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Covers



This fine example of A L Breguet's work c1818 previously belonged to Dr George Daniels CBE and was sold at Sotheby's auction of the Daniels collection on 6 November 2012.

Front: The exquisite movement in great detail.

Back: The Marine Chronometer after inspection by BHI member David Walter FBHI.

Read the story on page 154.

Exchange rates: (spot XXXX £1 = \$ 1.60 = CHF 1.49 = €1.20)

The BHI is a founder member of the CEHR, the European Confederation of Clock and Watch Repairers' Associations, formed to safeguard and promote the interests of clock and watch repairers.

Breguet Marine Chronometer No 3057

by David Walter FBHI.

This fine example of A L Breguet's work c1818 previously belonged to Dr George Daniels CBE and was sold at Sotheby's auction of the Daniels collection on 6 November 2012.

Breguet certificate no 3255 indicates this was originally sold to M de Villaret de Joyeuse on 9th April 1818. I have not been able to establish further history of ownership prior to Dr Daniels.

Description

The mahogany case (1) has a sliding inspection cover to view the time displayed. Upon opening the box (2), brass gimbals support the movement and there are two tabs used for locking and transport. The inside of the mahogany cover is recessed to clear the locking tab screws and gimmel supports, while another brass piece set inside the cover very neatly retains the winding key when the cover is closed.

The engraved and silvered dial (3) is 3³/₄ inches in diameter with two eccentric dials for the hours, minutes and seconds; both of these dials are the same size. To wind the chronometer the brass stoppers are removed. Hand setting can be achieved only by removing two screws attaching the bezel to the tub. The underside of the tub has no openings.

The movement (4) has two independently wound spring barrels, Breguet's style of Earnshaw spring detent escapement, and a three arm cut steel balance and blued steel balance spring.

Condition

This instrument has clearly been used for its intended purpose and, as such, has had a number of repairs during the course of its life. The current owner wishes to maintain its mechanical integrity while conserving the chronometer's history. To this end, neither the brass nor steel work was to be re-polished.



At some time in its life this chronometer has suffered from corrosion, as all the steel work has been resurfaced and left with either a straight grain or circular pattern. Some of the original black polish still exists under the steel endpieces (5) as do remains of bluing under the screw heads. Several of the pinions had old surface corrosion; this was carefully removed. All pivots running in brass, including the barrel pivots, had been re-bushed in the past and were in need of new bushes once again. This is a good indication of the amount of service this instrument has experienced.

Interesting mechanical details

When I opened the tub, I was met with the aroma of old animal oils, always a welcome sign, often indicating a movement that had not been touched for many years. In this instance the movement was reasonably clean. However, the mainsprings and their barrels had not been cleaned, and this is where the aroma came from. The barrels and springs were covered in hardened grease (6) and upon removal, I discovered that the original blue mainsprings had been replaced with white steel ones. I'd hoped to find signatures on the original springs. The springs had hard grease over their total length and, unfortunately, there





