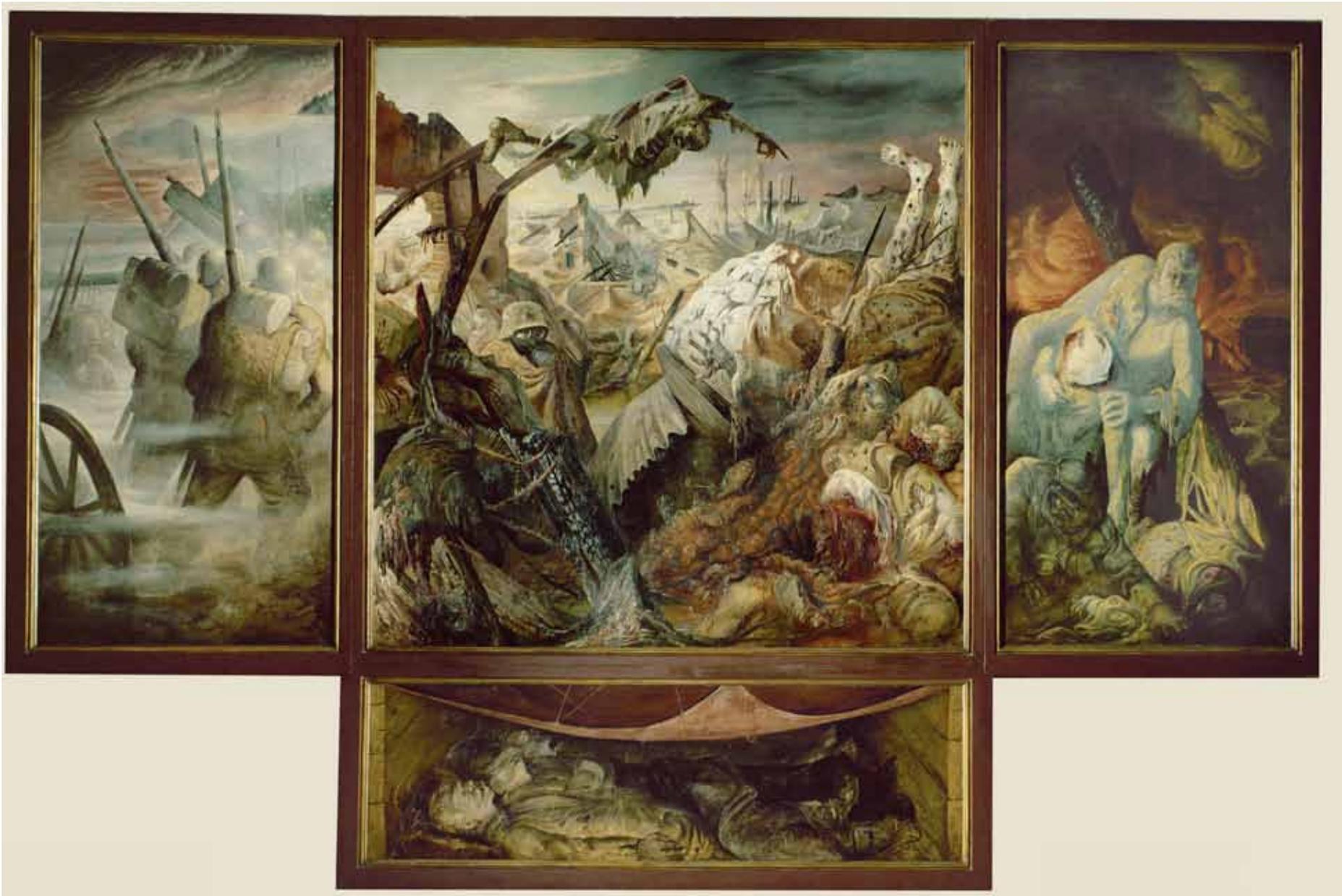
Kandinsky, Wassily (1866-1944) © ARS, NY. Panel for Edwin R. Campbell No. 1. 1914. Oil on canvas, 64 x 31 1/2" (162.5 x 80 cm). Mrs. Simon Guggenheim Fund. The Museum of Modern Art Digital Image © The Museum of Modern Art/Licensed by SCALA / Art Resource, NY



*Shock Troops Advance under Gas, circa 1924*

Otto Dix

© Estate of Otto Dix / SODRAC (2014). Dix, Otto (1891-1969) © ARS, NY. Stormtroopers proceed through gas. (Sturmtruppe geht unter Gas vor). 1924. Etching. From The Consequences of War, sheet 12. Inv. Karsch 81. Photo: Jörg P. Anders. Kupferstichkabinett. Photo Credit : bpk, Berlin / Art Resource, NY



*War Triptych*, 1929-32. Otto Dix

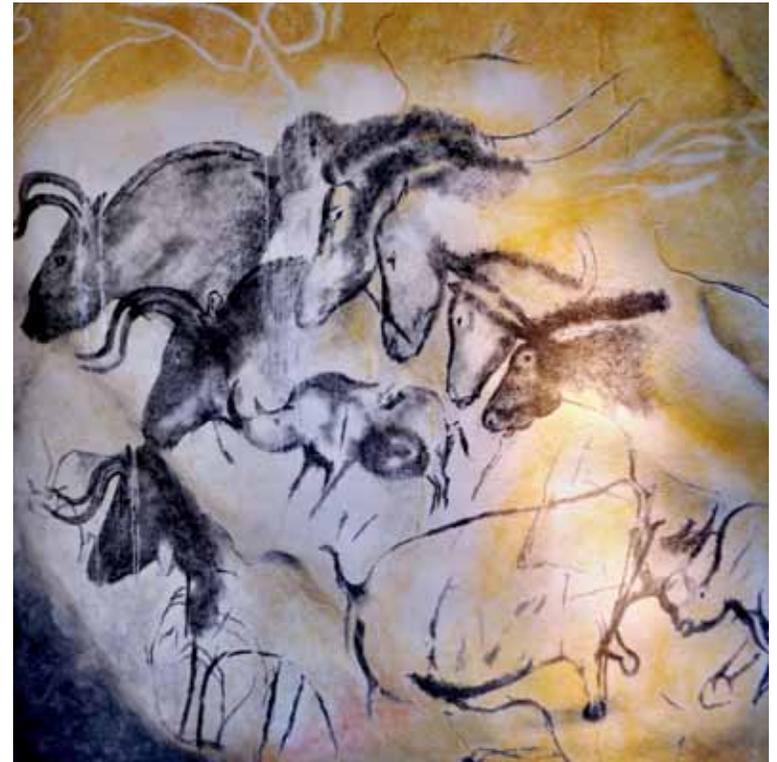
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Dix, Otto (1891-1969) © ARS, NY. The War. Triptych, oil on wood, 1929-32. Staatliche Kunstsammlungen. Photo Credit : Erich Lessing / Art Resource, NY

THE LATE PALAEOLITHIC CAVES:  
CHAUVET, LASCAUX AND ALTAMIRA



*Female bison at Altamira Spain*  
ca. 16,500-14,000 BP.  
(Replica in the Deutsches Museum, Munich)



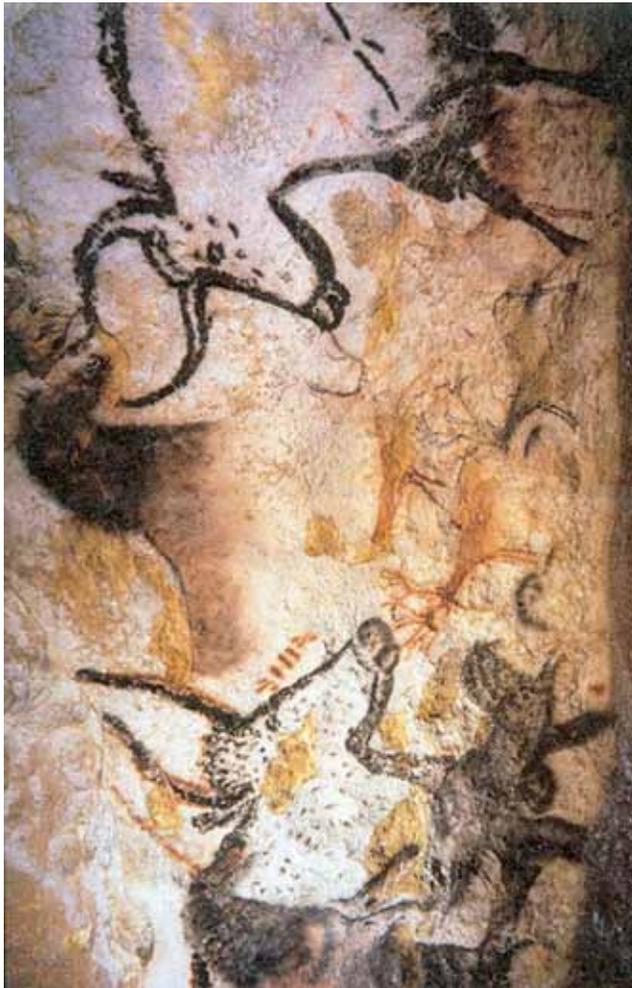
*Etologic horse study, Chauvet cave*  
ca. 30,000–32,000 BP. (Replica)



*Rhinoceros, Chauvet Cave*  
ca. 30,000–32,000 BP. (Replica)



*Horse, Lascaux Cave*  
ca. 17,000 BP. (Replica in the Brno museum Anthropos)



*Mural with various animals, Lascaux Cave*  
ca. 17,000 BP. (Replica)



*Deer with Antlers, Lascaux Cave*  
ca. 17,000 BP. (Copy of a painting in the Lascaux cave,  
Musée d'Aquitaine, Bordeaux, France)

What I hope that I have achieved in this presentation is to present a living 35,000-year history of art through the eyes of an artist.

I have called this presentation *Art Beyond War*. This history of art contains a great gift.

I began with the statement, “If we are hardwired for war genetically, then war punctuated by peace would be the default condition.” According to current evolutionary knowledge, modern humans (those with our present anatomy and brain-size) evolved some 200 million years ago in Africa. There was a migration out of Africa some 80,000-60,000 years ago to Asia, and a migration reaching Europe about 40,000 years ago.<sup>12</sup> The Chauvet Cave is dated to a time close to this last migration.

Though the caves have yielded evidence of great art, they yield no evidence of war. If we view the fortification of Jericho as the first hard evidence of war, then the history of art predates the history of war and agriculture by some 25,000 years.

In this history of art war is not inevitable. It is an existential choice.

— Jeffrey Rubinoff  
May 2010



*Megaloceros, Lascaux Cave*  
ca. 17,000 BP. (Replica)

<sup>12</sup> Smithsonian, Ibid

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**INTRODUCTION TO  
THE 2011 YALE FORUM ON  
ART, WAR AND SCIENCE  
IN THE 20<sup>TH</sup> CENTURY**

Jeffrey Rubinoff

Presented at the 2011 Yale University Forum  
on Art, War and Science in the 20th Century

Hosted by The Jeffrey Rubinoff Sculpture Park

May 19-23<sup>rd</sup>, 2011

on Hornby Island, British Columbia, Canada

Sadly, on August 23, 2010, Larry Badash passed away. I received a short email from his partner Nancy Hofbauer, whom many of you recall, accompanied Larry to last year's Sculpture Park Forum as a reader.

Larry's paper, "Nuclear Winter at the End of the Age of Agriculture" was a culmination point.

What had begun on my return to the working value of art history 30 years before, now resulted in the highest level of discourse regarding the survival of civilization itself. It was an honour that Larry brought his knowledge to our forum.

It is on this elevated plane that we begin the 2011 forum.

