Angular Momentum of Switz<mark>er</mark>land

"Reflets Enchanteurs"

Verre Églomisé

Angular Momentum's Art of Reverse Painting on Glass



# Verre Églomisé - Reverse painting on glass

### Reverse painting-on-glass is a uniquely difficult and skillful art.

This reverse painting, as eglomise is known in English, which is done here backwards on the inside of the sapphire crystal, is a unique, rare, and difficult art that is brand-new to the horological scene.

What makes this particular technique so difficult is the sequence of paint application necessary to achieve it successfully. The resulting painting is actually seen in reverse from the front, so the paint must be applied apposite to the intended effect, negativing a great deal of imagination, patience, and skill – most especially when the painting involves an entire palette of colors, as Angular Momentum's certainly sky.



Though it has been handed down that this craft originates either ancient Egypt or China, or possibly both, it developed in central Europe from about the middle of the eighteenth century, most notably in southern Germany and Switzerland, thanks to the availability of the necessary materials. However, it was Angular Momentum's discovery of a new process about a few years ago that opened new doors in combining it with timepieces. This new product gave Angular Momentum the boast needed to get this project off the ground".

Angular Momentum's unique designs begin with a pencil sketch on paper, followed by the transfer of the sketch onto the supphire crystal and the decideally sugge outline of the figure using extremely fine ground natural pigments and oil. The exact details of the figure are filled in by the skilled artisum, who also scratches away the paint already applied using a sharp tool in places where another coloris colled for. After the actual figure is applied to the full ratiglaction of the artisum, any background colors are added.

"Reverse painting on glass can take on three forms, there are silhouette pictures on glass popular from the 1920s to the "50s. Then there are paintings done by artists on the reverse side of sheets of glass and then framed.

These were done primarily in the nineteenth and twentieth centuries, though some are still made today in various countries and in various styles. And then there are those paintings done with a very fine brush on the inside of bottles such as Chinese souff bottles. When the technique is combined with gold or silver leaf on the inside of a glass vessel or the reverse of a medallion, it is known as eiglomisé.

"Angular Momentum's craftsmen have developed a technique of reverse painting on glass to bring beautiful images to the backs of sapphire crystals based on color drawings created by Angular Momentum's artisans or adapted from well-known paintings of the ninetaenth contary."





### The Watches

First eglomise paintings from this area of Europe were from the mid-eighteenth century, therefore it is only fitting that these timeplaces' displays also be of a vintage mature.

Angular Momentum uses as its base a historical "new-old-stock" mehanical hand-winding movement, manufactured in Switzerland hetwaen 1950 and 1970. Angular Momentum also modify this movement to incorporate the patented Revolving-Disk "digital" display à "Succeription".

Augular Momentum has resuscitated on idea similar to the montre à tact by combining it with the resease pointings on the 30 to 38 mm supplies crystals. The momentent is modified to incorporate the display of the hours shown on a scale that moves counterclocknips within its 38.00 to 42.00 mm solid gold or stainless steel case.

It requires a little thinking outside the box to read it, though, as the next hour comes from the left side of the entirough not the right as usual.

It goes without saying that each of these masterpieces is unique thanks to the hand-painted crystals that embellish them and that the watch cases are custom made on demond.

Angular Momentum, creator and manufacturer of bespoke and custom made Artisan Timepieces



## Arabian Horses

Arabian horses are the topic of many myths and legends. One origin story tells how Muhammad chose his foundation mares by a test of their courage and loyalty. While there are several variants on the tale, a common version states that after a long journey through the desert, Muhammad turned his herd of horses loose to race to an oasis for a desperately needed drink of water. Before the herd reached the water, Muhammad called for the horses to return to him.

Only five mares responded. Because they faithfully returned to their master, though desperate with thirst, these mares became his favorites and were called Al Khamsa, meaning, the five. These mares became the legendary founders of the five "strains" of the Arabian horse.

Although the Al Khamsa are generally considered fictional horses of legend, some breeders today claim the modern Bedouin Arabian actually descended from these mares.

Another origin tale claims that King Solomon was given a pure Arabian-type mare named Safanad (,,the pure") by the Queen of Sheba. A different version says that Solomon gave a stallion, Zad el-Raheb or Zad-el-Rakib (,,Gift to the Rider"), to the Banu Azd people when they came to pay tribute to the king. This legendary stallion was said to be faster than the zebra and the gazelle, and every hunt with him was successful, thus when he was put to stud, he became a founding sire of legend.