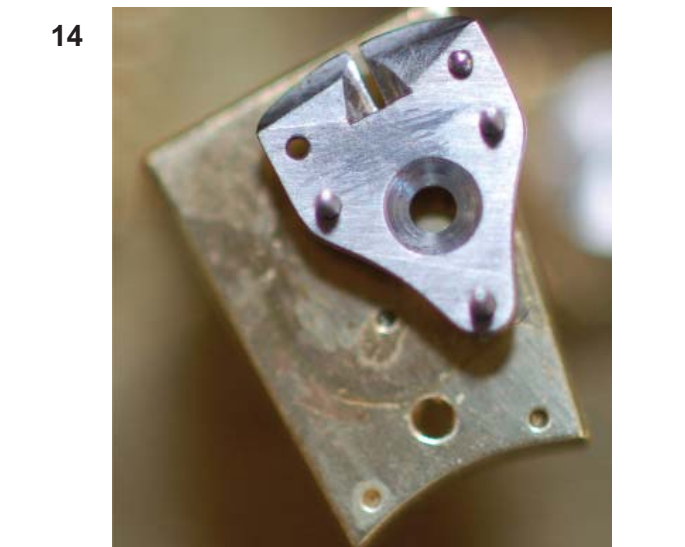
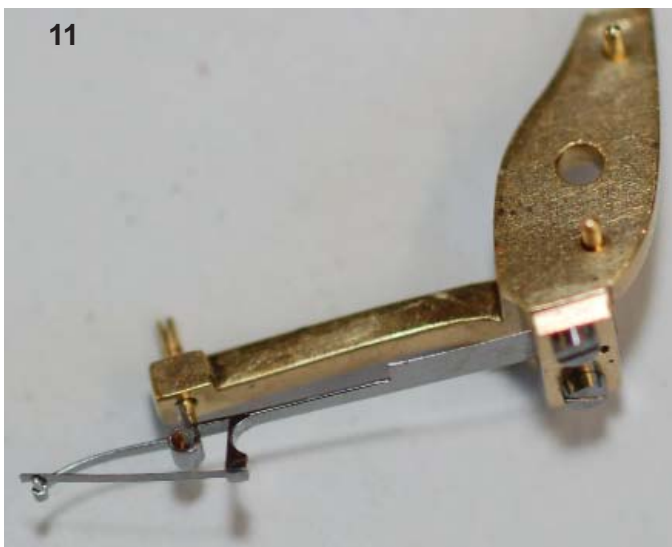
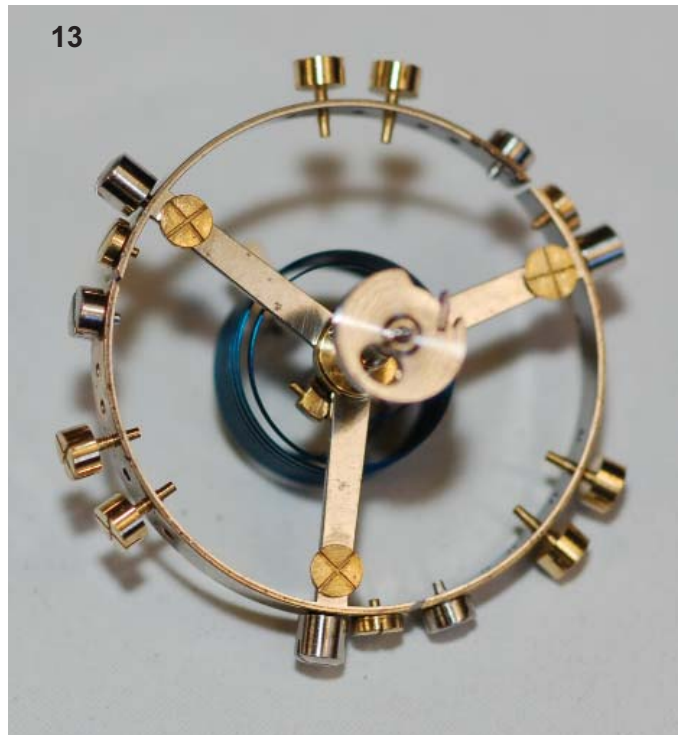
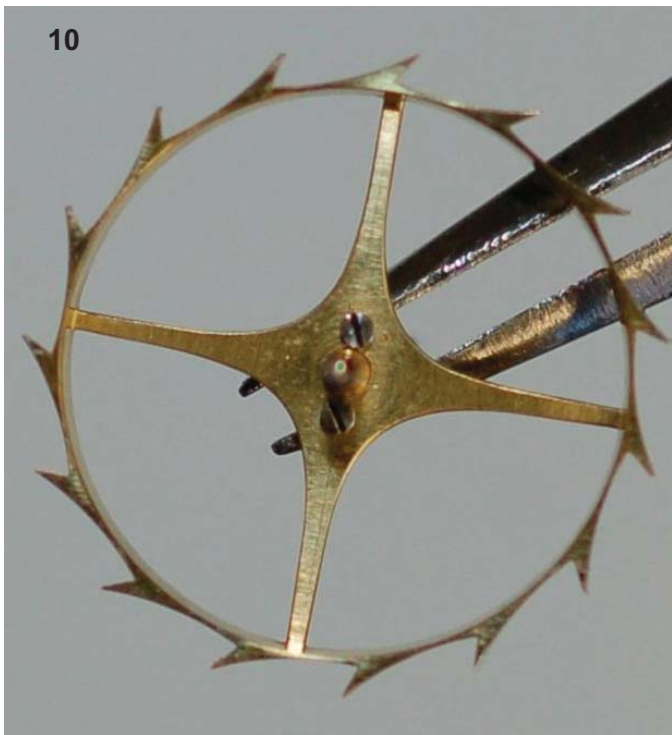
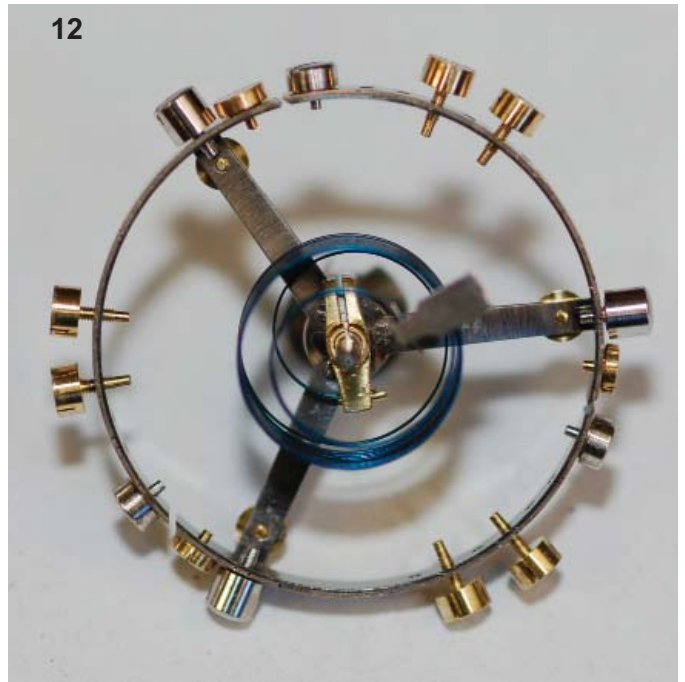
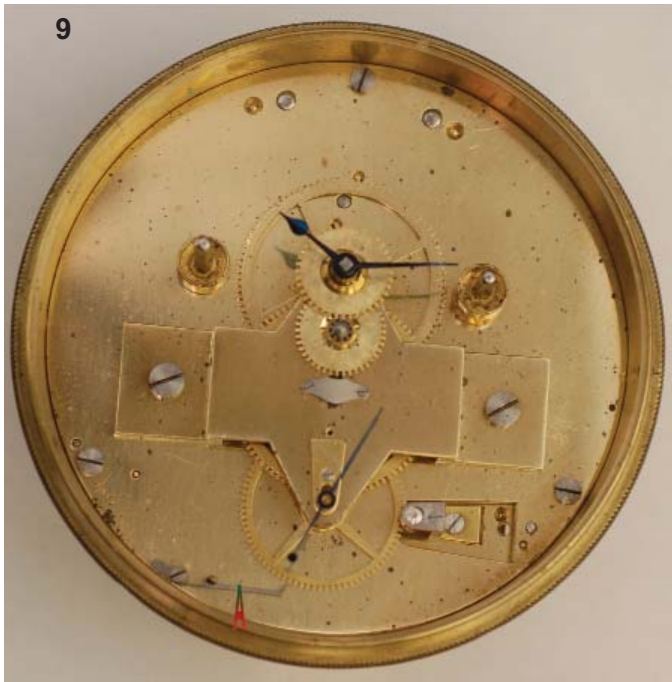
must have been moisture in the old mainspring grease as both springs experienced corrosion (7).