As I explained on the tour of the sculptures, after finishing graduate school in 1969, I assumed my right as heir to the *avant-garde* in the then surging art market. To my generation of artists—and of course the market—the assumption was that novelty itself was originality, and that our natural place was to supersede the previous avant-garde.

The unlimited fatuousness of the art world—my world—smothered in the hubris of total commodification, brought on my existential crisis of 1979. It was time to return to, and challenge, art history itself. So the new journey began in 1980.

Once I crossed the threshold of 'original art via art history', rather than its rejection, a flood of insights began. This was a feedback loop of knowledge through the work itself, and it came as a complete surprise. The insights became ideas in the work which in turn generated new insights.

Art was indeed capable of evolving knowledge.

This knowledge would have remained encoded in the work and only occasionally spoken—mainly to other artists—were it not for a conversation with my daughter Leba.

In December of 2005, the sculpture park became registered with Canada Revenue Agency; the planning could begin.

I had had two successful openings under the auspices of the Hornby Island Festival Society earlier in the decade. My thoughts were to continue with them under a management arrangement.

Leba convinced me that we should be planning symposia and a facility to accommodate them. Her friends and colleagues were becoming interested in the ideas that I had evolved over the past many years.

This both surprised and excited me. Firstly I didn't realize she had discussed the ideas or that her generation might be interested. As to who might manage the forums, she suggested her friend Karun Koernig, whom I had met when he was a high school student many years before.

Karun visited the island in November of 2006. We toured the work, which clearly resonated with him, and he communicated acute sensitivity and deep intelligence. He convinced me that indeed his generation would benefit from knowledge of the work. He encouraged me to talk of the insights that had evolved with and from the sculpture. These discussions took place over a concentrated three-day period. The insights were transcribed in a highly condensed form into "Insights", and as "Themes" of the sculpture park.

Karun is a man of many talents and much experience. We began planning future forums to describe the context of the sculptures. Thus the sculpture park would not only house the work, but would become the communicator of the context.

Michael McNamera, a presenter at the first forum and an observer at each one following, was commissioned to design and build this excellent facility.

Three years ago, the sculpture park hosted its first forum, seamlessly organized by Karun. The participants were colleagues of Leba and Karun, Michael McNamera, and our *rapporteurs* chosen for their education in art.

We began as a symposium. I had chosen to name the activity "The Company of Ideas" as an identity for the process. The success of the first symposium, which included an excellent presentation on modern architecture by Michael McNamera, was based on the curiosity of the participants and their willingness to suggest programmes for the future.

However, Karun and I realized that the themes for discussion were both original and difficult. We discussed this at length immediately after the forum, and as a result I asked him to create a specific paper which we could offer as a model for critique, followed by a call for papers. He would write it on the topic of "The Value of Art at the End of the Age of Agriculture," applying the principles of Richard Dawkins.

The result was an excellent paper incorporating my definition of art as "an act of will in accord with a mature conscience" as a driving force for the evolution of culture.

The concepts of 'consciousness' and 'a mature conscience' will appear consistently in our discussions. The insight of "The End of the Age of Agriculture" is now over 25 years old, as is my definition of art. Rather than eroding over time, the concept of the "The End of the Age of Agriculture" has been continuously reinforced by historical events and by my growth as an artist.

Since 1989, I have been extending the history of art deep into evolutionary history. As I discussed at previous forums, this extension has strengthened my definition of art.

The forum of 2009 had five presentations by five authors: Karun Koernig, Jenni Pace Presnell, Sam Yeaman, Jeff Foss, and Jerry Swatez.

Ultimately, Karun and I realized that the sculpture park is about passing this lifetime of work to future generations. Karun was continually critical of what he called post-modernism in the education system.

The ideas that evolved in my work were about the assertion of existence in the face of absurdity (more about this later).

The term 'post-modern' first entered my reading as a reference to architecture, namely Philip Johnston's AT&T building in New York, completed in 1984. The term soon referred to contemporary architecture. By 1985, it was being used *ad nauseam* in the art market in New York. I understood it only vaguely as educational terminology through my daughters Leba and Charo in the 1990s.

In spending time with Karun, who himself has spent his adult life educating young people, I realized that the absurdities of my generation, immediately ominous then, immediately ominous now, were not even on the knowledge horizon of his generation. Imminent issues of the survival of civilization itself were simply falling into the general failure of what I had called "cultivated ignorance." That this was occurring among the best educated is exigent.

For the 2010 forum we took the bull by the horns.

Karun addressed the issues of post-modernism.

Both Jeff Foss and Jenni Pace Presnell addressed possibilities for a new humanism.

Jay Winter addressed the suicide of the warrior class in World War One.

Lawrence Badash addressed the immanent potential of nuclear winter.

I addressed the possibilities of the genetic disposition of art and conscience.

After the forum, Jay and I discussed the possibilities of continuing the discourse in the framework of his discipline of Cultural History. This was a new field to me. As I understood Jay, it essentially came into being in the 1970s long after I had finished graduate school. I was intrigued to see if there might be some ongoing relationship between the sculpture park and Cultural History.

From early in university, I developed a highly proprietary view of art history, as artists have always had. For myself, this view essentially meant only accepting the interpretation of that history from historians who themselves had wanted to be artists.

The way I see it now, sharing what I have called "the history of art by artists" is necessary to deepen the experience of the sculptures themselves.

Since founding the sculpture park, I have continuously attempted to expand the base of discourse. This is in line with the context of the evolution of my work.

This year in addition to our panel of scholars we are also welcoming ten students: five of which from Yale, and one from the University of Victoria, who have not visited the Sculpture Park before.

## THROUGH THE LENS OF THE ENDGAME

By Jeffrey Rubinoff

Presented at the 2011 Yale University Forum  
on Art, War and Science in the 20th Century

Hosted by The Jeffrey Rubinoff Sculpture Park

May 19-23<sup>rd</sup>, 2011

on Hornby Island, British Columbia, Canada

On July 26, 1945, some of the best minds in the world exploded the first atomic bomb at the Trinity site in New Mexico.

On August 6, 1945, nuclear warfare was born with the bombing of Hiroshima.

On August 9, 1945, Nagasaki was similarly bombed.

On August 15, 1945, Japan surrendered.

I was born on October 23, 1945. I was born in the shadow of the Endgame.

When Jay Winter<sup>1</sup> suggested that we work together on what he called the “Blue Rider Moment,” the idea excited me on several planes.

As part of the “Introduction to the Sculpture Park” web page, I had stated:

The purpose of the work is to extend the ancient narrative of art and consequently rekindle the historical spirit of modernism. In addition to viewing the work, which includes the Sculpture Park itself, the goal is to revive the interdisciplinary creative impetus of early modernism and to attain the understanding of art as a serious and credible source of special insight for the evolution of ideas.

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<sup>1</sup> Dr. Jay Winter and Jeffrey Rubinoff co-chaired the 2011 Yale Forum on Art, War and Science in the 20<sup>th</sup> Century

And under the title of “A New Synthesis”:

Science is truth by analogy. Art is truth by metaphor.  
Resonating together, they are the *New Synthesis*.

When I was younger, I regarded the resonance to be with modern physics and chemistry. As I matured, the resonance became with Darwin and the science of evolution.

For me, the period of early modernism became part of my journey from a farm high school in southwest rural Ontario. The unwritten purpose of education was limited to a means to make a living free of the eldest brothers who would inherit the farms. The younger siblings would either remain virtual slaves on those farms or succeed in other professions.

Art was simply not in the cards or on anybody’s horizon. University was the escape.

At that time, London Ontario had a major university without studio courses, and the city had no art museum. As a consequence, if one were born an artist and lived in a typical rural area, there was no direct contact with art.

Art was a self-taught and primitive affair swamped in the innate ability for mimesis.

I had chanced upon a tiny, new and experimental liberal arts university in Michigan where seminars were the rule, and both art history and—to my amazement—studio classes in life drawing and painting were offered.

Here I left behind a curriculum for the professions and entered into the excitement of the Enlightenment and art.

I do not underestimate the value of the Enlightenment and the German Idealists in my education. The United States was a proud child of the Enlightenment and its history is replete with the triumphs and the flaws of the best thinking of the time. The German Idealists proclaimed qualities of art separate from the dominance of philosophers. These arguments allowed art to finally enter institutions of higher learning, valued exceedingly beyond the traditional perception of it as craft.

As a consequence I learned to value myself as an artist and to recognize art at the highest level of knowledge.

Under the tutelage of a modernist art historian who was himself an artist, I became a proficient abstract painter.

My liberation by liberal arts integrated with art history and studio courses freed me to eventually become what I was truly born to be—a sculptor. That evolution was realized in graduate school, and has been since then hammered out by the market. My obligation to that liberation is now manifest in the sculpture park.

Modernism until 1914 is my first realization as an artist. It is therefore indelibly personal.

I found it highly compelling to revisit this period from where I began as an artist. This is not for empty nostalgia, but to measure 45 years of critical experience.

As you can assume from the evidence of the work and the previous forums, there is a highly developed overview to this one as well. The entity of the sculpture park represents the transparent and unconstrained context of the work.

In this forum, cultural historians will approach this critical period of the descent of my work.

In order to describe the lens through which I now revisit early modernism, I want to return to the shadow of the unfolding Endgame.

In August of 1949, the Soviet Union tested its first nuclear weapon. The Endgame was on.

In November of 1952, the first thermonuclear explosion vapourized the island of Elugelab in the Marshall Islands. The hydrogen bomb was born. The explosive and radiation yield was many orders of magnitude higher than the Hiroshima and Nagasaki bombs.

In August of 1953, the Soviet Union exploded its first hydrogen bomb.

The shadow darkened and spread globally throughout the 1950s. We became certain of mutually assured destruction, regardless of either side's preparation for victory.

In 1960, Herman Kahn published *On Thermonuclear War*<sup>2</sup>. In it he posited scenarios for alternatives to mutual annihilation. In spite of his arguments, or perhaps because of them, these alternatives appear equally absurd to the possibility of a 'Doomsday Machine' on which he cogitates. This 'Doomsday Machine' and Herman Kahn will be central to Stanley Kubrick's *Dr. Strangelove*, released in 1964.

Kahn's arguments rationalize 'mega-death'. The destruction of major cities is exchanged in favour of ending escalating war. Mega-death becomes transactional.

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2 Kahn, Herman. *On Thermonuclear War*. New Brunswick (USA) and London (UK): Transaction Publishers, 2010, (p. 258 for example. It is discussed throughout).

This approach is once again published by Herman Kahn in 1962, in *Thinking About The Unthinkable*<sup>3</sup>.

The Endgame has alternate outcomes, all wholly abominable and absurd to any except military planners.

In 1962, I received the Cuban Missile Crisis for my 17<sup>th</sup> birthday. We actually expected annihilation at any time. London Ontario was in the line of a continuous industrial belt from Illinois through Michigan, Indiana, Ohio and upstate New York.

I knew that there had to be another way through this. It took another year and my first real existential crisis. I began to look to art, and started writing. I know now that I could only do this as an *a priori* cognition and in an *ad hoc* way. I had no plan as to where it might lead.

Eventually it led to my undergraduate education and my first emergence as an artist.

It was at this time that I encountered a thought that was profound enough to stay with me all these years and help form my definition of art.

The way I remember this is that I was reading an article by Simone de Beauvoir while on a bus at the age of 19. I say this is the way I remember it because I have not been able to find this quotation anywhere. Still I attribute it to her because it affected me so profoundly, and my memory seems so specific.

She was speaking of the collaboration of occupied France with the Holocaust, how ordinary people—stationmasters, engineers—all those people routinely doing their ordinary jobs in the infra-

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3 Kahn, Herman. *Thinking About The Unthinkable*. New York: Avon Press, 1964. (Discussed throughout)

structure of murder—were certain of their own morality. She contrasted that with individuals who acted under great risk to themselves to save the condemned.