Yet another creation myth puts the origin of the Arabian in the time of Ishmael, the son of Abraham. In this story, the Angel Jibril (also known as Gabriel) descended from Heaven and awakened Ishmael with a "wind-spout" that whirled toward him. The Angel then commanded the thundercloud to stop scattering dust and rain, and so it gathered itself into a prancing, handsome creature - a horse - that seemed to swallow up the ground. Hence, the Bedouins bestowed the title "Drinker of the Wind" to the first Arabian horse.

Finally, a Bedouin story states that Allah created the Arabian horse from the four winds; spirit from the North, strength from the South, speed from the East, and intelligence from the West. While doing so, he exclaimed, "I create thee, Oh Arabian. To thy forelock, I bind Victory in battle. On thy back, I set a rich spoil and a Treasure in thy loins. I establish thee as one of the Glories of the Earth... I give thee flight without wings.

Other versions of the story claim Allah said to the South Wind: "I want to make a creature out of you. Condense." Then from the material condensed from the wind, he made a kamayt-colored animal (a bay or burnt chestnut) and said: "I call you Horse; I make you Arabian and I give you the chestnut color of the ant; I have hung happiness from the forelock which hangs between your eyes; you shall be the Lord of the other animals.

Men shall follow you wherever you go; you shall be as good for flight as for pursuit; you shall fly without wings; riches shall be on your back and fortune shall come through your meditation.

### **Carmine Red Lake pigment**

derived from the cochineal insect

The cochineal (Dactylopius coccus) is a scale insect in the suborder Sternorrhyncha, from which the crimsoncoloured dye carmine is derived. A primarily sessile parasite native to tropical and subtropical South America and Mexico, this insect lives on cacti from the genus Opuntia, feeding on plant moisture and nutrients.

The insect produces carminic acid that deters predation by other insects. Carminic acid, which occurs as 17-24% of the weight of the dry insects, can be extracted from the insect's body and eggs and mixed with aluminum or calcium salts to make carmine dye (also known as cochineal). Carmine is today primarily used as a food colouring and for cosmetics.

l America in the 15th century for coloring fabrics and became an important export good during the colonial period. After synthetic pigments and dyes such as alizarin were invented in the late 19th century, natural-dye production gradually diminished. Health fears over artificial food additives, however, have renewed the popularity of cochineal dyes, and the increased demand has made cultivation of the insect profitable again, with Peru being the largest exporter.

There are other species in the genus Dactylopius that can be used to produce cochineal extract, but they are extremely difficult to distinguish from D. coccus, even for expert taxonomists, and the latter scientific name (and the vernacular "cochineal insect") is therefore commonly used when one is actually referring to other biological species. The primary biological distinctions between species are minor differences in host plant preferences, in addition to very different geographic distributions.

Cochineal dye was used by the Aztec and Maya peoples of Central and North America. Eleven cities conquered by Moctezuma in the 15th century paid a yearly tribute of 2000 decorated cotton blankets and 40 bags of cochineal dye each.

During the colonial period the production of cochineal (grana fina) grew rapidly. Produced almost exclusively in Oaxaca by indigenous producers, cochineal became Mexico's second most valued export after silver. Soon after the Spanish conquest of the Aztec Empire it began to be exported to Spain, and by the seventeenth century was a commodity traded as far away as India.

The red dyestuff was consumed throughout Europe and was so highly prized that its price was regularly quoted on the London and Amsterdam Commodity Exchanges. In 1777 the French botanist Nicolas-Joseph Thiéry de Menonville, presenting himself as a botanizing physician, smuggled the insects and pads of the Opuntia cactus to Saint Domingue.

This particular insect was not able to propagate, however, and was instead replaced by a different, equivalent one used for dye production. After the Mexican War of Independence in 1810–1821, the Mexican monopoly on cochineal came to an end. Large scale production of cochineal emerged, especially in Guatemala and the Canary Islands; it was also cultivated in Spain and North Africa. The demand for cochineal fell sharply with the appearance on the market of alizarin crimson and many other artificial dyes discovered in Europe in the middle of the 19th century, causing a significant financial shock in Spain as a major industry almost ceased to exist. The delicate manual labour required for the breeding of the insect could not compete with the modern methods of the new industry, and even less so with the lowering of production costs.

