Brise lame reprenant exactement la forme du rhombicuboctaèdre de la planche 36 du traité de Luca Pacioli *Divina Proportione* publié à Venise en 1509. Photographie : Jean-Claude Zarka, hiver 2006.

Carton d'invitation (Ratiocination, galerie Michel Rein, Paris, 2008) From: ***Cartons d'invitation*** 2007-2010, 2010

THE *RHOMBICUBOCTAHEDRON* AND ITS HIDDEN NOISE

By Didier Semin

Rhombicuboctahedron is not commonly used word. It does not even appear in the nine volumes of the *Robert* dictionary. Heidegger never thought to use it in the hilarious letters he had a habit of sending to his mistresses…letters filled with scholarly terms intended to impress those young women…

So, in every day conversation, yours, or mine… one could easily never come across the term *rhombicuboctahedron*. It would therefore not be a bad idea to provide a definition.

Everyone knows what a cube is. The suffix *edron* as well: it comes from *edra* in Greek, meaning base, side, face. The polyhedron is a form with many faces or sides. An octahedron is thus a type of polyhedron: a polyhedron with eight sides. To put it simply, if you stick two pyramids together *by the base,* you end up with an octahedron.

The *rhombicubo*… I knew I was going to trip up… The *rhombicuboctahedron* is a bit a like a cube grafted onto an octahedron. *Rhombos* in Greek means 'lozenge'… Personally, I can't see why a lozenge should turn up in this story, but it has to do with mathematics so I suppose it's to be expected. I mean, it's to be expected that I don't understand. A mathematician would tell you that the *rhombicuboctahedron* is a *semi-regular polyhedron* with *twenty-six sides, eighteen of which are squares and eight triangles*. But I'm not sure that that makes things any clearer…

Better, in my view, to think of the thing as a kind of rough football that's been stitched together from eighteen square and eight triangular bits of leather, the idea being to make it look as much like a sphere as possible. Already you have a better idea.

As I just said (or rather as I made a mathematician say) a *rhombicuboctahedron* is a *semi-regular* form. Semi-regular, that is to say, not just anything at all – not a Trabant nor one of the Queen of England's hats but not one of the regular solids that feature in Plato's *Top Five* solids either: the tetrahedron, the cube, the octahedron, the icosahedrons or the dodecahedron that the Greek philosopher posits as the image of perfection.

In 340 AD, Pappus of Alexandria attributed the discovery of the *rhombicuboctahedron* to Archimedes, in 200 BC. The theory is that Archimedes described twelve other semi-regular polyhedrons in a work that did not survive. But there's no reason to think that Pappus of Alexandria was leading us up the garden path…

To have been described by Archimedes, to be set alongside the well-known principle – that, ultimately, is pretty much the sole real quality of the *rhombicuboctahedron*. After all, it's never been anything more than one of the countless semi-regular polyhedrons that anyone can build once they've taken the trouble to find out a little bit about them. What's more, it serves no purpose whatsoever. It serves no purpose whatsoever, despite what Luca Pacioli claims. Luca Pacioli, as you know, was a very great mathematician of the Renaissance, the author of the *On the Divine Proportion* in 1509. In that treatise, we read that the *rhombicuboctahedron* is – I quote – 'extremely useful on many occasions for whoever knows how to make good use of it and especially in architecture.' In Pacioli's defense, it needs to be said that he thought he'd discovered the *rhombicuboctahedron*. He knew nothing of Pappus of Alexandria; nor, evidently, of Archimedes's lost treatise. He was very proud of his discovery, which is why a *rhombicuboctahedron* appears in Jacopo de Barbari's portrait of Luca Pacioli that's conserved in the Museum of Naples. More or less everyone is familiar with that portrait from the end of the fifteenth century, or at least with its reproduction. It's very beautiful and very impressive because it gives the impression of being full of secrets. If the author of *The Da Vinci Code* had not written such a down-market book he'd probably have drawn his plot from that painting. When you stand before it provokes endless series of questions. When you're at the age of wondering about the secrets of the universe, you ponder, for example, what fabulous mystery the two solids represented on either side of Luca Pacioli harbors: the dodecahedron on the right, on our right, and especially the *rhombicuboctahedron* on the left, which is made out of glass and is half-filled with a transparent liquid, presumably water. Then, later, when you've past that age, you wonder whether the handsome young man in the background was Luca Pacioli's lover (but that's another story…)