Her conclusion was that our very existence itself depends on our acts of individual conscience.

I now had two parallel, individual existential necessities: art and acts of conscience. It would take another 20 years of maturity for them to fuse.

Eventually this formed one of the tenets of my definition: “art is an act of will in accord with a mature conscience”.

First, I had to pass through my second existential crisis in 1979.

The shift of the cultural center after World War One and the post-World War Two era naturally focused on the displacement of European culture to America. Regardless of what the Europeans thought of American culture at the time, their influence would make American artists the heirs of European modernism.

Among the artists of this displacement are sculptors Archipenko and Jacques Lipchitz, painters Marcel Duchamp, Joseph Albers, Hans Hoffmann, Marc Chagall, George Grosz and Willem DeKooning, writers Isaac Beshevis Singer and Thomas Mann, and composer Arnold Schoenberg, to name just a few.

This shift to America followed by its victories in, and intact emergence from, World War Two placed American artists at the focal point of the world. Among those artists grounded in European modernism, David Smith was the natural departure point of my evolution.

Part of the following is paraphrased from a letter to Jay Winter on June 12, 2010:

As an inveterate evolutionist and progressive artist, I perceived an almost insurmountable problem when I returned to art history and specifically the work of David Smith as my point of departure.

The fractures to early modernism that we have discussed as a point of departure for our project had long ago affected the direction of art.

Humpty could never be put together again so that was not the issue. It was that history had reached an apparent dead end. The cold war had left the thinking members of our generation as dead men walking. The Doomsday Machine central to *Dr. Stangelove* was conceived by Herman Kahn in *On Thermonuclear War*, published in 1960. The inevitability of the terminal fire storms were a given, long before the deadly possibility of nuclear winter was conceived.

To approach the meaning of the Insights/Themes, we need to return to 1979. The promise of the Carter presidency in 1976 was that a moral and highly educated man—he was a nuclear engineer—might finally lead America out of the dysfunctional maze of the past many years. In the end, we watched his presidency disintegrate with the resurgence of tribalism in Iran that culminated with the American hostage incident, and was quickly followed by the Soviet invasion of Afghanistan.

The art world was weak, corrupt, irrelevant and hopeless. Why bother?

Why indeed.

The art world was not the source of art. I had to face that I was dying inside as an artist.

At first I was able to return to work out of sheer need. As I have stated, I had decided to challenge art history for a potential creative run. It was a final gamble.

The magazine *Science* published *Nuclear Winter: Global Consequences of Multiple Nuclear Explosions* in 1983 (by Turco, Toon, Ackerman, Pollack and Sagan). It was with that final confirmation that I arrived at the insight of “The End of the Age of Agriculture” as a means to keep working. By recognizing the end of the age and understanding it, one could work beyond it, provided that we could maintain our current survival on a day-to-day, year-to-year basis.

This was hardly Quixotic. It was a question of ‘no chance for survival’ versus ‘some possibility, however small’.

As I earlier stated, in the introduction to this forum, I was surprised that art was capable of itself evolving knowledge. And this knowledge would have remained encoded in the work, were it not for the arguments presented to me that they might have value in written form to future generations.

I want to make it clear that the insights do not in any way imply a new ideology or any other prescription. I have no interest in having to convince others of their inherent truth. The insights are intrinsic to the work already completed from 1980 to the present.

They are one artist’s means to working through the environment of anti-art of the omnipresent absurdity realized since, and including, the ‘modern 31-years war’ from 1914 to 1945.

The essential working concepts that evolved with and from the work between 1979 and 1984 have so far been condensed to *The End of the Age of Agriculture*, and the definition of art as an act of will in accord with a mature conscience.

As such the insights are realized as ideas in the sculptures. I present them firstly as a gift to me, that I in turn offer to anyone who might also perceive their benefit.

I have spoken of the origins of the definition of art; now I want to speak to how the concept of the End of the Age of Agriculture evolved.

As I advanced through the early 1980s from my position of challenging art history, I simultaneously worked my way back through David Smith and his American contemporaries to the source of modernism itself. Eventually I arrived at Donatello’s *Mary Magdalene* as a starting point. The question that naturally followed was: when could modernism be perceived to have fully arrived?

That was difficult to answer. The full arrival—if it could be said to exist—would likely be at some great cultural pivot point. Could that point be identified?

From the late Enlightenment onward, there had been an extraordinary number of innovations and rapid expansions of knowledge. Apart from the explosion in experimental art, one would have many obvious choices: the American Revolution, the electrification of North America and Europe, the invention of the process of synthetic ammonia, relativity physics, and the Russian Revolution, to name just a few.

I reached a conclusion that none changed the world more radically than strategic bombing.

In the time that I was doing this thinking, the magazine *Scientific American* ran an article on how agriculture ended the age of hunting and gathering in Europe.<sup>4</sup>

Until the advent of agriculture, Europe had been naturally covered in forest. In short order, as agriculture became adopted, the entire continent to the Iberian Peninsula was cleared for farm land. Thirty-five thousand years of hunting and gathering by modern humans that had occurred since the first migration from Africa to Europe had ended by 5,000 years ago.

It occurred to me that if agriculture could end an entire age of human cultural development, so too could the age of agriculture end.

It was plain to me that agriculture was based on the securing of land and assuring the next years' crops. It followed that all the institutions of civilization were based on these premises, including the invention of a warrior class that had historically come to dominate all by assuring the necessary security.

But since World War Two no-one could claim to have that security, and above all, no-one could claim to guarantee it. Yet all of the institutions of civilization were founded on those principles.

This thinking was also in line with the current industrialization and global distribution of food production itself. Manufactured fertilizer and advanced growing methods allowed for production of food literally anywhere, and advanced mechanization and farming techniques had reduced the need for massive labour input. In the 1980s, the common figure was that one American farmer could feed an estimated 76 people. By the 1990s, one American farmer could feed an estimated 100 people.

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<sup>4</sup> Zvelebil, Marek. "Postglacial foraging in the forests of Europe." *Scientific American*: 254, May 1986, 86-93.

Very deep and much thought was required to realize this insight. Eventually I concluded that the absurdity that was characteristic of the race for advanced strategic weapons was the inability—and hence the failure—of our institutions to be able to recognize and address the potential of this entirely new reality. The institutions and much of our actual thinking were rooted in a 10,000-year age that had ended.

I was quite aware in 1979 that the basis for an advanced technological economy was based on military priorities. Thus the advanced economy ubiquitously carried the stigma that its prime engine of research had become the very military industrial complex about which Eisenhower finally warned in his farewell address in 1961. Of course his warning was obviously long after the fact anyway.

In less than 50 years, the applications of air warfare, from dirigibles through fixed wing aircraft and intercontinental ballistic missiles, finally ended a 10,000-year age.

The fundamental principles of the age of agriculture—security of person guaranteed by the possession of protected territory—was violated by global access from the air. Strategic bombing, originally conceived as destruction of the other side's ability to make war, became tacitly acknowledged by the end of World War Two to mean the destruction of cities.<sup>5</sup> In the post-World War Two period, this evolved rapidly to thermonuclear warfare, and came to include the secondary destruction by nuclear fallout, and eventually the awareness of potential nuclear winter. Ultimately, the imperatives of the warrior class and its institutions were no longer able to protect civilians at any point on the earth. The social contract of 10,000 years was terminated.

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<sup>5</sup> Badash, Lawrence. *Scientists and the Development of Nuclear Weapons: From Fission to the Limited Test Ban Treaty 1939-1963*. Atlantic Highlands, NJ: Humanity Press, 1995, 98.

The Enlightenment that had meant to liberate civilization with the spirit of knowledge had evolved through that knowledge the means to destroy civilization itself. Under the most extreme circumstances, it may prove to have evolved the means for the extinction of the very humanity it mean to uplift.

For me, art had become the means to work through this, but first one had to acknowledge the end of the age of agriculture. It was not the spirit of the Enlightenment, but rather the exploitation of science within the failing values of the end of this age, that led to the dilemma confronting existence itself.

In “Art Beyond War” presented at the 2010 Company of Ideas forum, I wrote:

...to be able to measure the inherent value of an artist’s work is to be able to accept each artist’s perception of the extent of all human knowledge in that artist’s time. Original art is created beyond the limits of that extent and informs rather than reflects.

Consequently, original art itself becomes located on the map of the human soul and in so doing adds to the sum of all human knowledge. Original art and the human soul evolve together.

It is important to note that the spirit of original art is certainly not prescriptive by its nature. As a map of the human soul it is descriptive—allowing future generations of artists to themselves evolve and enlarge the map.

Individual artists may be bound to their beliefs, but the spirit of original art must exist independent of those beliefs in order to survive as values for future generations.

Further in the paper I wrote regarding Darwin and the *Origin of Species*:

Nature, by the passage of time and by the genetic sculpting of life has created a history that is crushingly honest and constantly probing the future. It is thus simultaneously innocent and guilty of the most destructive crimes that lead to the most magnificent creations. Without life there is no witness to this awesome and terrifying creative unfolding of the universe.

As far as we know, we fragile humans are the only fully cognizant witnesses. With this capability comes the great responsibility of this knowledge. This responsibility is *a priori* in those who are born artists. The act of will that I describe in my definition of art is the act of witnessing and recording this knowledge. This is the highest of human values—the recognition of the value of life itself. Therein resides the mature conscience. This is the essence of our being. Art is the map of the human soul.

Evolution in time will continue with or without human existence. Progress will remain—inexorable and unrelenting—even if we manage to destroy our necessary environment and perish in a nuclear winter. Art is the authentic internal scream against the suicidal nature of our rooted tribal culture.

Finally, to view modernism through the compound lens of maturity, another element is added.

At the 2010 Company of Ideas Forum I spoke of the 35,000-year proven history of art. Agriculture has a 10,000-year history. Civilization has a 5,000-year history.

To an artist, civilization may indeed be a temporary evolutionary upstart. Because I perceive the human soul as the sum of all human knowledge (how can it be any less?), I highly value civilization in its rapid expansion of that knowledge and its contribution to the evolution of the human soul. However, should civilization prove to be short-lived by its own hand and humanity manage to survive, artists will continue as they did before civilization.

Why understanding this is critical, is to differentiate the history of art as a statement of the viewer from that of the artist. In the presentation of 2010, I showed the spirit of the artist fused with the subject, from the Chauvet cave some 35,000 years ago through Otto Dix in the twentieth century.

I discussed the history of art by artists perceiving the encoded spirit of art manifested in the essence of liberation and originality passed from generation to generation of artists.

In drawing artists from the mass of slaves required for civilization in the age of agriculture, the artist had the advantage of becoming a petty functionary with a significantly improved life over peasant farm slaves, quarry workers or soldiers. Philosophers—high level pedants of the warrior class—debated aesthetics while artists were, at best, lowly craftsmen. Indeed, they were petty functionaries manifestly providing symbols of immortality to the right to rule of the warrior class.

The spirit of original art remained wholly encoded throughout the European history of art by artists. For reasons that I discussed in *Art Beyond War*, that spirit became manifest as defiance in the Renaissance. I chose Donatello's Mary Magdalene as the beginning of modernism. In the case of the Italian Renaissance, the defiance was supported by the assumption to power of the upstart middle class of merchants and merchant bankers. However, until the Enlightenment evolved an independent middle class of artists

centered in France in the 19<sup>th</sup> century, artists remained petty functionaries throughout the world.

Of course as the middle class grew, so too would the natural pool of artists born into it. Simultaneously, an open market for art grew, that would become the symbol of middle class evolution.