The "tuna blood" dye (from the Mexican name for the Opuntia fruit) stopped being used and trade in cochineal almost totally disappeared in the course of the 20th century. The breeding of the cochineal insect has been done mainly for the purposes of maintaining the tradition rather than to satisfy any sort of demand.

It has become commercially valuable again, although most consumers are unaware that the phrases "cochineal extract", "carmine", "crimson lake", "natural red 4", "C.I. 75470", "E120", or even "natural colouring" refer to a dye that is derived from an insect. One reason for its popularity is that many commercial synthetic red dyes were found to be carcinogenic. The dye can, however, induce an anaphylactic shock reaction in rare cases.

Angular Momentum's **"Camaieu Rouge"** miniature paintings are monochromatically executed in organic carmine red lake pigments, natural Ivory black and gold leaf









# **Pocket Watches**

A pocket watch (or pocketwatch) is a watch that is made to be carried in a pocket, as opposed to a wristwatch, which is strapped to the wrist. They were the most common type of watch from their development in the 16th century until wristwatches became popular after 1950 during which a transitional design, trench watches, were used by the military.

During the 19th century, Europe, in particular Switzerland, exported thousands of a type of special watches into Imperial China. Brands such as Piquet et Meylan, Ilbury, Juvet Fleurier, Dimier, Vrard, Tardy et Fils, Borel-Courvoisier, and Jaques Ullmann were particularly successful and had made a big fortune. Many of these special watches were in very ornate gold and enamel cases, many of them decorated with pearls, while most have fancily engraved skeletonized movements. Since the Chinese costumes during the 19th century neither have a vest nor pockets suitable for the pocket watches, pocket watches were usually put inside a spotter which hanged on a Chinese purse. The Chinese gentleman would carry his purse by means of looping through it with his belt. 19th century Chinese purse "Dalien". Today, this specific type of watch is known as the Chinese Market Watch, or La Montre Chinoise, and had become a collectable horological item.

Inspired by the Montre Chinoise pocket watches, Angular Momentum creates and manufactures pocket watches with Verre Églomisé miniature paintings on sapphire crystal, the front and the back side





### Shah Jahan & Mumtaz Mahal

... a manifestation of everlasting love ...

Shah Jahan met Mumtaz Mahal and fell in love. He married her after five years and they were leading a very happy life. While giving birth to their last child, Mumtaz Mahal died due to some complications. A few years later Shah Jahan built the world's most beautiful monument "Taj Mahal" in the memory of his wife.

One of the wonders of the world "Taj Mahal" has a beautiful love story behind its construction. Taj Mahal love story is about Shah Jahan and Mumtaz Mahal. Shah Jahan, initially named Prince Khurram, took birth in the year 1592. The son of Jehangir, the fourth Mughal emperor of India, he fell in love in Arjumand Banu Begum at first time. At that time he was 14 years old and she, a Muslim Persian princess, was 15. After meeting her, Shah Jahan went back to his father and declared that he wanted to marry her. Read on to know more about the love story behind Taj Mahal of Agra.

The match got solemnized after five years i.e., in the year 1612. Shah Jahan became the Emperor in the year 1628 and entrusted Arjumand Banu with the royal seal. He also bestowed her with the tile of Mumtaz Mahal, meaning the "Jewel of the Palace". Though Shah Jahan had other wives also, but, Mumtaz Mahal was his favorite and accompanied him everywhere, even on military campaigns. In the year 1631, when Mumtaz Mahal was giving birth to their 14th child, she died due to some complications.

It is said that Shah Mahal was so heartbroken after her death that he ordered the court into morning for

two years. Some time after her death, Shah Jahan undertook the task of erecting the world's most beautiful monument in the memory of his beloved. It took 22 years and the labor of 22,000 workers to construct the monument, which is also said to be the last wish of Mumtaz Mahal. This magnificent monument came to be known as "Taj Mahal" and now counts amongst the Seven Wonders of the World.

### Portrait miniature

is one of the most interesting and vivid types of miniature painting. It was always considered to be an elite art. Portrait miniatures are unique as they are painted by high-class masters of enamel paintings; the process of their performance is extremely complicated. Unlike a picturesque portrait on a canvas, lacquered miniature, photo, water-coloured ivory, the miniature enamel portrait is not affected by light or time, its colors are long-lasting and brilliant as if they are just applied. In view of their rarity and durability enamel miniatures were always very valuable and popular in high spheres.

