

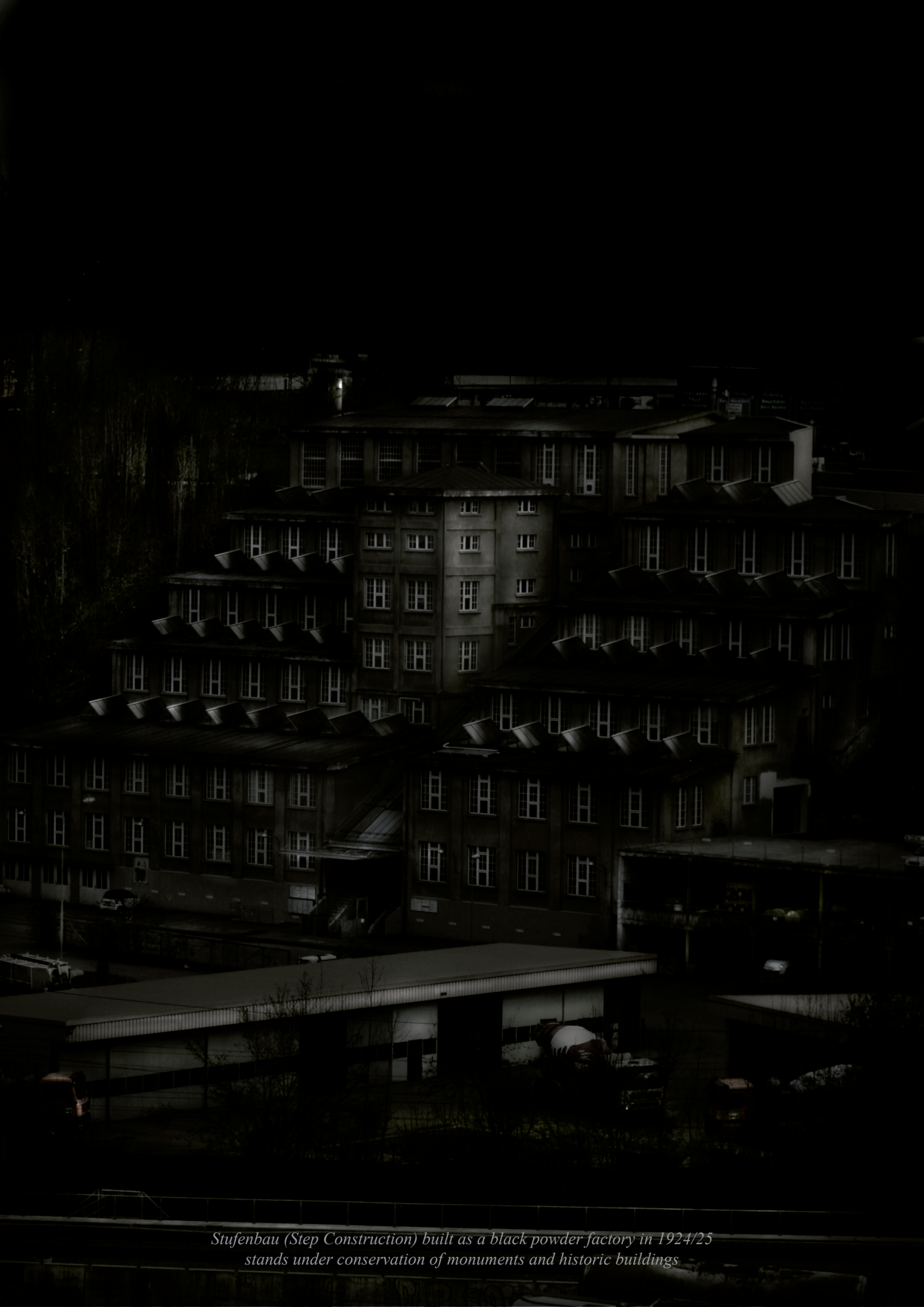
# One Hundred Views

The World of Angular Momentum & Manu Propria

- overviews, insights and impressions on Artisan Watchmaking -







*Stufenbau (Step Construction) built as a black powder factory in 1924/25  
stands under conservation of monuments and historic buildings*

*Angular Momentum  
of Switzerland*

&

**Manu Propria**  
„with my own hand“

„15 years ago, I founded Angular Momentum & Manu Propria with the vision to create and manufacture beautiful handmade timepieces, made 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 from case making to the artwork done with my own hands (Manu Propria)“.