In 1874, a group of artists challenged the then existing market in France for an independent statement for art itself. Arguably freed from the petty function of mimesis by the photograph, as well as by artists having moderate financial independence, the spirit of original art was once again liberated from the preconceptions of the market.

These artists broke civilization's long-standing relationship with artists as petty functionaries.

Art would now evolve openly and rapidly.

I have separated this new open modernism in art into four parts that may also inform cultural history:

1874 to 1900:	<b>assertion</b>
1900 to 1914:	<b>radical assertion</b>
1914 to 1962:	<b>defiance</b>
1962 to present:	<b>resignation stated as defiance</b>

What had been encoded artist-to-artist for 5,000 years, now would assert itself as the actual subject of art in the following period of radical assertion.

In art, 'revolutionary' is a marketing term. Art is subject, as is all evolution, to a continuum of overlapping time. This is certainly the case of the period of 'assertion', 1874 to 1900. 1874 is particularly

chosen because it is the year of the highly significant exhibition mounted by the independents whose work had been rejected by the Salon—the marketing system of the time in France.<sup>6</sup>

1900 is an arbitrary demarcation. It is based on the high expectations of the new century. Many of the artists of the *assertion* period lived and worked well into the twentieth century. Of them, three are acclaimed as a point of departure by almost every group involved in the period of *radical assertion*: Cezanne, Van Gogh and Gauguin.

Like their contemporary scientists' search for the essential elements of the universe, artists were searching for the essential elements of original art. Freed from the prescription of mimesis, art could take any number of forms. As in the great experimentation of music between the time of the Renaissance and the sublime counterpoint of Bach, where the elements might contain lyrics or not, so too in the great experiment in the liberation of painting and sculpture, the composition of the abstract elements came to be the narrative of art itself.

The result was a frenzy of experimentation throughout the European world that was brought to America in the Armory Shows of 1913 in New York and Chicago.

Unfortunately, the new art and emerging artists became swallowed by the festering nationalism of Europe. The outbreak of war in 1914 would lead to the respite of 1918 to 1939, while the malignancy of Europe's history built a new generation to replace the lost cannon fodder. A great '31-years war' was underway.

A number of artists would die in the first instalment of the war on both sides, notably, Macke and Marc in German uniform,

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<sup>6</sup> Huyghe, Rene (Preface by). *Impressionism, by the editors of Réalités*. Secaucus, NJ: Chartwell Books, 1973, 7.

Raymond Duchamp-Villon and Apollinaire wearing France's. Others, like Braque, would survive serious wounds. Those who found that they could still make art after facing the absurdity of this new and terrible industrial warfare would form a natural period of resistance. This was the first great test of the ability of the new art to survive.

Resistance that wins is born in *defiance*, and defiance becomes its permanent identity. That which fails ends in resignation. When rebellion and resistance becomes a marketable style, it is *resignation stated as defiance*.

Otto Dix and George Grosz directly addressed resistance.

Confronting *resignation stated as defiance* is the key to solving the enigma of Marcel Duchamp.

Marcel Duchamp was an artist who moved directly from *radical assertion* to *resignation stated as defiance*.

It is impossible to understand how he could be regarded as anything but a failure as an artist. His positions on painting and art itself were necessarily self-fulfilling.<sup>7</sup> Anyone but a fool would realize that to continue would have to be recognized for resignation masquerading as defiance. He finally and rightfully did resign in 1923 to play chess full time.<sup>8</sup>

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<sup>7</sup> Cabanne, Pierre. *Dialogues with Marcel Duchamp*. London: Thames and Hudson, 1971, 67.

<sup>8</sup> Apparently not completely retired, Duchamp created a final piece, "Etant donnés," first exhibited in 1969 at the Philadelphia Museum.

His most biting criticism—the readymades—became co-opted in a statement of reverse irony when they were acquired as museum pieces after being re-created.<sup>9, 10</sup>

Duchamp became cynically revived in the 1960s when it became clear how marketable *resignation stated as defiance* would turn out to be. He died in 1968, resurrected as a market hero.

The marketing of *resignation stated as defiance* continues to dominate the art world. It is a world of self-induced annihilated values bereft of the spirit liberated in 1874.

Duchamp's legacy has been to legitimize the artist's return to petty functionary—a readily replaceable manufacturer—buried deep beneath the layered infrastructure of the culture behemoth.

I was born in the shadow of the Endgame.

I am an artist.

Art is an act of will in accord with a mature conscience.

There can be no resignation.

The artist is witness to existence itself.

Art is the celebration.

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9 Ibid Cabanne, 119. "In 1964 Galleria Schwartz in Milan produces thirteen readymades in series of eight signed and numbered copies."

10 Lowry, Glenn D. Introduction to *MoMA Highlights*. New York: Museum of Modern Art, 2002, 87. "Bicycle Wheel, 1951 (third version after lost original of 1913)." From the Janis Collection.

## NOTES ON THE 2012 COMPANY OF IDEAS FORUM

Jeffrey Rubinoff

October 12, 2011

Presented at the 2012 Company of Ideas Forum

on Art as a Source of Knowledge

at The Jeffrey Rubinoff Sculpture Park

May 19-21<sup>st</sup>, 2012

Natural History is history. What specifically interests me as an artist is the apparent universality of the expression of the spiritual in humans, evidence of individual conscience, and the ordering of aural and visual material.

I perceive the prevalence of these traits as evolutionary in origin. The ability to completely identify with the spirit of the prey is the essence of hunting successfully and ultimately, of survival when the prey is large animals. I refer to this in my 2010 forum paper regarding the art of the late Palaeolithic caves. Individual conscience provides extended skills for co-operation beyond the aggression of a pack. The gene cluster for artists' abilities for aural and visual mimesis, and for the higher ordering of aural and visual mimesis into temporal and spatial counterpoint, provide the hunter and gatherer with critical anticipatory skills. Arguably, the combination of these is among the most important skills that lead to the dominance of humans as the ultimate predators.

For some 2.5 million years, our human ancestors evolved as hunter and gatherers. Modern humans evolved 200,000 years ago. By contrast, agriculture has been practiced only for the last 13,000 years. The skills of hunting and gathering that led to the dominance of humans have clearly had a long genetic history, whereas the age of agriculture applies to cultural evolution. Agriculture led to civilization. To the extent that history applies to the written word, agriculture is culture.

It is interesting to think, given the evidence of the late Palaeolithic caves, that 'survival of the fittest' may not carry the current pejorative meaning of 'social Darwinism'. The best hunters may have had the concentration of genetic characteristics of artists, not warriors. It is true that some of those characteristics are obviously common to both, but as I pointed out in my 2010 forum presentation, there is no evidence of war in the caves of Chauvet, Altamira and Lascaux.

Except for residual Lamarckian dreams, we have come to accept that social evolution in the time limits of the age of agriculture could not significantly alter our Darwinian nature.

In the post-agriculture period that I have postulated, this potentially is no longer true. And it forms a significant argument for not only re-evaluating the institutions of the age of agriculture themselves, but more importantly, to wholly revising and perhaps developing original institutions for the oversight of genetic engineering. These institutions must be rooted in arguments of essential human values.

With the possibilities of genetic engineering of the human genome, there cannot be the disconnect from essential human values that has occurred with advancements of science in the production of weapons of mass destruction. Kaiser Wilhelm clearly set out to place science at the service of the warrior class when the Kaiser Wilhelm Institutes were created separately from the oversight of the universities prior to World War I.

The application of science to advanced weapons has applied these principles since.

As to the release of the nuclear genie, even the present accumulation of weapons grade plutonium, measured in the hundreds of tons, with a half life of 24,000 years, will require a regime of continuous vigilance into the foreseeable future. Moreover, even if weapon production were to cease, nuclear power plants continue to produce significant amounts of this grade of plutonium as a by-product.

With a cursory study, the present limitations placed on major thermo-nuclear arms do not account for thousands of tactical (battlefield) nuclear weapons, many with more destructive power than Hiroshima or Nagasaki. Submarines, typified by the

MRVed missiles of the Trident class—each submarine is capable of destroying nations or multiple nations—are out of sight but cannot remain out of mind.

In the post-agriculture period, not only does the ongoing nuclear issue need to be effectively addressed, but the rapid adaptation by industrial farming to the production of genetically engineered foods speaks to the exigency of the oversight that is necessary. The luxury of post-modernism by the attack on meta-narrative as described by Lyotard has allowed the default of the humanities regarding their responsibilities to the future.

This must no longer be perceived to be tenable.

Re-enforcing the disconnect between the humanities and science and perhaps arguably because of it, the advent of post-modernism in the universities has allowed self-indulgence to be perceived as academic freedom and allowed the humanities to abdicate their responsibility to the meta-narrative of natural history.

Likewise, the completed process by the 1960s of the commodification of art begun in 1918 has rendered art and artists irrelevant to the measure of human values. This includes the perception of art as political capital—a commodification that stills the independent voices of artists even more than the market.

The Jeffrey Rubinoff Sculpture Park is the context of the sculpture. In presenting the insights that have evolved from and with the sculpture as arguments, art becomes embryonic ideas and therefore a source of knowledge beyond self-reference. Art understood as such a source of knowledge becomes essential to the necessary measure of human values in the post-agriculture age.

## EXISTENTIAL REALITIES OF POST AGRICULTURE

by Jeffrey Rubinoff

Presented at the 2012 Company of Ideas Forum

on Art as a Source of Knowledge

May 19-21<sup>st</sup>, 2012 at The Jeffrey Rubinoff Sculpture Park

*“I was born in the shadow of the Endgame.*

*I am an artist.*

*Art is an act of will in accord with a mature conscience.*

*There can be no resignation.*

*The artist is witness to existence itself.*

*Art is the celebration.”<sup>1</sup>*

So ended my 2011 Forum presentation.

This year’s conversation progresses to post-agriculture. As I have stated, my insights do not in any way imply a new ideology or any other prescription. There is no new grand narrative.

*Art is valued by the artist’s unique perception that might provide original perspectives.* This was most certainly the value placed on art as a source of knowledge by the great German philosophers, Baumgarten, Kant, Fichte, Schelling, and above all, Hegel. They in turn influenced the evolution of modern academic art history.<sup>2</sup>

Art is existential to the artist.

This raises the questions:

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1 Rubinoff, Jeffrey. “Through the Lens of the Endgame”, in *Rubinoff on Art: The Collected Writings of Sculptor Jeffrey Rubinoff*, Edited by M.K. Koernig. Hornby Island, BC: The Jeffrey Rubinoff Sculpture Park, 2014, 80.

2 Kultermann, Udo. *Geschichte Der Kunstgeschichte. (History of Art History)* Wien: Econ-Verlag, 1966. Print., 133 (Kant), 155 (Shelling, Hegel), 147 (Baumgarten), 165 (Fichte).

What is art’s relationship to the existential realities of the artist’s time?

What are those existential realities?

What is art’s value if it fails to address those realities?

Institutes and corporations are subject to the standards of plastic conventional morality.

Can art become the fulcrum for the reconciliation of science with history to lever the value of conscience beyond the plasticity of morality?

I perceive three existential realities that characterize post agriculture:

Art. Nuclear deterrence. And transgenic engineering.

I have not included global warming, although it is a major and obvious issue. However, it is only possible as a mass choice and that choice is made with the input of vast amounts of readily available information. As a mass-consciousness choice, the continuance of the production of greenhouse gases will eventually force a mass adaptation to the changed conditions. As such I do not categorize this as an existential reality.

Art is self-contained truth. A work of art is perfection by completeness. This is also how I describe metaphor.

My perception of art is that it is an act of will in accord with a mature conscience. Nuclear deterrence is the abrogation of conscience. Unlike global warming, there is no mass choice. The weapons were developed and deployed secretly, and then those secrets were leaked by stealth to the Soviet Union, who had a

secret development of their own. By 1949, the Soviets exploded their first bomb.<sup>3</sup> Thus both weapons and deterrence were born out of stealth and perfidy.

