

The National 15. The decline of British watchmaking and the role of Smiths in a hoped for recovery.

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By 1870, the development of factory based manufacturing in the USA had changed the nature of the horological industry. The Swiss responded and modernised, but the trade in the UK resisted change, and declined dramatically as a result. In consequence the United Kingdom entered World War Two without a horological industry that could provide the high grade watches that were an essential strategic resource. A significant proportion of what was left of British clock and watchmaking, including H. Williamson Ltd, had been acquired by Smiths and the government was keen to support a national revival of the high quality segment of the industry that would match the specifications laid down by the Armed Forces and would, in due course, form the basis for successful domestic sales. How this was achieved forms the subject matter for this article.

Introduction

In 1818, the Royal Observatory at Greenwich was placed under the control of the Admiralty and became responsible for the testing, selection, servicing and storage of chronometers for use by the Royal Navy. By the 1860s, a rigorous system of tests in temperature controlled conditions had been put in place and the published test data stimulated manufacturers to improve their chronometers. The British chronometer made for the Royal Navy became the most rigorously selected timepiece in the world and the principle of selecting the best was then applied to the growing demand for chronometer watches and deck watches.

The reputation gained by British watchmaking was enviable, but at the same time it masked a failure to modernise. By 1870, the development of factory based manufacturing in the USA using automatic machine tools and the production of interchangeable parts changed the nature of the industry. The Swiss responded and modernised, but in the UK the old craft based system of interlocking skills resisted change

and the few factory based companies such as The Lancashire Watch Company, did not survive into the 1930s. By 1936, horological manufacturing and servicing trades in the UK were seriously depleted and the Observatory no longer had confidence in the availability of external experts for the professional maintenance of chronometers and watches. In consequence, the Astronomer Royal had no option but to create a chronometer workshop at the Royal Observatory in order to carry out servicing in-house.

By the start of World War Two, the British watchmaking industry had virtually died in the face of competition from the Swiss and American production of watches using modern factory methods. A significant proportion of what was left of British clock and watchmaking, including H. Williamson Ltd, had been acquired by Smiths and the government (acting largely through the Ministry of Aircraft Production – MAP) was keen to support a national revival of the high quality segment of the industry; namely the design, development and production of 15 jewel lever watches by Smiths that would

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Fig. 1. The National 15.

match the specifications laid down by the Armed Forces and which would, in due course, form the basis for successful domestic sales.¹

A nationally manufactured watch as exemplified in Fig. 1 was eventually achieved, but its development was faced with many difficulties and took much longer to reach the stage of reliable mass production than anticipated. We will see that orders were placed on the basis of estimated development timescales and, not surprisingly, these proved to be unrealistic. It would not be until the war was over that Smiths succeeded in the manufacture of excellent quality jewelled lever watches, both for the civil market in the UK and for the British and Colonial armed forces. How this was achieved forms the subject matter for this article and I am grateful for the access I have been given to the private papers of Robert Lenoir, who was responsible



Fig. 2. Pocket watch made for the Army from 1942.

for Smiths' watchmaking design and development, and which have provided me with an invaluable insight into the order of events and the timescales involved.²

Wartime developments

Horological products were recognised by the government as an essential strategic wartime resource. It was also seen as wise to avoid complete dependence on the Swiss. At the end of the war, and with the future in mind, Sir Stafford Cripps explained in the House of Commons that the sort of light engineering industry implied by an ability in horology was valuable for the strategic capacity it offered, and in times of emergency it could be redeployed in tasks such as fuze making where Britain had found itself woefully underprepared.³

Such thinking can be traced back as far as 1942. Thus the government through the

1. For further background, see James Nye, *A Long Time in Making* (OUP: London, 2014), pp. 115–17, 119–123, 131–34.

2. Robert Lenoir left a sizeable quantity of highly detailed personal and official papers, kindly lent by his son, also Robert. See James Nye, 'An Englishman, a Frenchman and a watchman: the cross-border life of Robert Lenoir (1898–1979)', *Antiquarian Horology* 37/4 (December 2016), 497–510.

3. *HC Deb* (16 October 1945), vol. 414, cc. 1045–50.



Figs 3 and 4. Back and movement of the pocket watch shown in Fig. 2. It was made for the Army from 1942 in accordance with the General Service Trade Pattern specification.

Ministry of Supply had been keen to support Smiths financially, for instance by the provision of plant and subsidising the manufacture of jewels as well as through the procurement of high grade watches for the armed forces. These plans included the vision that watches developed for the war effort would provide the basis for the creation of a British post-war horological industry.