Nowadays the portrait genre is very popular. It causes emergence of portrait miniatures performed commonly on enamel, which are painted to order according to photos. There are a lot of occasions, both official and personal ones, to present an original hand-made gift which expresses your gratitude and appreciation; later it will evoke nice recollections.

The portrait performed on enamel is an extraordinary present. Try to imagine a more exclusive thing than a medallion with a picturesque portrait which can not be affected by decades of years. It can be passed on from generation to generation as a family relic.

Angular Momentum is the only company executing miniature portrait on the reverse of a watch's sapphire crystal

# ENERICAN

# The back side of a timepiece

Tough the back side of a timepiece is hidden the most of the time, we pay attention to it as to the front side.

All Angular Momentum timepieces are set with a medallion with floral design hand engraved in our ateliers.





# Sparkling Timepieces

18

399.5

Cash (C)

made out of diamonds, diamond dust and enamel

Angular Momentum's Verre Églomisé technique of miniature painting on the reverse of a sapphire crystal was extended by a technology, in which a watch sapphire crystal's reverse is set with an aperture for digital time display, diamonds and coarse diamond dust, embedded in black enamel. The effect might be described as "truly sparkling".









# Verre Églomisé - Process

## $I_{*}2$

A simple mirrored black & white copy of the image is glued on the front side of the sapphire crystal

### 3

The sapphire dial is placed under the 40 X microscope, the glued copy underneath

### ų,

A thin film of a special oil is applied on the clean surface with a brush

### $5,\!6,\!7$

Black pigments mixed in the same oil are applied on the dial with a very thin needle, drop by drop, similar to a tool used for oiling watch move- ment parts. By adding more or less pigments, the black layer will become more or less opaque or transparent

### 8

After the first black pigment layer has been finished the dial has to be po-sitioned for drying absolutely horizontally. After a while the oil dries and the pigments sink on the surface of the sapphire dial. It takes a few days till the oil has completely dried. Fo speeding up we keep it for two days in an oven by 60°C

### 9

After drying, the supphire dial is placed under the microscope againe and a a thin film of the oil is appied on the surface. Then white pigments, mixed with oil is applied where pure white color shall appear.

### $l\theta$

After the white pigment have set and the oil has dried completely, the back drop by blue pigments is applied

### B

After drying, three protection coatings of Japanese Urushi lacquer are applied and then the miniature is finished



Cleaning of the sapphire dial. The surface of polished sapphire is extremely flat. Compared to mineral crystal, saphire has no micro-inclusions and therefore it is very difficult to make anything stick on the surface. In a first step, the sapphire dial has to be cleaned very carefully in boiling Hydrochloric acid for one hour for removing metallic remains. Afterwards the sapphire dial is heated in an oven on 250°C over night to remove organic remains.

The incrediences used for making a Verre Eglomité miniature is oil and color pigments. The oil is non-from the remains of Aqua Regin acit. In older days used for applying enamel paintings on porcelain. The pigment are finely calibrated on 1:1000 000 mm. For Verre Eglomisé painting as executed by Angular Momentum no oil paint can be used. It is important, that the pigments only "owimm" in the oil and that they are not mixed with oil as it is the case with oil paint used for painting on canvas.

Very fine steel needles are used to apply the oil-pigment solution on the sapphire surface. When the drop with pigment and oil means the oiled surface little clouds appear. With some experience the pigments can be set opaque or more transparent. If to much pigments are applied, they can be removed easily with a cotton stick or a small piece of kitchen paper. This process can be repeated as often as needed.

The oil extracted from the Aqua Regia used for painting. Aqua Regia after it has lost its agressive Effect. The mixture is formed by freshly mixing nearly pure nitric acid and maximum-concentration (38%) hydrochloric acid, usually in a volume ratio of 1:3 respectively. It was named so because it can dissolve the so-called royal metals, or noble metals, gold and platinum.

![](_page_28_Picture_0.jpeg)

# "minterland

# The advantage of Verre Églomisé compared to normal miniature painting

The technique of Verre ÉglomisÉ miniature painting on the reverse of saphire watch crystals has been developed by Martin Pauli in 2004. The technique bases on Aqua Regia oil and pure color pigments.

Differently than regular miniature paintings on mother of pearl or enamel, Verre Églomisé miniatures are not damaged, when water gets into the timepiece.

The miniatures made by Martin Pauli are considered some of the finest available on the market today.