Here we have the strongest example of the difference between individual conscience and the moldable nature of morality. Individual conscience is repelled by the inherent game strategies of 'mega-death'. On the other hand, our day-to-day survival depends on the exercise of those strategies.

Less predictable players have already entered the arena. It is thus unrealistic to expect that nuclear weapons will be given up in any foreseeable time as deterrence addresses these new circumstances.

Still, it can be argued that there is a moral imperative in maintaining deterrence as the least worst option. Certainly moment-to-moment peace is better than the historical predictability of the exercise of these weapons.

By 'transgenic engineering', I refer to the advent of recombinant DNA and resulting transgenic organisms. *Transgenic* refers to "... an organism containing genetic material into which DNA from an unrelated organism has been introduced."<sup>4</sup> This was realized in the early 1970s, and transgenic engineering is to traditional plant and animal breeding as nuclear weapons are to conventional weapons.

Genetic engineering also involves gene manipulation within species. Although this may revive the issues of eugenics, in the main it involves such things as gene therapy in individual humans. Personalized medicine will doubtlessly be a huge tech-

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3 Badash, Lawrence. *Scientists and the Development of Nuclear Weapons*. Amherst, New York: Humanity Books, 1995, 79.

4 *Shorter Oxford University Dictionary*, 6<sup>th</sup> Edition. Oxford: Oxford University Press, 1993.

nology boom. Transgenic crops have already arrived. Therefore, transgenic modification of the human genome appears to be only a matter of time.

There are obviously no lessons of history for genetic engineering, but it is necessary to understand the brief evolution of nuclear deterrence, and to understand the pitfalls of continuing to allow a similar evolution for transgenic organisms.

Both the reality of art and genetic engineering rely on the continued tenuous working of Nuclear Deterrence and that it does not escalate to its ultimate reality of mutually assured destruction. This depends on rationality prevailing among competitive nations and hegemonies. Stability exists only moment to moment, and the necessity for indefinitely continued rationality among the existing bodies has had no historical precedence.

Therefore nuclear deterrence exists beyond the lessons of history. No major powers have in the past invested so much in the preparation for war and not succeeded in going to war.

History, then, rules against nuclear deterrence.

The corollary to this soul-destroying path is the military-industrial complex<sup>5</sup>. It is important to trace the historical sources:

Akin to, and largely responsible for the sweeping changes in our industrial-military posture, has been the technological revolution during recent decades.

In this revolution, research has become central; it also becomes more formalized, complex and costly. A steadily increasing share is conducted for, by, or at the direction of, the federal government.

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5 See copy of Eisenhower's Farewell Address in Appendix A of this essay.

Today, the solitary inventor, tinkering in his shop, has been overshadowed by task forces of scientists in laboratories and testing fields. In the same fashion, the free university, historically the fountainhead of free ideas and scientific discovery, has experienced a revolution in the conduct of research. Partly because of the huge costs involved, a government contract becomes virtually a substitute for intellectual curiosity. For every old blackboard, there are now hundreds of new electronic computers.

The prospect of domination of the nation's scholars by federal employment, project allocations, and the power of money is ever present and is gravely to be regarded. Yet in holding scientific research and discovery in respect, as we should, we must also be alert to the equal and opposite danger that public policy could itself become the captive of a scientific-technological elite...

In 2011, I spoke of how the Enlightenment had turned on the humanity that it had meant to liberate.

Interestingly, in tracing the descent of the military-industrial complex, we encounter the foundation of academic art history and its antecedent, art as a source of knowledge.

Giorgio Vasari was the first art historian. His book *The Lives of the Most Eminent Painters, Sculptors and Architects* was written in 1550. Living from 1511 to 1574, he was a contemporary of Michelangelo (1475-1564). A painter himself, his book comprises the first written artists' art history.

In a review of Vasari's book, *The Encyclopedia Britannica* states:

...Vasari's work in *Lives* represents the first grandiose example of modern historiography and has proven to be hugely influential. The canon of Italian Renaissance artists

he established in the book endures as the standard to this day. Moreover, the trajectory of art history he presented has formed the conceptual basis for Renaissance scholarship and continues to influence popular perceptions of the history of Western painting...<sup>6</sup>

Exactly 200 years later, philosopher Alexander Gottlieb Baumgarten (1714-1762) published the first edition of his book *Aesthetica* (1750) in the midst of the German Enlightenment or *Aufklärung*.

Peter Hanns Reil in *The German Enlightenment and Rise of Historicism* states:

...By the beginning of the eighteenth century there was an increasing demand for a reassessment of both philosophy and history ... One of the major goals of the reassessment was to evolve a strategy of analysis capable of joining history and philosophy in order to open up new vistas for man's understanding of himself and his milieu. In Germany this movement became dominant with the decline of Wolffian philosophy, beginning about the fourth decade of the eighteenth century.<sup>7</sup>

...[Christian] Wolff strove to apply mathematical and syllogistic logic to all fields of knowledge. For him, mathematics, which he equated with syllogistic reasoning, was the propaedeutic to all understanding ...<sup>8</sup>

6 Encyclopædia Britannica Online. *Giorgio Vasari*. Encyclopædia Britannica Inc., 2012. Web. 27 Apr. 2012.

7 Reil, Peter Hanns. *The German Enlightenment and the Rise of Historicism*. Berkeley and Los Angeles: University of California Press, 1975, 30.

8 *Ibid*, 33.

...Baumgarten sought to compliment traditional Wolffian philosophy by evolving what he called 'sensitive knowledge', the type of knowledge conveyed by art. He invented the word 'aesthetics' to describe this activity. Cognizant of the pitfalls of an aesthetics founded either on universal norms or on pure effect, Baumgarten tried to devise a method of observation which would mediate between positive and empirical modes of apprehension. Instead of obliterating the concrete by divesting it of its qualitative elements—the ultimate goal of [Christian] Wolff's 'universal knowledge' [*mathesis universalis*]—the aesthetic method directed the observer to dwell upon concrete phenomena while attempting, at the same time, to understand them philosophically...<sup>9</sup>

...By the 1760s the Leibnizian idea of perfectability had become one of the central concepts of German aesthetics. In 1755, three years before the second volume of Baumgarten's *Aesthetica* appeared, Moses Mendelssohn had applied the idea of perfectibility to artistic understanding ...Mendelssohn drew a distinction between the perfection of man's physical nature, which is generally complete, and the perfection of his inner nature, which is potential ...

This is background to Kant, Fichte, Schelling, and Hegel.

I have included the work of Peter Hanns Reil, not only for his obvious erudition, but because he is able to translate Baumgarten from Latin into English.

Before I add a few lines from and about Kant, Fichte, Schelling and Hegel, I would like to make something clear.

<sup>9</sup> *Ibid.*, 60-1.

These great philosophers legitimized art by attempting to accommodate their own art perception into their perception of knowledge. One must have art perception—a genetic gift—to address the meaning of art, and the drive to express its importance, not only for oneself but as a gift to knowledge itself.

However, it is critical to understand that aesthetics and academic art history are from the perspective of the viewer and add to viewers' knowledge. I have found that through art I am able to come to the understanding of these philosophers and academic art history, but I cannot, through these philosophers or academic art, arrive at creating it.

As an artist, my understanding of art comes from the innate gift and the experience of witnessing art, by both creating it and directly perceiving the art of others.

Because these philosophers are coming to terms with their own art perception, there are valuable concepts that describe the actions of artists.

In 1790, Kant introduced to academic art history the concepts of freedom and genius and could be said to pave the way to Modernism.

Regarding *Art in General*<sup>10</sup>:

...By right it is only production through freedom i.e. through an act of will that places reason at the basis of its action, that should be termed art...

And further along:

<sup>10</sup> Kant, Emmanuel. *Critique of Judgement*. Oxford: Oxford University Press, 2008, 132

...A product of fine art must be recognized to be art and not nature. Nevertheless the purposiveness in its form must appear just as free from constraint of arbitrary rules as if it were a product of nature...<sup>11</sup>

And under *Fine art is the art of genius*<sup>12</sup>:

...*Genius* is the talent...which gives the rule to art. Since talent, as an innate productive faculty of the artist, belongs itself to nature, we may put it this way: *Genius* is the innate mental aptitude (*ingenium*) through which nature gives the rule to art...<sup>13</sup>

Johann Gottlieb Fichte in *The System of Ethics*, published in 1798, states:

...Unlike the scholar, fine art does not cultivate only the understanding; and unlike the moral teacher of other people, it does not cultivate only the heart. Instead it cultivates the entire unified being. It addresses itself neither to the understanding nor to the heart but to the mind as a whole, in the unity of its powers. It constitutes a third power, composed of the other two...<sup>14</sup>

In 1800, F.W.J. Schelling wrote:

...The fact that all aesthetic production rests upon a conflict of activities can be justifiably inferred already from the testimony of all artists, that they are involuntarily driven to create their works, and that in producing them they merely satisfy an irresistible urge of their own

nature; for if every urge proceeds from a contradiction in such wise that, given the contradiction, free activity becomes involuntary, the artistic urge must proceed from such a feeling of inner contradiction. But since this contradiction sets in motion the whole man with all his forces, it is undoubtedly one which strikes *the ultimate in him*, the root of his whole being (the true in itself). It is as if, in the exceptional man (which artists above all are, in the highest sense of the word), that inalterable identity, on which all existence is founded, had laid aside the veil wherewith it shrouds itself in others, and, just as it is directly affected by things, so also works directly back upon everything. Thus it can only be the contradiction between conscious and unconscious in the free act which sets the artistic urge in motion; just as, conversely, it be given to art alone to pacify our endless striving, and likewise to resolve the final and uttermost contradiction within us. Just as aesthetic production proceeds from the feeling of a seemingly irresolvable contradiction, so it ends likewise, by the testimony of all artists, in the feeling of an infinite harmony... Now every absolute concurrence of two antithetical activities is utterly unaccountable, being a *phenomenon* which although incomprehensible by mere reflection, yet cannot be denied; and art therefore, is the one everlasting revelation which yields that concurrence, and the marvel which, had it existed but once only, would necessarily have convinced us of the absolute reality of that supreme event.<sup>15</sup>

11 *Ibid*, 135.

12 *Ibid*, 136.

13 *Ibid*, 136.

14 Fichte, Johann Gottlieb. *The System of Ethics*, Translation by Daniel Breazeale and Gunter Zoller, Cambridge: Cambridge University Press, 2005, 334.

15 Schelling, Friedrich W. J, Peter Heath, and Michael Vater. *System of Transcendental Idealism (1800)*. Charlottesville: University Press of Virginia, 2001. 222-3.

Hegel's *Lectures on Fine Art* of 1823, 1826, and 1828-9 now comprise two full volumes. These were edited from original manuscripts and transcriptions after Hegel's death in 1831.<sup>16</sup>

The motivation for these lectures is that Hegel is dissatisfied with the art of his time and he seeks to be able to restate art's value:

Sculpture in general comprises the miracle of spirit giving itself an image of itself in something purely material. Spirit so forms this external thing that is present ... in it and recognizes in it the appropriate shape of its own inner life.<sup>17</sup>

About "The Artist" he states:

...This gift and this interest in a specific grasp of the actual world in its real shape, together with a firm retention of what has been seen, is thus the *first* requirement of an artist. On the other hand bound up with the precise knowledge of the external form there must be an equal familiarity with man's inner life, with the passions of his heart, and all the aims of the human soul. To this double knowledge there must be added an acquaintance with the way in which the inner life of the spirit expresses itself in the real world and shines through the externality thereof.