Martin Pauli

## Uniqueness

True luxury is about an understanding of craftsmanship, exclusivity and quality. These elements are key to my creations and each and every watch I make remains true to this ethos.

Such commitment has been a cornerstone of my philosophy since the foundation of Angular Momentum & Manu Propria in 1989, as a creator and manufacturer of bespoke and custom made timepieces for private collectors. Today my work is recognized for its exclusivity, its creativity and for its exceptional standards of artistry.

My work is unique by virtue of its approach from the very beginning. All my creations are one-of-a-kind pieces. I devote myself to every single piece with passion and enthusiasm and it is a truly magical moment each time I see a completed dial, medallion and watch which is deeply satisfying.

Indeed it is this dedication to hand craftsmanship and to individual design that ensures that every creation is truly unique. As a result each timepiece takes time to evolve, meaning production capacity is obviously limited.



## Verre Églomisé - Miniature Painting

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

The invention of this new technique calls for a blend of passion and precision, patience and ingenuity. Successfully applying it to watchmaking and jewellery implies combining this expertise with keen creativity without restraining the latter. Such an alliance is based on solid foundation and a temporal dimension that is not always perceptible at first glance and which deserves to be explained in detail. This reverse painting, as églomisé is known in English, which is done here backwards on the back side of the sapphire crystal, is a unique, rare, and difficult art that is 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 pigments must be applied opposite to the intended effect, requiring a great deal of imagination, patience, and skill most especially when the painting involves an entire palette of colors.

The technique of Verre Églomisé miniature painting on the reverse of sapphire watch crystals has been developed by Martin Pauli in 2004. The technique bases on Aqua Regia oil and pure color pigments. The miniatures made by Martin Pauli are considered some of the finest available on the market today.

## Engraving, Repoussé, Uchi-Dashi

All metal works are executed in my ateliers. I use many different techniques such as classic Engraving, Repoussé, Chasing and Uchi-Dashi a distinctly Japanese process that blurs the distinctions between what is commonly known as Metal „sinking“ and metal „raising“.



*Staircase (138 steps) to the Angular Momentum atelier with historical cable car built in 1924*



## Shining Beauty of Urushi Lacquer

The deep, shiny luster of black or dark red lacquerware, often gorgeously decorated with gold and silver or inlaid with mother-of-pearl, is a Japanese handicraft form that has long fascinated the world. No other application style can match the deep hues and smoothness of Japanese lacquer (urushi in Japanese). Lacquerware stands as one of the most distinctive forms of Japanese beauty.

Martin Pauli is the only Swiss artisan applying this exceptional art and craft to watchmaking in his atelier in Switzerland. The applied works enclose a wide range of techniques, among them „Takamaki-e“ high relief, „Kawari-Nuri“ experimental lacquer and „Tamamushi-Nuri“ jewel beetle wing mosaic which have never been introduced before to watchmaking

## Watch Case making

All watch parts, cases, crowns, hands, artworks are executed by myself in the atelier in Bern by hand and hand operated machines. A wide range of metals and alloys can be chosen and have been used for case making: All colors of Gold, Platinum, Palladium, Silver, Stainless Steel, Damascus Steel, Iron, Bronze, Brass, German Silver, Shibuichi, Shakudo and Zirconium metal.



*Staircase view from the Angular Momentum atelier downwards*



## Historical Watch Movements

All Angular Momentum & Manu Propria timepieces are fit with historical New-Old-Stock movements manufactured between 1950 and 1975 in the „golden Era“ of watchmaking by companies like FHF (Fabrique d'Horlogerie Fontainmelon) AS (Adolf Schild SA), Unitas SA which have been merged to the today's ETA SA in the 1980s during the so called „quartz crisis“.

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 by myself in the atelier in Bern.

## Digital Time Display „à Souscription“

Digital Time Display by Revolving-Disk-System (Patent CH989688)

The main advantage of having a miniature painting on the reverse of the watch crystal with an aperture for digital time display is, that there are no watch hands disturbing the miniature picture. Verre Églomisé timepieces show the time digitally through an apperture, by an hour disk à „Souscription“ with hour, quarter hour and 5-minute indexes and optionally with a minute disk.

This method is an alternative time reading system without hour and minute hand.