One day, in 2001, Raphaël Zarka came across two *rhombicuboctahedra* that had been abandoned on the side of the road between Sète and Narbonne. They were made out of concrete and were about the size of a little workman's hut. He instantly recognized them as being one of the geometrical forms that he had no doubt come across over the course of his studies at the École des Beaux-Arts, perhaps even in Jacopo de Barbari's painting… although he'd never been especially interested in them. Only the radical strangeness of those unusual constructions – it later emerged that they were actually break-waters built to be deposited along the coastline, with a view to slowing the pace of its erosion – the radical strangeness of those constructions, then, was such that Raphaël Zarka stopped his car, set up his tripod and take from those objects an extremely intriguing print, suggestive of De Chirico's paintings, although the image is in no way a pastiche. A print, a photograph that he would go on to exhibit under the beautiful title of *Forms of Rest*.

Forms of Rest… Rest, although those particular forms were destined to keep Raphaël Zarka very busy. In 2004, that is to say three years after making that crucial discovery on the side of the road between Sète and Narbonne, Zarka begain to make replicas in wood, almost as a way of exorcising the form. But the exorcism was ineffective. Raphaël Zarka decided to undertake a meticulous, rational, exhaustive exploration of the *rhombicuboctahedron*. First he got hold of *On the Divine Proportion* then ten, twenty, a hundred other treatises that deal with *rhombicuboctahedra*. And he began making an inventory of …let's see if I can say it… *rhombicuboctahedric* forms in the world around us. Each day, he'd discover a new specimen (so to speak), a sun-dial for example… There was one on Mont Sainte-Odile in the Vosges region, but then sundials often take the form of a *rhombicuboctahedron*… Or an ordinary street-lamp in a London street. Or a Phillips light bulb… or an antique seal conserved in the very depths of a Chinese province…. Or a decoration on the roof of a seventeenth century pagoda… or a New Age lucky charm sold on the Internet. Or a t-shirt design. There's even such a thing as a Rubik's *rhombicuboctahedron*, which implies a more perverse playing public than one initially would have thought.

His latest discovery is the striking National Library of Minsk, in Byelorussia, or Belarus – I don't know what the correct name for the country to come out of the dismantling of the Soviet Union is. This building, this library in Minsk, opened in 2006, but was first conceived in the 1980s. An enormous glass-windowed *rhombicuboctahedron*, it stands tens of meters off the ground. The architects who dreamt it up had probably been made to read Luca Pacioli at some point or other.

Zarka went to Minsk to test Pacioli's axiom, which maintains that the form – I'm quoting again – is 'extremely useful in many cases for whoever knows know to make good use of it and especially in architecture.'

That axiom is a fiction, naturally. The cut-away faces of the Minsk Library serve no purpose other than a symbolic one. Once inside, the functional construction of the library is actually just a cube, reconstructed. The *rhombicuboctahedron*, with its false air of structures in the style of Buckminster Fuller, is in reality anything but a rational building. The key lies in precisely that 'false air' and its promise of a secret – a promise already present in the *rhombicuboctahedron* that figures in Jacopo de Barbari's painting. And so, in fact, it goes on: if you consult the *Guide du Routard* today, you'll find that there's a rumor going around Minsk that the strange building was actually intended to house the services of the ex-KGB.

So the *rhombicuboctahedron* is neither beautiful, nor practical, nor does it serve any purpose. The sole source of the fascination it exerts is the enigma that its form feigns to conceal.

Man, as we know, is an animal with an appetite for meaning. He finds nothing more appalling than the silence of the universe. And should things or events not have a meaning, there are always cohorts of patented meaning-seekers on hand to reassure the anxious animal. There are those to suit every taste: from great mystics to the extremely exasperating world conspiracy theorists. And clearly the less meaning things have, the more gets attributed to them.

One man understood this phenomenon very well. His name was Marcel Duchamp. Duchamp is probably the most written about artist of the twentieth century.