The main advantage but is, that there are no watch hands disturbing the miniature picture. Angular Momentum's Verre Églomisé timepieces show the time digitally through an apperture, by an hour disk à "Souscription" with hour, quarter hour and 5-minute indexes.

# Revolving-Disk-System (R.D.S.)

Since time began, continuous attempts have been made to revolutionize the tried and tested two-hand time indication system with new Innovations.

Specifically speaking, by implementing the Revolving-Disk-System (R.D.S.) of Angular Momentum, this has been successfully achieved.

Abridged as R.D.S., this method is an alternative time reading system without hour hand but a revolving disk which is counterclockwice printed with the number 1 to 12. Where the number 12 normally is, one reads the actual hour on the disk.

![](_page_30_Picture_4.jpeg)

![](_page_30_Picture_5.jpeg)

# Angular Momentum of Switzerland

Creator and manufacturer of custom made and bespoke Timepieces

Angular Momentum of Switzerland is a small, independent sole-manufacturer based in Bern, the Capital of Switzerland.

Not content with limited editions or unique pieces, an increasing number of watch collectors are commissioning their very own timepieces. In a world that appears to be growing forever smaller, there is a certain gratification in knowing that only one person in the whole world is walking around wearing the exact same watch.

### The bespoke timepiece

For some aficionados who have extensive collections, or watch lovers who have a dream watch in mind, the ultimate in exclusivity is a custom-made timepiece. Bespoke watchmaking is not something new, as long as there have been watch collectors, there have been bespoke watches. As this passion for uniqueness has become prolific throughout the watch industry, Angular Momentum has seen the opportunity to become even more exclusive with one-of-a-kind timepieces, where the probability of crossing someone with the same timepiece is reduced to zero. Angular Momentum is probably the only manufacturer whose USP is to create unique 1/1 timepieces that combine, fine historical movements with custom made watch cases in any thinkable material with an extremely wide variety of watch dials or medallions.

Angular Momentum timepieces are individual works of art. No other brand devotes itself to the detailed beauty of watches more fully than Angular Momentum and no other watch brand, has thus taken on the task to let a simple wrist watch to become a unique, unforgettable and precious objects of art.

Using old, traditional and newly developed techniques, arts and crafts beautiful objects come to life, which have never been seen before.

A wide variety of techniques are used by Angular Momentum such as hand engraving and relief works in silver, gold, mother of pearl, camel bone, tortoiseshell, porcelain and as an exclusivity the art of Urushi Japan lacquer.

And as an exclusivity the Art of "Verre Èglomisé" the finest miniature paintings on the back of a watch sapphire crystal or dial. Verre Èglomisé is a technique developed and only applied by Angular Momentum of Switzerland. A patented technology (Patent CH686988) which displays the time on a Revolving Hour-Disk "à Souscription" allows Angular Momentum to create beautiful miniature paintings without the disturbing hour and minute hands. The time can then be read through one or more apertures or windows.

Today the majority of Angular Momentum's yearly production is bespoke timepieces and very small and limited editions, in total no more than 350 pieces per year.

All watch parts, cases, crowns, hands, artworks are executed in the ateliers by hand and hand operated machines. Angular Momentum only works with external specialists for complicated diamond setting and very difficult guilloche works.

![](_page_32_Picture_7.jpeg)

![](_page_33_Picture_0.jpeg)

### Movements

Historically, the Swiss watch and clock industry has always had a specialized horizontal structure in which suppliers, craftsmen and sub-contractors supply movements and external parts to assemblers called "établisseurs", who put the final product together. However, to a lesser extent, the industry has also developed a vertically integrated structure in which watches and clocks are sometimes made entirely by the same company, in this case called a "manufacture".

Angular Momentum is considered not a manufacturer of socalled "complicated watches"

Our Artisan Timepieces are all fit with historical (NOS) new-old-stock movements manufactured between 1950 to 1975 by FHF (Fabrique d'Horlogerie Fontainmelon) and AS (Adolf Schild SA) and Unitas SA which became the today's ETA SA later on.

The FHF and AS movements are - though 50 to 70 years old - of excellent quality. Some say even better than today's mass produced movements. All movements have never been used before and are completely overworked, decorated and if necessary modified in the Angular Momentum ateliers in Bern.

The movements we use in our watches have been supplied by FHF and AS between 1910 and 1980 in large quantities to well known brands among them: Tissot, Bulova, Gruen, Tudor, Girard Prregaux, Rolex.