*Martin Pauli*





*Hand made „Poetic Interworlds“ timepiece with a flying Swallow made of „takamaki“ Urushi lacquer*





*Cutter head of the Alexander 3D Pantograph built in 1964*





*High performance spindle of Alexander 3D Pantograph*





*Various stylos for Alexander Pantograph*



*Vertical adjusting wheel of Alexander Pantograph*





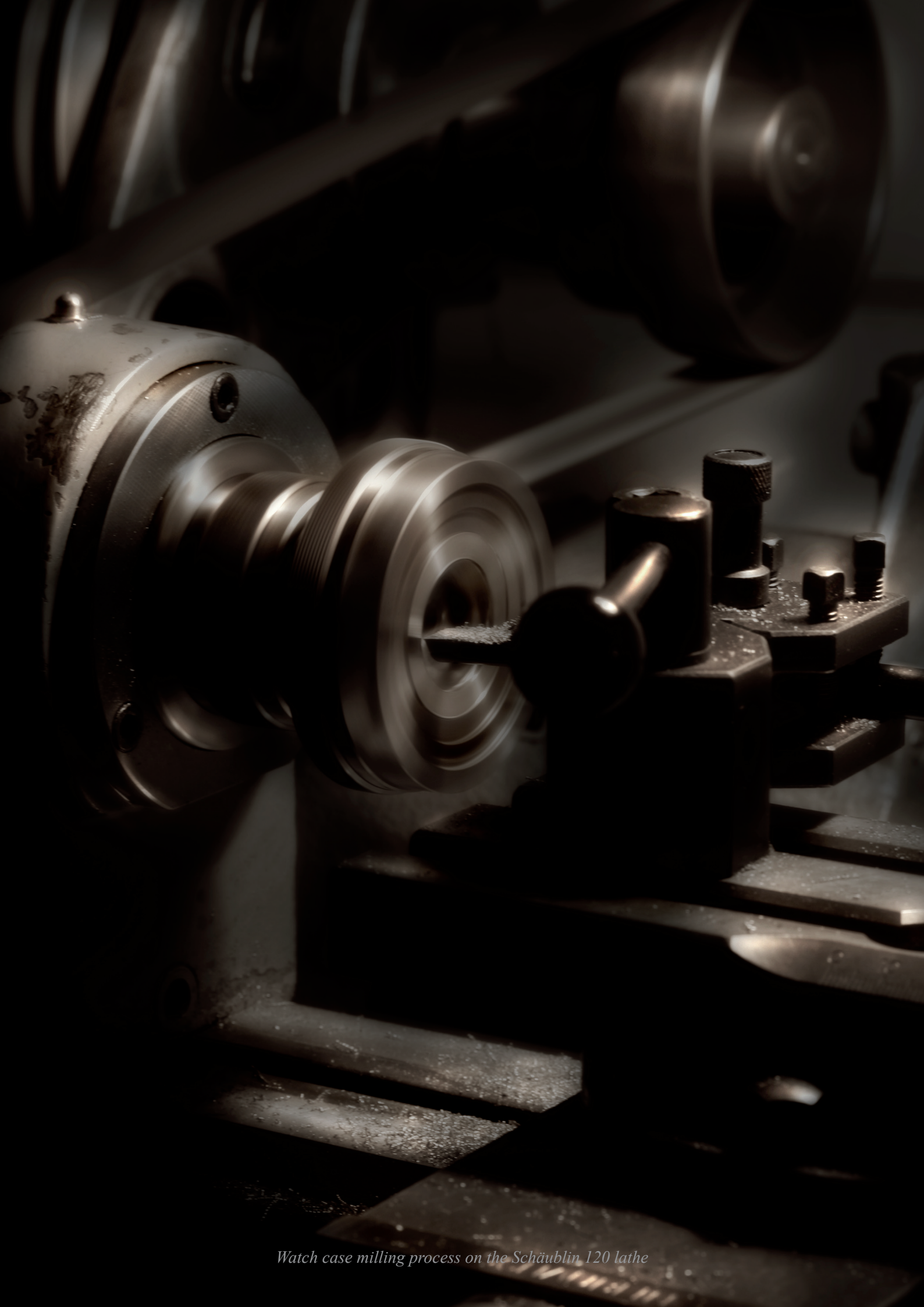
*Hand made timepiece with Verre Églomisé miniature painting of a blue flower bouquet*