But what did he produce? Two big compositions, a few paintings, some life-size reproductions of everyday objects, a dolls museum and a jumble of notes…

Those few works – Schwartz's catalogue counts six hundred at the very most – exert an unparalleled fascination by dint of the opaque mystery that surrounds them. Armies of exegetes are currently endeavoring to penetrate the mystery. Some of them – the marvelous, late Jean Suquet among them – devote their lives to it.
And Duchamp's oeuvre amounts to no more than those six hundred objects inventoried in Schwartz's catalogue. Duchamp's oeuvre is the aura that surrounds those six hundred objects that is constituted by those talented decoders of mysteries.

As you know, one of Marcel Duchamp's works is titled *With Hidden Noise*. It's a kind of box made out of two copper plates and a reel of thread that conceals an object – the nature of which was unknown even to Duchamp. He proposed to imagine contradictory hypotheses whereby the object in question would either be a coin or a diamond.

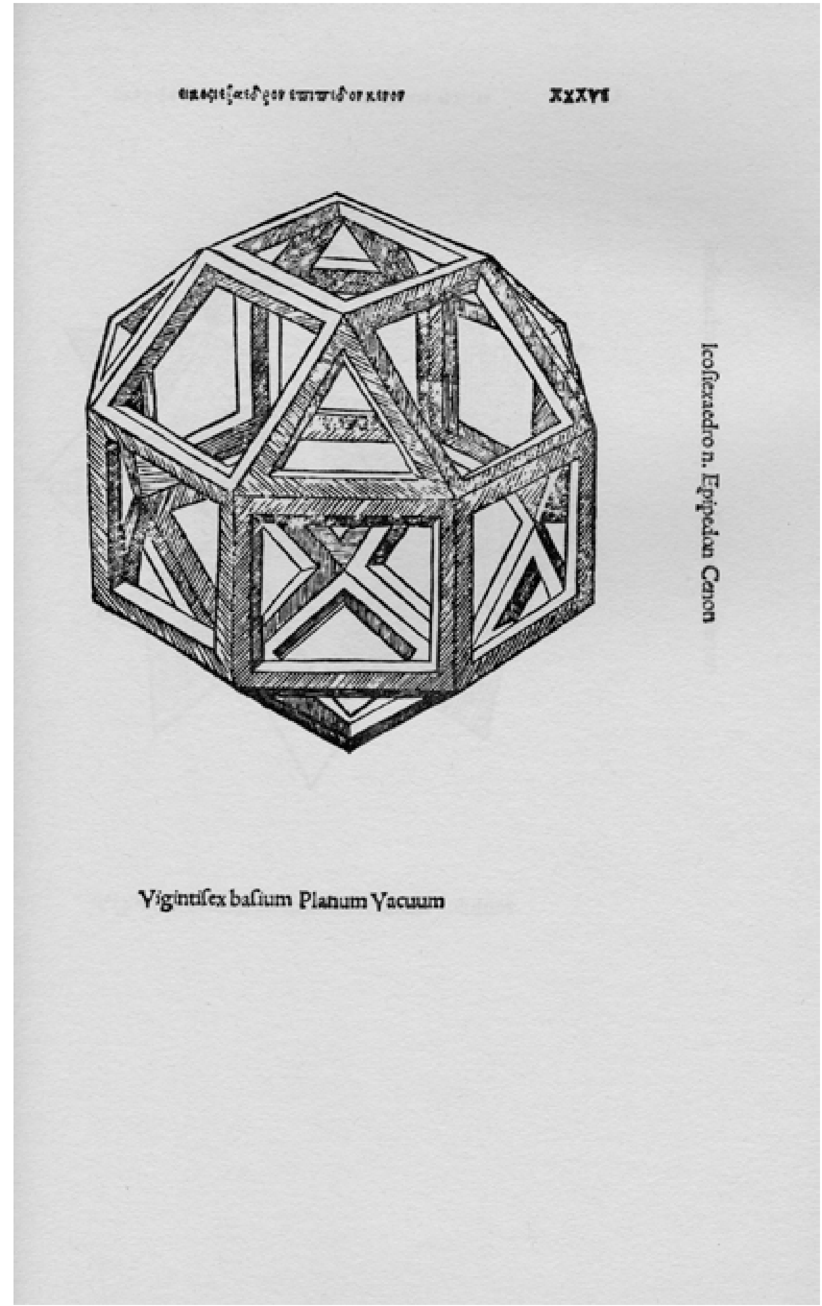
Some things in the world only exist by dint of their 'hidden noise'. The *rhombicuboctahedron* is one of them. What it conceals is nothing, but it conceals nothing so well that we're incapable of tearing our eyes away from the catalogue of *rhombicuboctahedra* that Raphael Zarka is meticulously in the process of putting together.