# Angular Momentum of Switzerland or the "old" way of making things

Already in my very young teens, I was exited to do something with my own hands and became interested in the art and craft of the present time and the past, fascinated by beautiful things that skilled artists and craftsmen have created and achieved during the centuries.

One day in the school's library I read about the ideals of William Morris and John Ruskin, who proposed that in pre-industrial societies, people had achieved fulfillment through the creative process of handicrafts. This was held up in contrast to what was perceived to be the alienating effects of industrial labor.

of them were professions under the guild system. Adolescents were apprenticed to a master-craftsman, and they refined their skills over a period of years in exchange for low wages. By the time their training was complete, they were well equipped, to set up in trade for themselves, ear-- with one's hands and skill. ning a living with the skill that could be traded directly within the community, often for goods and services.

The Industrial Revolution and the increasing mechanization of production processes gradually reduced or eliminated many of the roles professional craftspeople played, and today "crafts" are most commonly seen as a form of hobby or art.

The term craft also refers to the products of artistic production or creation that require a high degree of tacit knowledge, are highly technical, require specialized equipment and/or facilities to produce, involve manual

labor or a blue-collar work ethic, are accessible to the general public and are constructed from materials with histories that exceed the boundaries of western art history, such as ceramics, glass, textiles, metal and wood.

These products are produced within a specific community of practice and while they differ from the products produced within the communities of art and design, the boundaries of such often overlap resulting in hybrid objects. Additionally, as the interpretation and validation of art is frequently a matter of context, an indience may perceive crafted objects as art objects when these objects are viewed within an art context, such as in a museum or in a position of prominence in one nome.....

The term can also refer to the seful rural crafts of the These activities are called crafts because originally many agricultural countryside. Craftsmanship refers to Plato's idea of specialization, in which the lower society has a specific job in the greater society so that it functions properly as a whole. Arts and graffs comprise a whole host of activities and hobbies that are related to making things, by hand and hand operated machines.

> These can be sub-divided into handicrafts or "traditional crafts" (doing things the old way) and , the rest". Some crafts have been practised for centuries, while others are modern inventions, or popularizations of crafts, which were originally practised in a very small geographic area.

Most crafts require a combination of skill, speed, and pa tience, but they can also be learnt on a more basic le virtually anyone.

In 1976 I began an apprenticeship as a display artist in a department store in Bern, which was internationally

reknown for its exceptional window display. On the job I was trained in various crafts such as sculpturing, drawing, serigraphic art, painting, carpentry and much more. These four years of training and cooperation with a team of over 30 skilled and experienced display artists shaped my life. During my apprenticeship, I studied engraving, scientific drawing, old master painting and pottery under the guidance of experienced teachers at the Art school.

At the age of 20 - due to a bet - I became interested in knife making and metalworking. Fortunately I met a knife maker, who runs a knife making workshop founded by his great-great grandfather not far outside of Bern, where I spent almost all my spare time.

der the guidance of his knife makers I learned to forge steel, to grind steel blades, to harden them and to make the necessary parts to complete a dagger or a folding knife. Since this happened at a time CNC machines and computers have not been invented yet, all parts have been made

A few years later the International Custom Knife Maker movement arose and so called "knife shows" appeared in almost all countries of the world. During many years I took part in these exhibitions where I successfully displayed and sold my works. Almost fluently it turned out that I had to deal with the goldsmith's art to make more ive knifes and especially its handles and scabbards. herefore I worked for several years - always in the evening - in a goldsmith's workshop to learn the specific techniques.

In the late 1980 CNC Machines edged out the traditional machines from the workshops and the perfectly machined

knifes appeared on the International knife shows, offered for the half of the price that a hand made knife has cost at that time. Within few years the custom knife making movement disappeared almost completely from the scene, suddenly destroyed by CNC machined mass produced highquality knifes made in the USA and Japan. (Seen from a today's perspective certain parallels within watchmaking are obvious.)