*Cross table and Trypan holder of Schäublin 120 precision lathe built in 1982*





*Watch case milling process on the Schäublin 120 lathe*





*Different type of watch cases made on lathe and milling machine in the atelier*





**SCHAUBLIN**  
**102**

*Schäublin 120 precision lathe built in 1982*

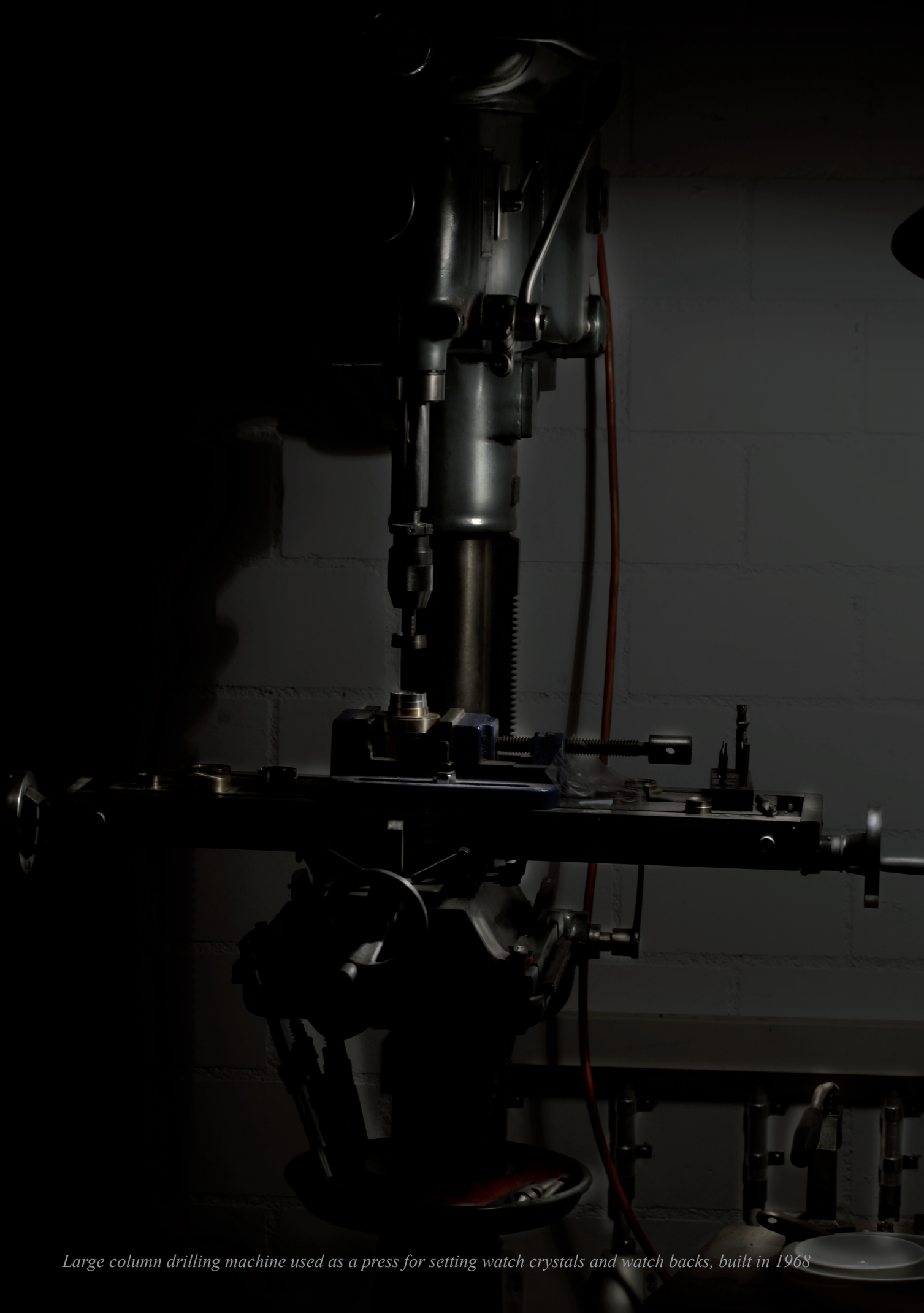


*Hand made „Classic Index“ timepiece with silver dial and polished indexes*





*Schäublin 120 Lathe, bench drill, steel cutting machine*



*Large column drilling machine used as a press for setting watch crystals and watch backs, built in 1968*





