Clockmaking in Russia

Konstantin Chaykin follows his dream.

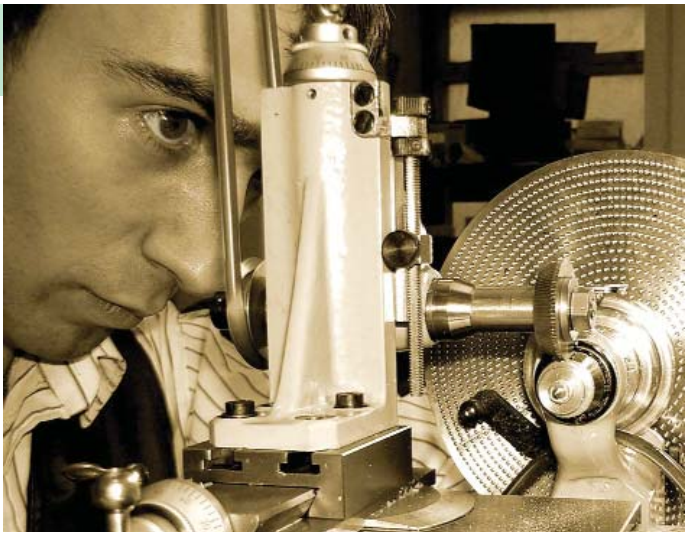
A winter's day in St Petersburg, the tsarist past sleeping amongst the beautiful architecture and the world's leading museums and theatres - clockmaking is perhaps not the first thing that springs to mind. Yet you would be surprised at the gems that are hiding here - and the clock studio of Konstantin Chaykin is certainly one of them!

Workshop owner Konstantin firmly believes that in order to create a complicated time mechanism, precise and beautiful, you needn't be in the mountains or valleys of Switzerland. In love with horology and bravely facing the future, this young clockmaker is able to see how time is moving right here in St. Petersburg through the transparent glass dome of his own tourbillon clock. As the time flies by he creates timepieces that, being true art, will live far beyond our lifespan.

Establishing his little studio a few years ago without any former watch-making education, but with an engineering degree, Konstantin had no idea where his passion would take him. At the time, he was unable to find anyone sharing the same ideas, so he pursued his dream on his own, with support and help from his family and friends.

Flying Tourbillon.

Assembling the clock.



Looking through special literature on clocks, researching basic types of movements and time principles, Konstantin was already thinking of complicating them. Once the indicator of hour reserve, large date and various escapements were mastered, Konstantin felt he was getting closer to the creation of his own complicated mechanism.

Today, with a few great projects behind him, he is now confident that the interest in horology has remained as strong as in the times of imperial Russia. With that in mind he is very serious about getting Russian clockmaking traditions reinstated in all their glory.

The Russian Tourbillon

A long time before starting the 'Flying Tourbillon' project, Konstantin knew that he would have to gain some additional skills. He didn't realise how time-consuming the process of working out the technique was, and how much patience was required. He only fully came to terms with these factors when he started engineering and cutting out piece-by-piece all 176 components for his clock. To cut the first arbor for the anchor wheel (the diameter of a pivot is 0.1 mm) on the lathe, Konstantin spent two days rejecting at least 20 attempts. As he pressed ahead with the project he learnt first hand how very complex and delicate the work is, demanding utmost accuracy and patience.

He said: 'You shouldn't hurry, as when you rush you start losing focus and making basic mistakes. A craftsman should neither be fast, nor slow – work tempo should correspond with the speed at which the time runs.'

When the components of the carriage appeared to be too heavy, Konstantin decided on producing the bridges out of

Tourbillon carriage parts.

Assembled tourbillon carriage.

light titanium but the hard material was not easy to process. He went through 4 taps while thread cutting, and a broken stone had to be replaced by prepared brass bouchons. In the end it took six hours to make one wheel, not taking into account the time spent on calculations and adjustments.

Perseverance paid off in five months, when the clock finally started to take shape, and after the fourth assembly of the mechanism there was success. Konstantin recalls his excitement when for the first time he saw the carriage stir.

After the first success the clock had to be regulated - this saw Konstantin taking the carriage off no less than a hundred times! Perfection was necessary: the performance being checked every five minutes before he was satisfied that the tourbillon, much written about and made in the far valleys of Switzerland, worked in St. Petersburg too.

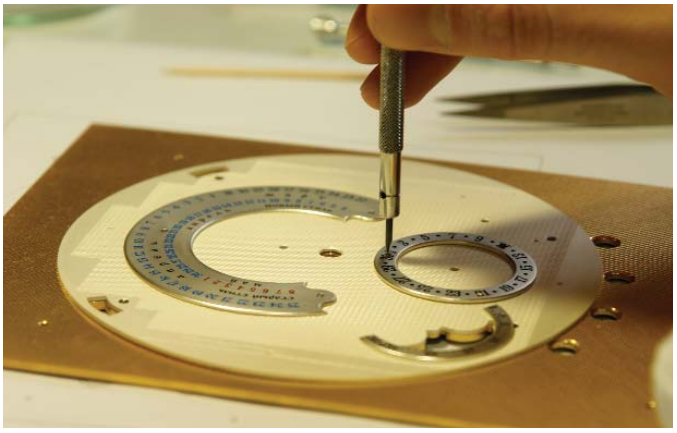
Russian Temple housing for the clock crafted from different types of amber.

The Great Astronomical Easter Clock

Now Konstantin is about to finish work on an extremely complicated astronomical Easter clock, which he believes should be considered as one of the most complicated timepieces ever created. The entire clock mechanism consists of more than 700 details, all hand-made and featuring an amazing number of complications: a minute tourbillon countering gravity, equation of time, celestial map of the sky above St Petersburg, reserve indicator for 14 hours, moon

Easter clock: back panel with perpetual calendar and celestial map of St. Petersburg.

Assembly of the front panel with moon phase indicator.



Main dial assembly.

Fully assembled front mechanism with orthodox holidays indictor and perpetual calendars.

phase indicator, and a set of automatically shifting perpetual calendars for day, date, month and year.

To make this clock even more special Konstantin believes he has developed something truly unique – a patented module for perpetual indication of Orthodox holidays.

An integral part of this new complication is an Easter indicator, believed to be the most complicated arrow indicator mechanism in the world. The gear work is considerably more complex than that of a minute repeater. It contains a number of preset differential gear transmissions put together with over 200 hand made details. Mathematical formulae making this type of mechanical calculation possible undoubtedly put this clock into the class of grand complications. With the work nearing its end after two and a half years Konstantin is planning to adorn the clock with domes and tiny crosses transforming this mechanical wonder into a small Russian temple.

In reality, the first Russian tourbillon and the great Easter clock are non-commercial projects and perhaps will remain as a horology dream turned true. In the end, all that Konstantin wanted was to show that what could be made by other highly skilled and trained masters could also be created here in St Petersburg with a perfect dream and a loving heart.

This article was written by Mike Poretskin who met and worked with Konstantin three years ago on a project to create a wristwatch for TimeZone. Now firm friends they meet whenever Mike's work with Shell Exploration Production takes him to Russia.

Amber archangel with letter 'X' standing for Christ in Russian.

Back panel with flying tourbillon at the top.