Breguet fitted both barrels with a special 'T' piece (8) approximately one quarter of turn from the barrel hook. The purpose of this piece is to keep the first coil of the mainspring against the barrel wall. The 'T' piece is mated to both the barrel and the barrel lid.

The under dial work (9) has a single bridge that supports the center wheel, 3rd wheel and the 4th wheel; all possible pivots have steel endpieces. Visible at the lower right is the lower escape wheel cock, which is mounted on the escapement platform. At location 'A' is a steel detent in contact with one of the three screws that hold the escapement platform in place. This screw has an extended conical tip which, when fully home, pushes 'A' towards the edge of the movement. When this screw is backed off a few turns the tip of the detent slides into a tooth space and locks the 4th wheel in place. This done, the platform can be safely removed without having to release the power on the mainsprings.

The beautifully made escape wheel (10) is screwed to its pinion.

The Earnshaw spring detent (11) is made quite differently to the detents we commonly see. The spring portion of the detent is clamped in a brass block and a sculptured foot, which is a solid part of the detent, holds the passing spring. The passing spring which is steel is not screwed to the detent, rather it is fitted into a drilled hole, then held in place with a brass pin. The nose of the detent is also drilled and has a hard steel pin protruding down which acts as the banking stop for the passing spring which rests under tension against the pin. The passing spring had a notch worn in its face where it rests against the pin, this notch was removed with a fine stone then re-polished.





The three-arm cut steel balance (12) is very interesting with its use of steel and brass screws in the rim and brass screws fitted under each arm.

The underside of the balance (13) shows the steel impulse roller with a large cutout in the area of the impulse jewel, the roller has been counter poised opposite the impulse jewel by the opening of an oval hole.

The balance spring stud is clamped to its cock via an adjustable three footed clamp (14) (underside showing). Each of the three screws has a conical tip which rests snugly in a blind hole in the cock. The center hole is for the clamping screw. The balance spring stud (see 4) is held in place with a strap and two screws. There is a considerable range of adjustment available here and if the settings have been moved, it is quite time-consuming to set the balance spring so it is central and not leaning one way or the other.

The endpieces are all steel with the endpieces to the balance and escapement having diamond endstones set into the steel. In (15), the two examples on the left are of the underside. Setting stones into steel is quite a difficult task and much more difficult than setting into brass. The unfortunate use of abrasives on the steel is very clear in this photo.



The pointed oval escapement platform (16) comprising the balance, detent, and escape wheel is fixed to the main movement plate with three screws. The balance spring stud (top showing) and its clamp are very clear in this photo. You will notice there is a protective gate screwed to the bezel to protect the balance and escapement from errant fingers and for safety when the movement is placed into the tub.

The side view of the escapement (17) shows the balance in action and the relationship of the detent to the escape wheel, the brass pin holding the passing spring to the sculptured foot can just be seen.

Only the escapement is jewelled, and it interesting to see that the jewels are set in steel bushes fitted into the brass cocks, a masterful way of going about jewelling but involving a lot of extra work.

Train details

Two going barrels	120 teeth		
Center wheel	96 teeth	Center pinion	9 leaves
Third wheel	90 teeth	Third pinion	12 leaves
Fourth wheel	80 teeth	Fourth pinion	12 leaves
Escape wheel	15 teeth	Escape pinion	8 leaves
Barrel diameter	37mm		
Mainsprings	23.5mm high	x	0.25mm thick