*Machine for welding metal sheets, built in 1925*



*Millers and cutters*





*1.4435NcU Staybrite steel and 18 Kt. rose gold blanks for case making*





*Heavy spindle press for stamping dials and indexes, made around 1800.*





*Stamping tools and dies used on the spindle press*



*Mac computer for image processing and product suggestions*







*Polishing machine built in 1998*





OVERBECK  
Präzisions-Maschinenbau  
HERBORN/DILL

MASCHINENTYPE	
Fabrik-Nr.	
Baujahr	
ANWEGEN-Nr.	
Type	
Volt	
Leistung	

*Overbeck high precision drill used for drilling hand fittings and pèrlage decoration built in 1965*





*Hand made „Classic New Roman“ timepiece with an AS 1704 self-winding movement*





*Aciera F3 precision milling machine built in 1974*



*Oil container and „Posage“ for watch hand setting, hours and minutes*





*Brass, bronze, aluminum, steel, copper, silver tubes of various length and diameters*





*The atelier seen from my engraver bench, in the foreground chisels which I use for engraving and repoussé*





*Various Pliers*



*Tools at on of my jeweler working benches*





*Various Files*



*Microscope x10 /40 that I use for fine works on movements, engravings and to execute miniature paintings*





*Some Verre Églomisé miniature paintings on sapphire watch crystals*





*Verre Églomisé Miniature painting of a tiger portrait under the microscope*





*Furnace for casting metal alloys and burning enamel dials*



*Verre Églomisé miniature painting on the reverse of a sapphire watch crystal*





*Working on a Time Explosion sculpture timepiece watch case*



*My working place for Urushi lacquering*





*Urushi lacquer dials*





*Box with rare materials for jewelry making. Mammoth tusk, ivory, Abalone shell, Giraffe bone, Tortoiseshell*





*Quail egg shell used for decorative inlays for Urushi lacquering*





*Japanese sword „katana“. 16th century*





*Objet d'Africaine*



*Propane and oxygen soldering system*





*Two hawks watching me working*





*Drawer with waste of gold, silver and platinum and some pearls between*





*Sheets of gold and platinum which I use for Urushi lacquering*





*Fine hand forged Japanese chisels „Nomi“ for delicate wood carving*





*Carving a small Ebony wood figurine „Netsuke“ of two young bears playing*



Tab printed hour disks à „Souscription“ for digital time displays





*Tab printing machine made in early 1960s*



*Historical food driven sand blasting machine built in 1928 (in good working condition)*





*My watchmaker bench and a second jeweler bench in the background*



*My engraver workplace with various gravers*





*Old thread drill in a vice*





*Finishing of a watch hand*





*Vacuum machine*





*Tool set for servicing, disassembling and assembling movements*





*Thoughts on a 3600 hours power reserve extension for a movement*





Unitas  
13 11  
6325

*A view on boxes containing different historical movements manufactured between 1955 to 1980*





*Alarm movement, caliber AS 1930, manufactured 1969*



*Assembling a hand-winding movement, caliber FHF 96 from the early 1960s*





*Ebauche parts of the Caliber FHF 96*



*Jacot tool clamped in the vice*





*A coiling Dragon carved in low relief in stainless steel*





*Chinese temple vase of 1.70 m height, 20th century*





*My eye glasses with magnifiers*



*Hand made „Smooth Diver“ timepiece with heavily glowing „Email Lumineuse“ dials*





Fine deep black smooth Japanese suiseki stone from Setagawa (Seta River)