...Yet this not to say that the artist must grasp in a *philosophical* form the true essence of all things which is the general foundation in religion, as well as in philosophy and art. For him philosophy is not necessary, and if

16 T.M. Knox. "Translator's Preface." In *Hegel's Aesthetics, Lectures on Fine Art*. Oxford: Oxford University Press. 2010, vi.

17 Hegel, Georg W. F. and T. M. Knox. G.w.f. Hegel: the Oxford University Press Translations. Electronic Edition. *Hegel's Aesthetics: (Lectures on Fine Art: Volume II)*. Charlottesville, Va: IntelLex Corporation, 2000, 710. [Hegel wrote these lectures between 1823 and 1829.]

he thinks in a philosophical manner he is working at an enterprise which, so far as the form of knowing is concerned is the precise opposite of art. For the task of imagination consists solely in giving us a consciousness of that inner rationality, not in the form of general propositions and ideas, but in concrete configuration and individual reality. What therefore lives and ferments in him, the artist must portray to himself in the forms and appearances whose likeness and shape he has adopted, since he can so subdue them to his purpose that they now on their side too become capable of what is inherently true and expressing it completely.<sup>18</sup>

In the transition from natural philosophy to the concentrated research of modern science, Wilhelm Humboldt selects Fichte to be the first Chair of Philosophy at the founding of the University of Berlin in 1810. Hegel accepts the Chair in 1818, four years after the death of Fichte. Hegel holds that position until his death in 1831.

Thus is born what will become a model for the modern research university, that addresses Humboldt's vision as "...the pinnacle where everything that happens directly for the moral culture of the nation comes together..."<sup>19</sup>

Here we are to have state-supported free pursuit of "the pure idea of science"<sup>20</sup> under the moral constraint of philosophy.

18 *Ibid*, Volume I, 282.

19 von Humboldt, Wilhelm. "On the Internal and External Organization of the Higher Scientific Institutions of Berlin." in *Wilhelm von Humboldt, Werke in fünf Bänden [Works in Five Volumes]*, edited by Andreas Flitner and Klaus Giel, vol. 4: *Schriften zur Politik und zum Bildungswesen [Writings on Politics and Education]*. Darmstadt: Wissenschaftliche Buchgesellschaft, 3rd edition, 1982, 253-65.

20 *Ibid*

Lyotard speaks extensively about this in *The Post Modern Condition: A Report on Knowledge*, originally printed in French in 1979<sup>21</sup>. He attacks Humboldt's concept of science "as subject... by itself."<sup>22</sup>

Lyotard contends that this philosophical position is knowledge for its own sake, and is not in the service of the state as he claims, for the French universities after Napoleon.<sup>23</sup>

However, unlike Lyotard's argument concerning the contemporary state of Humboldt's 'meta-narrative', Humboldt's vision was not sustainable.

According to Claudius Gellert, after the advent of the Second Reich led by Bismarck (U. Of Berlin, 1835) was a period "characterized by an ever increasing orientation of research to military and industrial demands. State expenditure on military research comprised two-thirds of all Imperial expenditure for scientific purposes after 1871..."<sup>24</sup>

The evolution of scientific research was now clear. Supported by the Kaiser Wilhelm Society, the Kaiser Wilhelm Institutes were founded in 1911. Here, scientific research could be directly moulded to the moral dictates of the state and placed directly into the service of war.

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21 Lyotard, Jean-Francois. *The Post Modern Condition: A Report on Knowledge*. S.I.: University of Minnesota Press, 1984, 33-4.

22 *Ibid* 21

23 *Ibid* 23

24 Gellert, Claudius. "German Model of Research and Advanced Education." In *The Research foundations of graduate education : Germany, Britain, France, United States, Japan*, edited by Burton R. Clark. Berkeley: University of California Press, 1993, 10.

The Kaiser Wilhelm Institute of Physics was not advanced enough to contribute to World War I. This was not true for the Institute for Physical Chemistry and Electrochemistry led by Fritz Haber.

In collaboration with industrial giant BASF, chemist Fritz Haber was instrumental in the research and development of the industrial-scale production of ammonia—the Haber-Bosch process—in the early 1900s. Essential in both the manufacture of fertilizer and munitions, this became critical for the German war effort.

In 1911, Haber was named head of the Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry. In his biography of Haber, Dietrich Stoltzenberg clearly states, "There is no question that Fritz Haber was the initiator and organizer of chemical warfare in Germany. He never denied this. Instead even after the war, he continued to defend the use of chemical weapons as a feasible means of warfare."<sup>25</sup>

Haber also had the position of head of the Chemistry Section in the Ministry of War.<sup>26</sup>

Major players were the Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry, BASF, and Bayer in the production of the chemical weapons.

In 1925 BASF, Bayer, Hoescht, and AGFA, among others, merged to become the notorious IG Farben.

This of course is not Haber's story. He allowed the focus on the integration of research, industry, government and war in the 20<sup>th</sup> century. It is the full realization of the military-industrial complex.

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25 Stoltzenberg, Dietrich, *Fritz Haber. Chemist, Nobel Laureate, German, Jew*. Philadelphia, PA: Chemical Heritage Press, 2004, 133.

26 *Ibid*

Under the drive of the military-industrial complex, art as a source of knowledge was simply dismissed in the exigency of war. Yet in the time of the German Enlightenment, and followed by the German Idealists, the best thinkers in the world held the importance of art as a key source of knowledge in the face of bald empiricism. *A priori* knowledge sounds very much like the genetic inheritance of natural history. Darwin's perspective on evolution was yet to come.

In the years 1874 to 1914, in the time of the independent artists periods of what I described at the 2011 Yale Forum as "assertion" and "radical assertion," the artists in their independence once more proclaimed art a source of knowledge. And once again this was dismissed in the absurdity of war.

In the period from 1918 to 1962, the defiant statement of art is in the statement of existence in the face of absurdity; it is the statement of completeness in the face of process. Process is about incompleteness—the missing pieces of lost dreams. The world marched to complete the lost war, the lost souls, lost conscience; so continued the horrible '31-year war'—never to be resolved. Nuclear war led to the endless absurdity of nuclear deterrence.

In 1962, the short history of deterrence almost ended abruptly in all-out nuclear destruction. I described the experience of this in my 2011 presentation. It was followed 13 months later by President Kennedy's assassination.

America chose to escape the mass trauma. In this vacuum of America's lost world, art filled a so-far unrecognized need for meaninglessness. Rampant consumerism thrived. The empty attacks of Duchamp on the witlessness of the museum audience found a niche in filling the shallow needs of America's soul. Apparently the rest of the world was willing to follow.

For 50 years, the art world has been an empty history of craft and anti-craft. Craft is the perception of perfection as faultlessness. It too is the path of process without completion. It is the joy of consumerism—always to be continued. Craft, like science, is truth by analogy. It is a hunger for perfection, always growing by perfection's elusiveness and never to be satisfied.

From time to time, anti-craft pretends to the depth of self-criticism.

It is a void attempting to fill a void.

Addressing the absurdity of deterrence requires a narrative of total rage that is a statement of completion for the artist. This is not a prescriptive narrative; absurdity knows no prescription. It is *Catch-22* in literature, *Dr. Strangelove* in film, and the works of Edward and Nancy Reddin Kienholz in sculpture.

Defiance in the face of absurdity of course does not require this overt narrative. Rage can be manifest in the nature of art itself. This is where I position myself.

Can art become the fulcrum for reconciliation of science with history to lever the value of conscience beyond the plasticity of morality?

We can now begin to answer this question, but first we need to examine the other questions we began with.

The three existential realities of art, nuclear deterrence and transgenic engineering have been identified.

Art's relationship to deterrence is clearly impossible. Deterrence by its nature is the abrogation of conscience. Put simply, art relies,

as all of us do, on the continuation of deterrence, but art cannot speak to it.

Transgenic Engineering is potentially another matter. I will discuss it more thoroughly a little farther on.

The next question from where we began is “What is art’s value if it fails to address those realities?”

As has been described, the present art world, itself rebuilt on soulless venality and the escapism of the 1960s, cannot address any of the three existential realities.

Art then must separate its identity from that art world. This is the artist’s problem if the work is *of* the art world.

The attempt at art that is bound to its audience or identified as process, will never find perfection as completeness. As such, the attempt is actually the essence of entertainment. Entertainment at its best is craft, certainly not art.

Art’s value is in its self-contained truth. It is perfection defined as completion. Perfection must be first perceived by the artist as his own audience. This is also true when a narrative is projected beyond the work’s own internal historical narrative.

Perfection is the spiritual essence of art. This level of perfection has historically been attributed to only God. The artist would be a fool to claim to be God. That is why I have included key arguments of the German idealists and their predecessors to Leibniz.

Darwin and Spencer conceived of the inherited nature of *moral sense*, or in my terminology, ‘conscience’. So too we may add spiritual sense and art perception as products of natural history. Certainly these are human qualities evidenced in every culture.

Inherited traits are likely clusters of genes, so that the variations that are necessary to assure propagation under the conditions of natural selection are inherently present. That is, these traits exist on a continuum within their own identities and therefore among individuals.

What we are witness to, is that these philosophers, who have centered their spiritual being on the supreme Christian god, remarkably struggle and make room for their art perception in the realm of spirituality.

What I find so interesting is that a sculptor on Hornby Island 200 years later, without any connection to these ultra-rational German thinkers other than art perception, has arrived at the same spiritual coding for art. I have experienced this with artists of the past in the coding for original art. And I have been intellectually aware of these philosophers, but it is only recently that I have taken an interest in their perspective on art.

If we regard spiritual sense as an identity with God or gods, we will rapidly broach the theological differences that readily lead to divisiveness and war.

Original art is not only unique in itself, but it is unique in that it has deep connections to the evolution of humans concerning the spiritual, without the baggage of theology.

For deterrence to work, theological decisions must be banished from the decision-making process. Arguments about God are rational only within their own framework. For deterrence to work, it must maintain an agreed rational framework independent of God or gods.

For reasons already stated, art cannot approach the reality of deterrence.

It is a critical purpose of this paper to restore art as a credible source of knowledge. We have seen that in the time of the German Enlightenment and through the time of the German Idealists, art and science were at one with philosophy as sources of knowledge.

This has been lost with the separation of science and its exploitation by industry and in the service of war. Transgenic engineering is far too close to deciding the future of human values. This is easily made a false statement should nuclear deterrence fail. For should it fail, massive destruction and nuclear winter will surely be the measure of humanity's fate.

But should deterrence continue to hold with even an increasingly remote chance of full nuclear disarmament—then we have to turn our attention to Transgenic engineering.

As we have seen in the creationist arguments and those about stem cell research in the United States, theology holds little weight in the drive for genetic technology. If the technology is limited by one state, institution or individual, it will simply continue by another. Theological arguments become red herrings, obscuring scientific issues and further driving the research from the public purview.

Art with its unique characteristics and its unique history as a source of knowledge may have something critical to offer.

When we look at evolution as history, the history that we share is many orders of magnitude larger than the histories that divide us. Transgenic engineering is not about creating hybrids. It is about humanly-manufactured creatures that can procreate. The division between non-transgenic and transgenic will grow significantly and rapidly compared to the long history of natural selection. What values will be considered human? What values will disappear?

It is my obligation and that of the sculpture park to pass the values of art inherent in the sculpture to future generations. This is an obligation that I recognize in my ability to create original art. My debt is to the history of art and to future artists. This requires an obligation to history itself, as these values are an inheritance of nature.

Clearly there is a need for an influential dialogue concerning essential human values involving the scientists who are leading this field. Experience has shown that it will be necessary to begin with those who have art perception.

Art not only represents perfection, but strength of conscience and the spirit. Those who share these values will need to defend them if they are not to become unrecognizable. Art as a source of knowledge may have been ignored, but it has not yet been lost.

