

Virtual Reality

Vulcain's Cricket Alarm heralds a revolution in watchmaking

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The classic idea of a factory is a place where raw materials go in at one end and product emerges from the other. The modern factory is rather different. In the watch industry for example, that handful of companies like Rolex, Jaeger-LeCoultre and Patek Philippe who are regarded as *manufactures* do turn lumps of metal into watches, but even they may require the help of a variety of specialist component suppliers for items such as screws, jewels, dials, hands and crystals. For the moment, at least, the great majority of balance spring and escapement assemblies are sourced from one supplier, the Swatch Group subsidiary Nivarox. At the other extreme, the company owning the name on the dial may have no production facilities at all and rely on licensed, "private label" watchmakers. The brands then either assemble bought-in components to produce the finished watches or even have the entire watch made to order. With the historic cost of setting up and staffing a new factory from scratch, this approach was understandably popular and often the only economically viable method.





(Above) The Virtual Watch Factory – formerly a family house – in which the Vulcain Cricket is produced.

(Right) The 1947 advertisement announcing the Cricket.

(Below) Design engineer Mathieu Zimmerman has converted all the original component drawings to allow them to be used to instruct computer-controlled production machinery in independent workshops.



The Cricket

The rebirth of Vulcain’s Cricket provides a good example of the virtual watch factory. Maurice Ditisheim, the bearer of what was to become one of the great family names in the Swiss industry, founded Vulcain in 1858 in La Chaux-de-Fonds, the centre of Swiss watchmaking. The company initially produced ornate pocket watches with perpetual-calendar mechanisms and very decorative enamel cases. A descendant, Robert Ditisheim, was in charge in 1947 when Vulcain launched their famous alarm watch known as the Cricket. To produce an alarm mechanism was not a problem; simple alarm clocks were common. The trick achieved in the development of the Cricket was to create, within the confines of a wristwatch, a sound loud enough to wake the owner. Wristwatch cases are poor resonators in normal conditions, a fact that led to some interesting solutions. For example, an 1892 patent proposal had attempted to get around this acoustic problem by propos-

ing a small claw that would emerge to scratch the wearer. Fifty years later, when Ditisheim and his engineers were still searching for a solution, a visiting physician who was a keen amateur zoologist pointed out that the cricket, although small, managed to produce a loud sound. After 5 years of R&D the solution was found by using a double case back, the inner layer producing a ringing sound without being damped by the wrist, and the name Cricket was adopted.

Truman, Eisenhower, Nixon and Johnson were all provided with Vulcain Crickets and the model became known as “The President’s Watch” (though Nixon got his when he was Eisenhower’s vice-president). Vulcain continued to be noted for their marketing flair and introduced a diver’s version, the Cricket Nautical, in 1961. It could be heard underwater and was used to set the safe time limit for a dive. This early model was tested at 30 times atmospheric pressure (ie, 30 bars; equivalent to a depth of 300 metres). Like the current model, a decompression-cycle calculator was incorporated into the dial.

The company remained in the control of the Ditisheim family until the watch industry crisis in the 1960s, when Vulcain and Revue Thommen were merged as MSR (Manufactures Suisses Reunies). When interest in mechanical watches was revived in the 1990s, Revue Thommen relaunched the Cricket using the limited supply of original movements it had in stock. In 2001, as part of a restructuring of the company, the Finance Director Bernard Fleury bought the rights to the Cricket watch and everything associated with its construction, and formed a company, PMH, to put the production of the Cricket into a modern context and use it as a base for further development of the Vulcain tradition.

Converting a family house in Le Locle for the purpose, Fleury moved in a young Le Locle Horological School graduate with a penchant for computer graphics, and set him to work converting all of the original production drawings for the Cricket movement into CAD files. When this was completed, the files and specifications were sent out to a number of specialist micro-engineering



companies – 11 in all – who now produce the components and assemble the movements.

These movements, together with cases, dials, hands and crystals from other suppliers, are then delivered to the virtual factory in Le Locle, thus bypassing the need for investment in production machinery. A small team of young watchmakers put the movements in their cases, add dials and hands, and test the watches.

The “virtual” part of the production is done on the first floor at a computer terminal. While it is not without cost, there is no need to support the bricks and mortar of a large factory, so resources can instead be directed at the human element. Even on a small scale, computer-aided

The Cricket movement reproduces the original specifications from 1947. There is a separate spring for the alarm so that its use does not interfere with the running of the watch. The “hammer” on the right (arrow) beats on a special resonator forming the inner case back, producing a piercing sound like its insect namesake. Like the original, the current movement beats at 18,000 A/h. A simple modification to produce a “more modern” 21,600 A/h is under development.



Detail (top left) shows the first stage in the hand-made cloisonné dial of the Cricket Aviator Dual Time (right). Strips of gold foil map the Atlantic Ocean and delineate the aeroplane. These areas are then filled with coloured vitreous enamel pastes ready for firing. The watch has a small pusher at 2 o'clock, which sets the alarm. The central crown winds both the main and alarm springs. The crown near 4 o'clock sets the time in a second time zone. The watch is a limited edition of 25.

movement design is a very real and a very sophisticated process.

The workshop has a very pleasant atmosphere; the whole team are under 30 and happen to have studied at the same college before, variously gaining experience with Rolex, Omega and ETA. Clearly, young people are now being attracted to the watch industry, where they can look forward to well-paid jobs in pleasant surroundings.

The way ahead

Many companies, large and small, fit standard or specially finished ETA movements to their watches, and the only added value that they can offer comprises the external features and the promotional hype built up around the brand.

Many complicated watches also use ETA movements as the base on which modules are fitted, a practice that is now threatened by ETA's restructuring of its supply terms. The important feature the virtual watchmaker has to offer the watch buyer is that he can produce, or rather have produced at his direction, watches that are of his own design inside and out that are truly different to anyone else's, without having to rely on external suppliers with different priorities.

The "virtual manufacture" can also concentrate on doing by hand those things that need to be done by hand; a deluxe model of the Cricket, acknowledging its early use in aviation, has a painstakingly crafted cloisonné enamel dial. Finish is another element that remains a manual task. ●

Further information: As of yet there is no UK distributor for the Cricket; the initial production rate of 5,000 watches per year has not been enough to keep up with the demand in Japan, Singapore and Hong Kong. Stainless steel models start at about £1,540, and the top-of-the-range Aviator in rose gold with a cloisonné dial costs 10 times as much. There is a range of models priced in between.