*Gypsum casts of foil jewellery and jewelry dies from early 20th century*





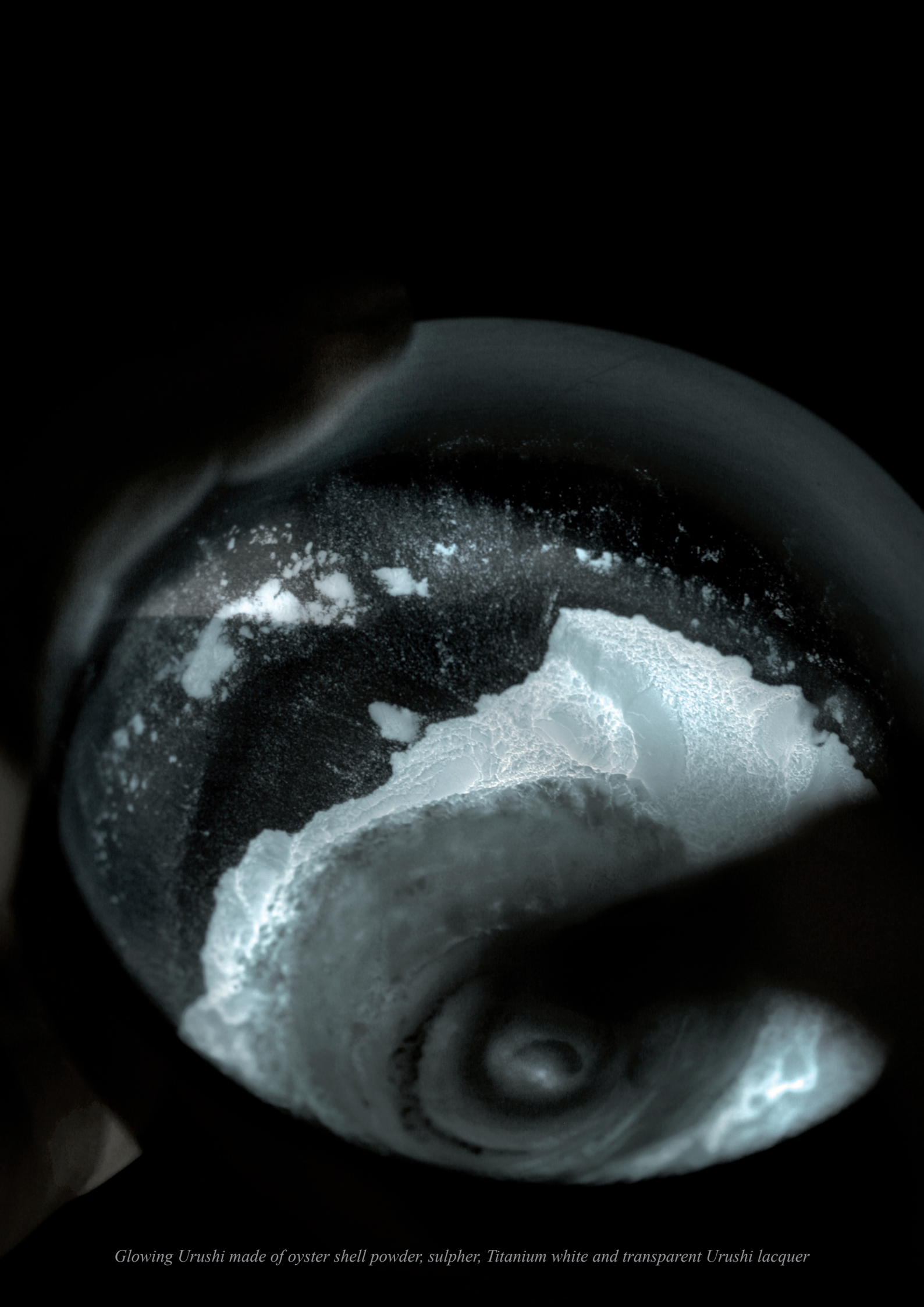
*Water resistance testing machine*





*Dry stalks of the Horsetale plant which are used for grinding and polishing.*





*Glowing Urushi made of oyster shell powder, sulphur, Titanium white and transparent Urushi lacquer*