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## Appendix A of Existential Realities of Post Agriculture

*Military-Industrial Complex Speech, Dwight D. Eisenhower, 1961*

My fellow Americans:

Three days from now, after half a century in the service of our country, I shall lay down the responsibilities of office as, in traditional and solemn ceremony, the authority of the Presidency is vested in my successor.

This evening I come to you with a message of leave-taking and farewell, and to share a few final thoughts with you, my countrymen.

Like every other citizen, I wish the new president, and all who will labour with him, Godspeed. I pray that the coming years will be blessed with peace and prosperity for all.

Our people expect their President and the Congress to find essential agreement on issues of great moment, the wise resolution of which will better shape the future of the Nation.

My own relations with the Congress, which began on a remote and tenuous basis when, long ago, a member of the Senate appointed me to West Point, have since ranged to the intimate during the war and immediate postwar period, and, finally, to the mutually interdependent during these past eight years.

In this final relationship, the Congress and the Administration have, on most vital issues, cooperated well, to serve the national good rather than mere partisanship, and so have assured that the business of the Nation should go forward. So, my official relationship with the Congress ends in a feeling, on my part, of gratitude that we have been able to do so much together.

## II.

We now stand ten years past the midpoint of a century that has witnessed four major wars among great nations. Three of these involved our own country. Despite these holocausts America is today the strongest, the most influential and most productive nation in the world. Understandably proud of this pre-eminence, we yet realize that America's leadership and prestige depend, not merely upon our unmatched material progress, riches and military strength, but on how we use our power in the interests of world peace and human betterment.

## III.

Throughout America's adventure in free government, our basic purposes have been to keep the peace; to foster progress in human achievement, and to enhance liberty, dignity and integrity among people and among nations. To strive for less would be unworthy of a free and religious people. Any failure traceable to arrogance, or our lack of comprehension or readiness to sacrifice would inflict upon us grievous hurt both at home and abroad.

Progress toward these noble goals is persistently threatened by the conflict now engulfing the world. It commands our whole attention, absorbs our very beings. We face a hostile ideology—global in scope, atheistic in character, ruthless in purpose, and insidious in method. Unhappily the danger it poses promises to be of indefinite duration. To meet it successfully, there is called

for, not so much the emotional and transitory sacrifices of crisis, but rather those which enable us to carry forward steadily, surely, and without complaint the burdens of a prolonged and complex struggle—with liberty the stake. Only thus shall we remain, despite every provocation, on our chartered course toward permanent peace and human betterment.

Crises there will continue to be. In meeting them, whether foreign or domestic, great or small, there is a recurring temptation to feel that some spectacular and costly action could become the miraculous solution to all current difficulties. A huge increase in newer elements of our defense; development of unrealistic programs to cure every ill in agriculture; a dramatic expansion in basic and applied research—these and many other possibilities, each possibly promising in itself, may be suggested as the only way to the road we wish to travel.

But each proposal must be weighed in the light of a broader consideration: the need to maintain balance in and among national programs—balance between the private and the public economy, balance between cost and hoped for advantage—balance between the clearly necessary and the comfortably desirable; balance between our essential requirements as a nation and the duties imposed by the nation upon the individual; balance between actions of the moment and the national welfare of the future. Good judgment seeks balance and progress; lack of it eventually finds imbalance and frustration.

The record of many decades stands as proof that our people and their government have, in the main, understood these truths and have responded to them well, in the face of stress and threat. But threats, new in kind or degree, constantly arise. I mention two only.

## IV.

A vital element in keeping the peace is our military establishment. Our arms must be mighty, ready for instant action, so that no potential aggressor may be tempted to risk his own destruction.

Our military organization today bears little relation to that known by any of my predecessors in peacetime, or indeed by the fighting men of World War II or Korea.

Until the latest of our world conflicts, the United States had no armaments industry. American makers of plowshares could, with time and as required, make swords as well. But now we can no longer risk emergency improvisation of national defense; we have been compelled to create a permanent armaments industry of vast proportions. Added to this, three and a half million men and women are directly engaged in the defense establishment. We annually spend on military security more than the net income of all United States corporations.

This conjunction of an immense military establishment and a large arms industry is new in the American experience. The total influence—economic, political, even spiritual—is felt in every city, every State house, every office of the Federal government. We recognize the imperative need for this development. Yet we must not fail to comprehend its grave implications. Our toil, resources and livelihood are all involved; so is the very structure of our society.

In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist.

We must never let the weight of this combination endanger our liberties or democratic processes. We should take nothing for granted. Only an alert and knowledgeable citizenry can compel

the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals, so that security and liberty may prosper together.

Akin to, and largely responsible for the sweeping changes in our industrial-military posture, has been the technological revolution during recent decades.

In this revolution, research has become central; it also becomes more formalized, complex, and costly. A steadily increasing share is conducted for, by, or at the direction of, the Federal government.

Today, the solitary inventor, tinkering in his shop, has been overshadowed by task forces of scientists in laboratories and testing fields. In the same fashion, the free university, historically the fountainhead of free ideas and scientific discovery, has experienced a revolution in the conduct of research. Partly because of the huge costs involved, a government contract becomes virtually a substitute for intellectual curiosity. For every old blackboard there are now hundreds of new electronic computers.

The prospect of domination of the nation's scholars by Federal employment, project allocations, and the power of money is ever present and is gravely to be regarded. Yet, in holding scientific research and discovery in respect, as we should, we must also be alert to the equal and opposite danger that public policy could itself become the captive of a scientific-technological elite.

It is the task of statesmanship to mold, to balance, and to integrate these and other forces, new and old, within the principles of our democratic system—ever aiming toward the supreme goals of our free society.

V.

Another factor in maintaining balance involves the element of time. As we peer into society's future, we—you and I, and our government—must avoid the impulse to live only for today, plundering, for our own ease and convenience, the precious resources of tomorrow. We cannot mortgage the material assets of our grandchildren without risking the loss also of their political and spiritual heritage. We want democracy to survive for all generations to come, not to become the insolvent phantom of tomorrow.

#### VI.

Down the long lane of the history yet to be written America knows that this world of ours, ever growing smaller, must avoid becoming a community of dreadful fear and hate, and be instead, a proud confederation of mutual trust and respect.

Such a confederation must be one of equals. The weakest must come to the conference table with the same confidence as do we, protected as we are by our moral, economic, and military strength. That table, though scarred by many past frustrations, cannot be abandoned for the certain agony of the battlefield.

Disarmament, with mutual honor and confidence, is a continuing imperative. Together we must learn how to compose differences, not with arms, but with intellect and decent purpose. Because this need is so sharp and apparent I confess that I lay down my official responsibilities in this field with a definite sense of disappointment. As one who has witnessed the horror and the lingering sadness of war—as one who knows that another war could utterly destroy this civilization which has been so slowly and painfully built over thousands of years—I wish I could say tonight that a lasting peace is in sight.

Happily, I can say that war has been avoided. Steady progress toward our ultimate goal has been made. But, so much remains to

be done. As a private citizen, I shall never cease to do what little I can to help the world advance along that road.

#### VII.

So—in this my last good night to you as your President—I thank you for the many opportunities you have given me for public service in war and peace. I trust that in that service you find some things worthy; as for the rest of it, I know you will find ways to improve performance in the future.

You and I—my fellow citizens—need to be strong in our faith that all nations, under God, will reach the goal of peace with justice. May we be ever unswerving in devotion to principle, confident but humble with power, diligent in pursuit of the Nation's great goals.

To all the peoples of the world, I once more give expression to America's prayerful and continuing aspiration:

**Source:** Public Papers of the Presidents, Dwight D. Eisenhower, 1960, p. 1035-1040

## Appendix B of Existential Realities of Post Agriculture

### *Humboldt University of Berlin Associates and Nobel Prize Winners*

Theodore Dyke Acland, surgeon and physician

Alexander Altmann (1906–1987),  
rabbi and scholar of Jewish philosophy and mysticism

Gerhard Anschütz (1908- ). leading jurist and “father of  
the constitution” of the Bundesland Hesse

Michelle Bachelet (1951- ), pediatrician and epidemiologist,  
President of the Republic of Chile

Azmi Bishara (1956- ), Arab-Israeli politician

Bruno Bauer (1809–1882), theologian, Bible critic and philoso-  
pher

Jurek Becker (1937–1997), writer (Jakob the Liar)

Olaf Simon (1929-), writer (Law of the fist), martial artist

Eliezer Berkovits (1908-1992), rabbi, philosopher and theologian

Otto von Bismarck (1815–1898), first German chancellor

Dietrich Bonhoeffer (1906–1945),  
theologian and resistance fighter

Max Born (1882–1970),  
physicist, Nobel Prize for physics in 1954

Michael C. Burda, macroeconomist

George C. Butte (1877-1940), American jurist

Ernst Cassirer (1874–1945), philosopher

Adelbert von Chamisso (1781–1838), natural scientist and writer

Wilhelm Dilthey (1833–1911), philosopher

W. E. B. Du Bois (1868–1963),  
African-American activist and scholar

Paul Ehrlich (1854–1915),  
physician, Nobel Prize for medicine in 1908

Albert Einstein (1879–1955),  
physicist, Nobel Prize for physics in 1921

Friedrich Engels (1820–1895), journalist and philosopher

Ludwig Andreas Feuerbach (1804–1872), philosopher

Johann Gottlieb Fichte (1762–1814),  
philosopher, rector of the university (1810-1812)

Hermann Emil Fischer (1852–1919), founder of modern  
biochemistry, Nobel Prize in chemistry in 1902

Werner Forbmann (1904–1979),  
physician, Nobel Prize for medicine in 1956

James Franck (1882–1964), physicist, Nobel Prize for physics in  
1925

Ernst Gehrcke (1878–1960), experimental physicist

Jacob Grimm (1785–1863), linguist and literary critic

Wilhelm Grimm (1786–1859), linguist and literary critic

Fritz Haber (1868–1934),  
chemist, Nobel Prize for chemistry in 1918

Otto Hahn (1879–1968),  
chemist, Nobel Prize for chemistry in 1944

Sir William Reginald Halliday (1886–1966), Principal of King’s  
College London (1928–1952)

Robert Havemann (1910–1982), chemist, co-founder of  
European Union, and leading GDR dissident

Georg Wilhelm Friedrich Hegel (1770–1831), philosopher  
Heinrich Heine (1797–1856), writer and poet  
Werner Heisenberg (1901–1976),  
physicist, Nobel Prize for physics in 1932  
Hermann von Helmholtz (1821–1894), physician and physicist  
Gustav Hertz (1887–1975),  
physicist, Nobel Prize for physics in 1925  
Heinrich Hertz (1857–1894), physicist  
Abraham Joshua Heschel (1907–1972), rabbi, philosopher, and  
theologian  
Jacobus Henricus van 't Hoff (1852–1911),  
chemist, Nobel Prize for chemistry in 1901  
Max Huber (1874–1960), international lawyer and diplomat  
Christoph Wilhelm Hufeland (1762–1836),  
founder of macrobiotics  
Wilhelm von Humboldt (1767–1835),  
politician, linguist, and founder of the university  
Alexander von Humboldt (1769–1859), natural scientist  
Jane Ising (1902- ), economics  
Hermann Kasack (1896–1966), writer  
Gustav Kirchhoff (1824–1887), physicist  
Robert Koch (1843–1910),  
physician, Nobel Prize for medicine in 1905  
Albrecht Kossel (1853–1927),  
physician, Nobel Prize for medicine in 1910  
Arnold von Lasaulx (1839–1886), mineralogist and petrographer