I'll no doubt be asked: Can you be absolutely sure there's no secret at the heart of the *rhombicuboctahedron*? No, of course not. That's the secret.

August 2009
Translated by Kate Briggs

Raphaël Zarka born in Montpellier, France in 1977, lives and works in Paris. In 2008 he was awarded the Ricard Foundation prize for contemporary art. He is currently undertaking a residency at the Villa Medici, Rome.

Forthcoming solo exhibitions include; *Gibellina*, CAN, Neuchâtel, Switzerland (2011), *Principles of Roman Knowledge*, Pastificio de Cerere, Rome, Italy (2011), *Raphaël Zarka*, Stroom, Den Haag, Netherlands (2011), *Solo show*, BISCHOFF/WEISS (2011). Forthcoming screenings include; *Raphaël Zarka*, TATE Modern, London, England (2011), Vidéo et Aprés, Centre Pompidou, Paris, France (2011). Previous solo exhibitions include; *PERGOLA*, Palais de Tokyo, Paris, France (2010), *Geometry Improved*, Modern Art Oxford, Oxford, England (2009), *Documetary Sculptures*, Motive Gallery, Amsterdam (2009), *Ratiocination*, Galerie Michel Rein, Paris, France (2008), Padova, La Vitrine, Paris, France (2008). Previous group exhibitions include: *Seconde main,* Musée d'Art Moderne de la Ville de Paris, France (2010), Spatial City: *An Architecture of Idealism*, Institute of Visual Arts (Inova), Milwaukee, USA, Museum of Contemporary Art (MOCAD), Detroit, USA (2010), *Diamonds on the soles of her shoes*, BISCHOFF/WEISS, London, England (2010), La Planète des Signes, Le Plateau, Paris (2009), Les Archipels Réinventées, Centre Pompidou, Paris (2008).



Luca Pacioli and Leonardo da Vinci Divine proportion, 1509 From: ***Catalogue Raisonné des Rhombicuboctaèdres***, 2010

Exhibition
14 January - 19 February 2011

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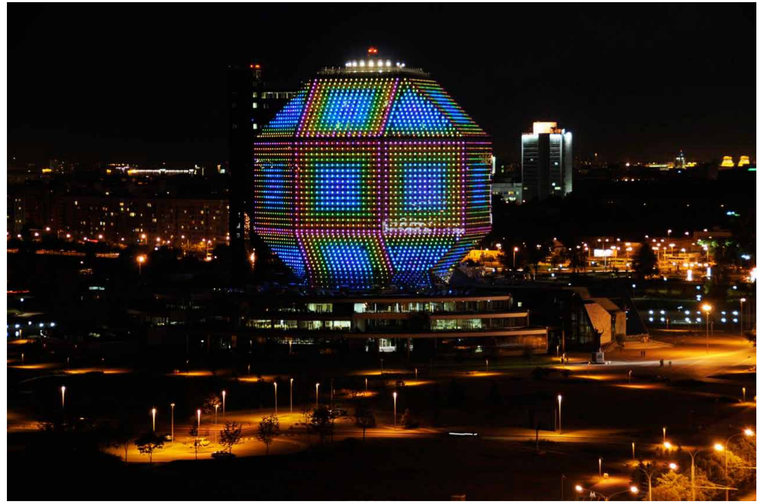
1652 From ***Catalogue Raisonné des Rhombicuboctaèdres***, 2010

Philips, Deco Crystal, 60W From ***Catalogue Raisonné des Rhombicubocta*ȅ*dres***, 2010

Rhombus Sectus, 2009, (Location Shot) Super 16 film, transferred onto HD, 12'



The Library (i) 2009-2010 Lambda Print 42x28 cm. (image) 52x38 cm. edition : 5 + 2AP

Forms of rest n°1, 2001, Lambda print, 72x102cm