I very quickly realized what happened and said goodbye to knife making and dedicated myself to the goldsmith's art and metalworking. Over many years, I worked as a goldsmith in my spare time and created and mady many jewelry pieces and objet d'art firts for friends and later on for an International clientele and exhibited my work during many jewelry exhibitions and single exhibits. At that time my works where exhibited under the mark "Manu Propria", latin term for "made with one own's hand"

Around the same time I started studying the art and craft of Japan. Even today I am convinced that there is nothing comparable in the world regarding its design, aesthetic the quality and excellent execution. In the following years many trips to Japan followed where I got in contact with Matsuura Arishige, the President oft he Nippon Suiseki Kyôkai, an association for Japanese traditional art, which is subordinate to the Government. Under his guidance I studied Japanese art and culture and was introduced to "shokunin" skilled artisans of various arts and crafts where I learned about "shokunin kishitsu".

To the Japanese eye, there's a particular sense of beauty in the work of – let's say - the cleaning staff. It's in the craftsman's spirit — "shokunin kishitsu" — which applies to all Japanese professionals, be they street construction

workers, electricians or metal workers. There is a similar craftsman's spirit ("shokunin kishitsu" or "shokunin katagi") in the West. Yet in Europe one can see it coming alive only from a certain level of sophistication. In Japan, even ordinary jobs such as cleaning and cooking are filled with this craftsman's spirit. It is common sense in Japan.

My teacher made it possible for me to spend some weeks at the workshops of a lacquer artist, a wood carver the following year and a metal artist one year later to see and to learn.

During the following years I have written many publicaber of books.

creation and the production of things and have shed a new put on the watch back. light on consumerism in general.

In my professional life I made a quick career from display artist up to art director to marketing director to deputy director of the department store with the clear mandate to take a critical look at the International consumer and retail trends. In these years, I have written many publications on the subject of future retail trends for magazines and various institutes of economy.

At the age of 35 years, shortly after becoming member of the board of the Department store Holding company, I realized, that I cannot deal with the modern production, retail and shopping mentality. I quit my job and founded my own company dedicated to the design and manufacture of things made in a traditional old way.

One day I was involved in a watch project. Visiting many factories of well-known brands. I was disappointed and surprised at the same time. Suggested by the communication of the well known brands I expected to see a warm "Cabinets" or watchmaker ateliers but found clinically white rooms loaded with brand new high-precision CNC machines and instead of a watchmaker at his wooden bench mechanics with blue aprons and ladies in white skirts testing parts that have been spit out by the machine. Today watchcases are completely made by numeric controlled machines.

Even the "polissage" and "filetage" and "decoration" is tions about Japanese art and craft and published a num- made by robots and the same applies to the production of movements. No human hand has touched them before they will be assembled by people briefly trained not more than These years have strongly influenced my image of the to set a dial and hands on a watch, while another person

> In 1998 I founded Angular Momentum of Switzerland with create and manufacture beautiful handmade the vision to timepieces, manufactured under inclusion of old technologies and traditional craft with the premise that no single part is made by CNC machines, not depending to suppliers and all working steps done with my own hands.

> Already George Daniels wrote in his book "Watchmaking", that a quality product is not only the result of the most precise machines but can be achieved by skilled craftsmen mastering the simplest tools.

> And the most important advantage of the "old" way of production is, that it allows me to manufacture small series and individual pieces in a short time as it is no longer possible in modern production.

Today my atelier is equipped with a number of very useful hand operated machines made between 1930 and 1980, machines that operate within the tolerance range of 0.05 mm after careful restoration. My experiences from the time of knife making enable me to manufacture watchcases, crowns, buckles, dials, hands and other necessary metal parts by myself.

My other artistic skills allow me to make all the artworks by myself, such as miniature painting, engraving, enameling, Urushi lacquering and other techniques I have developed in the past years.

The restoration of movement and adaptation work for complications was a learning-by-doing process over the years and bases on advice of experienced fellow watchmakers.

My strict philosophy of art and craft also manifests itself in the field of watch movement. Today, only old movements made in the golden era of Swiss watch making between 1950 and 1980 are used as a whole or as parts to complete my watches. All the movements are of new-old stock quality and found at old assembly companies or purchased from specialized dealers.

The quality of these movements and parts in term of longevity and reliability is excellent and probably surpasses the quality of modern industrial produced movements.

The movements are completely disassembled, the parts controlled, professionally cleaned, assembled and tested by myself.

### The trend for exclusivity

Not content with mass produced watches or limited editions, an increasing number of watch collectors are now commissioning their very own timepieces of a world that appears to be growing forever smaller, there is a certain gratification in knowing that only one person in the whole. world is walking around wearing the exact same watch.

This dream, can easily be fulfilled by the "Old" way of handmade watchmaking while industrial production cannot.

Martin Pauli