*Custom made iron stair cupboard built after a wooden Japanese „tansu“*





*Hand made timepiece with „ishimeji“ Japan lacquer dial and polished indexes*



*My favoured chair*





*Part of my library*



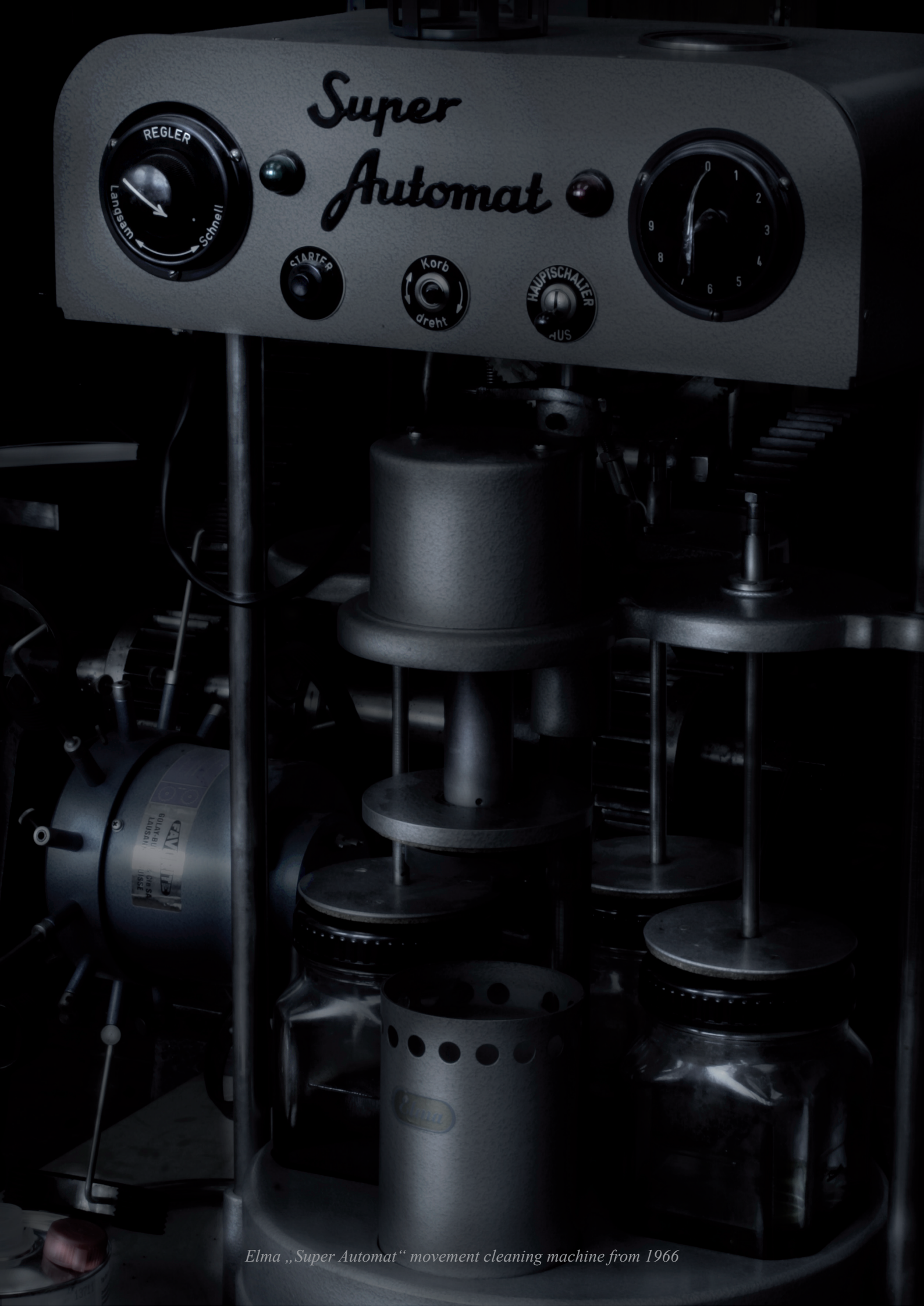


*My personal „Classic“ Mother of Pearl dress watch with four polished indexes*





*Movement testing machine Vibrograph with tube amplifiers*



*Elma „Super Automat“ movement cleaning machine from 1966*





*Hand made „Verre Églomisé“ timepiece with a miniature painting of colored flower bouquet on white ground*





*Chinese Foo dog (Guardian Lion) made of root fragments. 19th century*





*Large wood grouse*

Super

Panasonic





*Back of a timepiece with hand engraved silver medallion*





*Japanese antique doll from the 1920's*





*Objet d'Art Africaine*





*Bronze senser, Tibet, early 20th century*





*Brush pot. Gothic dragon on a fountain with roses. Iron, Historicism around 1850*





*Hand made, „Verre Églomisé“ pocket watch with a miniature painting of a flower bouquet*





Part of my extended watch book library





*Trees in the factory backyard*





*Ruin of an ancient water container in the factory backyard*





*Clouds over the factory*

*100 views of the Atelier*

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*Timepieces and images by Martin Pauli*