In Chicago, Leonardo the Inventor and Decoder

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CHICAGO, May 24 — There are no albinos with red eyes and bleeding thighs stalking the galleries of the Museum of Science and Industry here. There are also no dead curators sprawled naked on the floor with pentagrams drawn on their chests in blood and scrambled Fibonacci series scrawled at their sides. But there is a "cryptex" on display: perhaps the only one ever constructed. It is a prop from the leaden movie of Dan Brown's best-selling roller-coaster ride "The Da Vinci Code": spell the right word on its dials (if you could only get at them), and the Holy Grail is yours.

That object and a few panels of wall text are the only things in "Leonardo da Vinci: Man, Inventor, Genius" that tap into the worldwide cultic response to Mr. Brown's novel. The association and timing, though, couldn't have hurt this unusual exhibition's appeal.

But this is no deferential act of exploitation: the wall texts point out that despite Mr. Brown's assertion, Leonardo did not invent anything like the book's cryptex. With less conclusiveness, the exhibition also debunks the book's interpretations of Leonardo's "Last Supper" and "Mona Lisa": no church conspiracies here about which keepers of the Grail send coded messages to one another over the millenniums.

This show is almost the inverse of the world of "The Da Vinci Code." A code implies something secret, available only to the initiate, a hidden world in which nothing is what it seems. Focusing on the machines and inventions sketched out in Leonardo's notebooks, the exhibition shows his almost ecstatic efforts to discern and disclose the world's workings and to master its principles, leaving nothing about them secret and hidden. This is a display of decodings.

Pull away the veil of flesh — as Leonardo often did in his dissections of human and animal corpses — and you see his vision of divinity made manifest. Muscle and bone and joint are nature's versions of gears and pulleys and levers. And Leonardo, with the pride of a secondary deity, never ceased combining and recombining these elemental ingredients into machines that still astonish in their simplicity and power. These are the rudimentary skeletons of his introspective Madonnas.
Some of his machines were built in his time, including a robotic knight that supposedly
moved its arms and head according to the twists and turns of an inner mechanism. Others
were imagined but never fully executed: a flying ship whose sails turn in the air like screws;
enormous wings based on the anatomical structures of bats and birds that might give
humans the gift of flight. Some clearly were implausible: who could easily walk on water
using large floats on the bottoms of shoes and other floats pegged to the bottom of ski
poles? That kind of feat would be better left to a practitioner of different sorts of miracles.

Still other machines were proposals for weaponry, including a circular tank moved by eight
men who would shoot cannons while maneuvering the turtle-shelled apparatus with a
series of cranks and gears.

Some of the Italian-made working models in the first section of the show — all based on
drawings from the notebooks — are meant to be observed; others are meant to be played
with. They should all have been made available to touch. It would also have helped to know
precisely when Leonardo was creating from scratch, when he was replicating something
familiar and what he did to improve on what others had already done.

But watch: A mechanical hammer slams down as a handle is turned. An arched bridge is
constructed for traveling armies out of rope and easily found logs. A pipe spiraling around a
turning cylinder becomes an Archimedes' screw, lifting water upward through its rotations.

You can see Leonardo's attempt to formulate a kind of mechanical vocabulary. He wasn't
seeking abstract, universal laws, the way Newton later did. He was disclosing concrete
architectural and mechanical elements that could be combined into ever more exotic and
sophisticated creations. Here is a simple machine that turns circular motion into vertical
motion; over there is one that turns vertical motion into sideways motion. Many of these
machines and their notebook sources can be seen in a book that could serve as a partial
exhibition catalog, 'Leonardo: Codices and Machines' by Carlo Starnazzi (Cartei and
Bianchi), sold at the museum.

Another room, "Leonardo's Workshop," is more like a play shop for emulators, aspirants
and schoolchildren. The room is dominated by an eight-foot-tall model of a horse's head,
meant to reproduce part of Leonardo's design for a 24-feet high, 80-ton bronze statue
commissioned by the Duke of Milan, Ludovico Sforza.

The bronze was never cast, and this head has a pop crudity to it. But this is the place to
build a 13-foot bridge according to Leonardo's instructions. Or to see the effect produced by
a camera obscura — a tool used by many painters of the time — in which bright, inverted
images are projected on a screen in a darkened room. Or to operate a working
seven-foot-tall catapult, based on Leonardo's designs, that tosses soft red balls at a rival
catapult; both were operated by teams of schoolchildren when I was there.

There is also an enormous touch screen that provides one of the smartest, most elegant
interfaces I have seen for exploring complex material. Created by the company Leonardo3,
the program allows the viewer to page through some of the inventions of the Codex
Atlanticus, an anthology of 40 years of Leonardo's notebooks (from 1478 to 1518). At the
Biblioteca Ambrosiana in Milan, the Codex's 1,750 drawings, bound in 12 volumes, are
annotated by Leonardo's meticulous mirror-image script, but here the machines spring to
life and motion with the touch of a finger. A consumer version of the software is available
on CD-ROM (leonardo3.net).

The last section of the show is meant to be its climax, but what can possibly follow these
inventions? Certainly not "Modern-Day Leonardos," which pays tribute to 40 contemporary
inventors, artists and innovators. However remarkable Laurie Anderson's multimedia
presentations are, however brilliant the inventor Danny Hillis is, however provocative the
works of the mathematician Stephen Wolfram, or useful the techniques for heart surgery
created by Francis Wells (based on Leonardo's anatomical studies), Leonardo's genius casts
an imposing shadow over the assembly. And the decision to include tributes to General
Electric's new wind turbine and an extensive display of Boeing's design for its new 787
seems like pure pandering, placating two of the show's sponsors with reflected prestige.
In this contemporary company the spirit of Leonardo was most clear, perhaps, when a project combined concrete simplicity and wild imagination, like the speculative model of a space elevator designed by the physicist Bradley Edwards, intended to move passengers and supplies along a cable extending 62,000 miles from the equator to an orbiting satellite. You gasp at the daring, wonder at the possibility, just as you do when looking at a 500-year-old drawing imagining human flight or underwater breathing.

When you see Leonardo's artworks, their allure and power can lead you to imagine something grand and mysterious, if not a code, then something dizzying, beyond simple understanding. But here the sensation is the opposite: the surface is stripped away; objects are distilled to their mechanical essences. And you are left in the presence of an extraordinary mind at work, playfully decoding the world.