Max von Laue (1879–1960),  
physicist, Nobel Prize for physics in 1914  
Wassily Leontief (1905–1999),  
economist, Nobel Prize for economics in 1973  
Karl Liebknecht (1871–1919),  
socialist politician and revolutionary  
Friedrich Loeffler (1852–1915), bacteriologist  
Herbert Marcuse (1898–1979), philosopher  
Karl Marx (1818–1883), philosopher  
Ernst Mayr (1904–2005), biologist  
Lise Meitner (1878–1968),  
physicist, Enrico Fermi Award in 1966  
Felix Mendelssohn Bartholdy (1809–1847), composer  
Theodor Mommsen (1817–1903),  
historian, Nobel Prize for literature in 1902  
Edmund Montgomery (1835-1911),  
philosopher, scientist, physician  
Max Planck (1858–1947),  
physicist, Nobel Prize for physics in 1918  
Leopold von Ranke (1795–1886), historian  
Robert Remak (1815–1865), cell biologist  
Friedrich Wilhelm Joseph von Schelling (1775–1854),  
philosopher  
Friedrich Daniel Ernst Schleiermacher (1768–1834),  
philosopher  
Bernhard Schlink (1944- ), writer, *Der Vorleser* (The Reader)  
Carl Schmitt (1888-1985),  
German jurist, political theorist, and professor of law

Menachem Mendel Schneerson (1902–1994),  
rabbi, philosopher, and theologian

Arthur Schopenhauer (1788–1860), philosopher

Erwin Schrödinger (1887–1961),  
physicist, Nobel Prize for physics in 1933

Georg Simmel (1858–1918), philosopher and sociologist

Joseph B. Soloveitchik (1903–1993),  
rabbi, philosopher, and theologian

Herman Smith-Johannsen (1875-1987), sportsman who  
introduced cross-country skiing to North America

Werner Sombart (1863–1941),  
philosopher, sociologist and economist

Hans Spemann (1869–1941),  
biologist, Nobel Prize for biology in 1935

Max Stirner (1806–1856), philosopher

Gustav Tornier (1859–1938), paleontologist and zoologist

Kurt Tucholsky (1890–1935), writer and journalist

Rudolf Virchow (1821–1902), physician and politician

Alfred Wegener (1880–1930), scientist, geologist, and  
meteorologist, early “Continental Drift” theorist

Karl Weierstraß (1815–1897), mathematician

Wilhelm Heinrich Westphal (1882–1978), physicist

Wilhelm Wien (1864–1928), physicist, Nobel Prize for physics in  
1911

Ulrich von Wilamowitz-Moellendorff (1848–1931), philologist

Richard Willstätter (1872–1942), chemist, Nobel Prize for chem-  
istry in 1915

**40 Nobel Prize Winners are affiliated to Humboldt University:**

1901 Jacobus Henricus van ‘t Hoff (Chemistry)

1901 Emil Adolf von Behring (Physiology or Medicine)

1902 Hermann Emil Fischer (Chemistry)

1902 Theodor Mommsen (Literature)

1905 Adolf von Baeyer (Chemistry)

1905 Robert Koch (Physiology or Medicine)

1907 Albert Abraham Michelson (Physics)

1907 Eduard Buchner (Chemistry)

1908 Paul Ehrlich (Physiology or Medicine)

1909 Karl Ferdinand Braun (Physics)

1910 Otto Wallach (Chemistry)

1910 Albrecht Kossel (Physiology or Medicine)

1910 Paul Heyse (Literature)

1911 Wilhelm Wien (Physics)

1914 Max von Laue (Physics)

1915 Richard Willstätter (Chemistry)

1918 Fritz Haber (Chemistry)

1918 Max Planck (Physics)

1920 Walther Nernst (Chemistry)

1921 Albert Einstein (Physics)

1925 Gustav Ludwig Hertz (Physics)

1925 James Franck (Physics)

1925 Richard Adolf Zsigmondy (Chemistry)

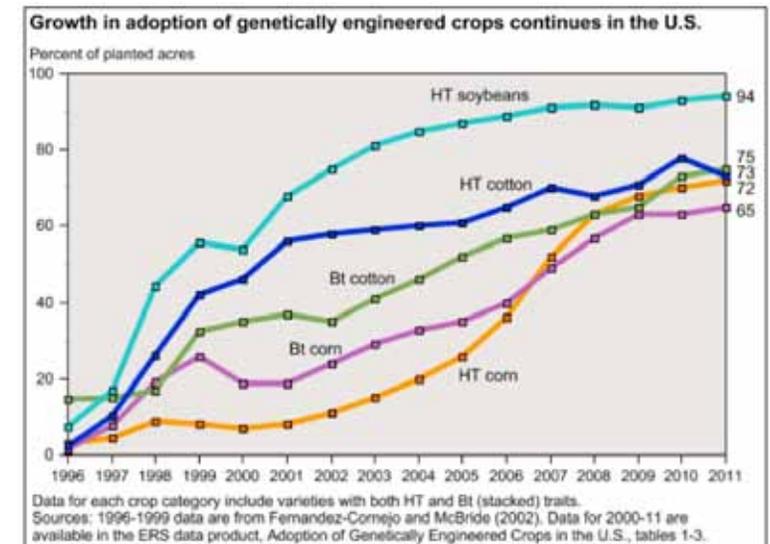
1928 Adolf Otto Reinhold Windaus (Chemistry)

- 1929 Hans von Euler-Chelpin (Chemistry)
- 1931 Otto Heinrich Warburg (Physiology or Medicine)
- 1932 Werner Heisenberg (Physics)
- 1933 Erwin Schrödinger (Physics)
- 1935 Hans Spemann (Physiology or Medicine)
- 1936 Peter Debye (Chemistry)
- 1939 Adolf Butenandt (Chemistry)
- 1944 Otto Hahn (Chemistry)
- 1950 Kurt Alder (Chemistry)
- 1950 Otto Diels (Chemistry)
- 1953 Fritz Albert Lipmann (Physiology or Medicine)
- 1953 Hans Adolf Krebs (Physiology or Medicine)
- 1954 Max Born (Physics)
- 1956 Walther Bothe (Physics)
- 1991 Bert Sakmann (Physiology or Medicine)
- 2007 Gerhard Ertl (Chemistry)

## Appendix C of Existential Realities of Post Agriculture

Statistics related to genetic engineering and nuclear weapons

### *Growth in the Adoption of Genetically Engineered Crops*



Source: <http://www.ers.usda.gov/Data/BiotechCrops/>

Status of World Nuclear Forces



More than a decade and a half after the Cold War ended, the world's combined stockpile of nuclear warheads remain at a very high level: more than 19,000. Of these, some 4,800 warheads are considered operational, of which nearly 2,000 U.S. and Russian warheads are on high alert, ready for use on short notice.

The exact number of nuclear weapons in each country's possession is a closely held national secret. Despite this limitation, however, publicly available information and occasional leaks make it possible to make best estimates about the size and composition of the national nuclear weapon stockpiles:

Country	Operational Strategic	Operational Nonstrategic	Reserve/ Nondeployed	Military Stockpile	Total Inventory
Russia	1,800 <sup>a</sup>	0 <sup>b</sup>	3,700 <sup>c</sup>	5,500	10,000 <sup>d</sup>
United States	1,950 <sup>e</sup>	200 <sup>f</sup>	2,850 <sup>g</sup>	5,000	8,000 <sup>h</sup>
France	290	n.a.	?	300	300
China	0 <sup>i</sup>	?	180	240	240 <sup>j</sup>
United Kingdom	160 <sup>k</sup>	n.a.	65	225	225 <sup>k</sup>
Israel	0	n.a.	80	80	80 <sup>l</sup>
Pakistan	0	n.a.	90-110	90-110	90-110 <sup>m</sup>
India	0	n.a.	80-100	80-100	80-100 <sup>n</sup>
North Korea	0	n.a.	<10	<10	<10 <sup>o</sup>
<b>Total:<sup>p</sup></b>	<b>~4,200</b>	<b>~200</b>	<b>~7,000</b>	<b>~11,500</b>	<b>~19,000</b>

\* All numbers are estimates and further described in the Nuclear Notebook in the Bulletin of the Atomic Scientists, and the nuclear appendix in the SIPRI Yearbook. Additional reports are published on the FAS Strategic Security Blog. Unlike those publications, this table is updated continuously as new information becomes available. Current update: May 7, 2012.

- a. This number is higher than the aggregate data under the New START treaty because this table also counts bomber weapons at bomber bases as deployed. Detailed overview of Russian forces is here.
- b. Of Russia's total inventory of an estimated 3,000-5,000 nonstrategic warheads (down from 15,000-21,700 in 1991), only 2,000 are thought to be assigned to military forces, with the rest awaiting dismantlement. All are declared to be in central storage.
- c. Includes all non-strategic warheads, strategic warheads assigned to delivery systems in overhaul, and most bomber weapons.
- d. In addition to the 5,500 in the military stockpile, 4,500 retired warheads are estimated to be awaiting dismantlement. Details are scarce, but we estimate that Russia is dismantling approximately 1,000 retired warheads per year.
- e. This number is higher than the aggregate data released under the New START data because this table also counts bomber weapons on bomber bases as deployed. See here for analysis of aggregate data.
- f. Some 160-200 B61 bombs are deployed in Europe at six bases in five countries (Belgium, Germany, Italy, Netherlands and Turkey). For details, see here.
- g. Non-deployed reserve includes an estimated 2,290 strategic and 560 non-strategic warheads in central storage. Some 260 non-strategic warheads for the Tomahawk land-attack cruise missile (TLAM/N) are being retired.

- h. In addition to the nearly 5,000 warheads in the military stockpile, approximately 3,500 retired warheads are awaiting dismantlement. In addition, nearly 14,000 plutonium cores (pits) and some 5,000 Canned Assemblies (secondaries) are in storage.
- i. France has stated that it has no reserve, but it probably has a small inventory of spare warheads. For an updated overview of the French nuclear posture, see pp. 27-33 of this report.
- j. Chinese warheads are not thought to be operational but in storage. Many “strategic” warheads are for regional use. The status of a Chinese non-strategic nuclear arsenal is uncertain. Additional warheads are in storage from retirement or new production, for a total stockpile of approximately 240 warheads. Detailed overview of Chinese forces is here.
- k. Only 50 missiles are left, for a maximum of 150 warheads. “Less than 160” warheads are said to be “operationally available,” but only one submarine with “up to 48 warheads” is on patrol at any given time. The number of “operational missiles” on each sub will be reduced to “no more than eight” with 40 warheads in the next few years. By the mid-2020s, the stockpile will be reduced to “not more than 180.” Detailed overview of British forces is here.
- l. Although Israel has produced enough plutonium for 100-200 warheads, the number of delivery platforms and estimates made by the U.S. intelligence community suggest that the stockpile might include approximately 80 warheads. Detailed overview of Israeli forces is here.
- m. The U.S. intelligence community estimates that Pakistan has produced 90-110 warheads. None of these are thought to be deployed but kept in central storage, most in the southern

parts of the country. More warheads are in production. Detailed overview here.

- n. Indian nuclear warheads are not deployed but in central storage. More warheads are in production. Detailed overview of Indian forces is here.
- o. Despite two North Korean nuclear tests, there is no publicly available evidence that North Korea has operationalized its nuclear weapons capability. A 2009 world survey by the U.S. Air Force National Air and Space Intelligence Center (NASIC) does not credit any of North Korea’s ballistic missiles with nuclear capability.
- p. Numbers may not add up due to rounding and uncertainty about the operational status of the four lesser nuclear weapons states and the uncertainty about the size of the total inventories of three of the five initial nuclear powers.

Source: <http://www.fas.org/programs/ssp/nukes/nuclear-weapons/nukestatus.html>