Smiths 15 jewel watches were developed during the war at the Bishops Cleeve factory near Cheltenham. The first was a pocket watch made for the Army in 1942 in accordance with the General Service Trade Pattern specification (Figs 2, 3 and 4). Namely, a 19 ligne 15 jewel pocket watch with subsidiary seconds, timed in three positions and with a daily rate not exceeding plus or minus thirty seconds, cased in a nickel or chromium plated brass case with the stores reference G.S.T.P and serial number engraved on the case back. Watches made to this specification were already being supplied to Britain by more than twenty Swiss companies, including Jaeger LeCoultre, a company with which Smiths had close connections, both through Robert Lenoir and as suppliers to the Air Ministry of Jaeger LeCoultre watches.

Smiths was not able to manufacture G.S.T.P. watches in quantity. They were pre-production prototypes made without markings, manufacturer's name, or evidence that they were made in England, and most have no serial number engraved on the case back, making the keeping of an official inventory impossible. In addition to the requirements for the army, Smiths received an order listed under stores reference 6E/50 for 3000 pocket watches required by the RAF to satisfy the needs of personnel in engineering and medical roles. However, no deliveries were made.⁴

The 19 ligne pocket watch was followed in the latter part of the war by a 12 ligne 15 jewel wrist watch known as calibre 12.15. The design of plates supporting the wheel train is similar for both watches and, importantly, they shared the same escapement geometry; the escape wheel and pallets being the same size and derived from the smallest of Smiths All British Escapement Company's (ABEC) platforms. (Fig.5)

Lenoir wrote in his personal notes that

In 1944 I was asked by Sir Allan Gordon-Smith to show King George VI around the

4. Internal MAP memos to C.48 and C13D, from M. Wimpenny, Inst.P.1. (26 January 1945), TNA: AVIA57/33.

SMITHS ESCAPEMENT STANDARDIZATION FOR JEWELLED LEVER WATCHES



ABEC SMALL PLATFORM - 19 LIGNE POCKET WATCH - 12 LIGNE WRIST WATCH

Fig. 5. The ABEC platform, pocket watch and wrist watch escapement parts are interchangeable.



Fig. 6. Mk VII navigator's watch for the RAF, manufactured by Jaeger LeCoultre and supplied to the Air Ministry by Smiths.

Cheltenham watch factory on which occasion he was presented with one of the first 12 ligne wrist watches for the RAF.

The King's visit which took place on 19 July provides useful evidence in support of 1944 as the year in which the 12.15 began to be made. During 1940, the Air Ministry had established

a specification for the Mk VII navigator's watch for the RAF. Air Publication 1251, Vol. 1, dated February 1941, lists the Mk VII under the stores reference 6B/159 as a centre-seconds 36-hour keyless lever movement, the majority of which are fitted with a rotatable Weems type navigation bezel. The manufacturers included Jaeger LeCoultre,



Fig. 7. Wrist watch donated to the Science Museum by Smiths in 1948. The case back is engraved with the Air Ministry stores category 6B/159. Photo © Science Museum, London.

whose watches were supplied to the Air Ministry by Smiths (Fig. 6).

Centre seconds was always specified for aircrew watches and in 1944, when prototypes for the 12.15 calibre began to be made, it would have been inevitable that the Ministry in supporting Smiths would have expressed this as a requirement. Indeed Lenoir's responsibility for the design of a pocket watch for the Army, followed by a 12 ligne centre-seconds wrist watch for the RAF, is made clear in his hand written notes for the 1939 to 1944 period. Important historical evidence for this exists in a wrist watch donated to the Science Museum by Smiths in 1948, for which the case back is engraved with the Air Ministry stores category 6B/159 (Fig. 7). The watch is a prototype centre-seconds version of the 12.15 movement, made by making a hollow centre wheel arbor through which a centre-seconds arbor has been fitted. The pinion of the seconds arbor is driven by a wheel fitted to an extended pivot of the third wheel and is clearly visible above the top plates of the watch. This example is in a case with a serial number in excess of twelve thousand and a date of 1942 that predates the movement

itself by at least two years. The most likely explanation of the difference in dates between the case and the movement is that when this prototype was made Smiths did not have wristwatch dials or cases in production, let alone for Mk.VII watches. However, as the supplier of Jaeger LeCoultre Mk. VII watches to the Air Ministry, Smiths would have had no difficulty in using an earlier case, hands, and dial for the purpose of presenting the prototype. Indeed the dial and hands are unmistakably of Jaeger LeCoultre origin. The watch is of unique interest in that it was clearly made for discussions with the Ministry with the objective of considering the company as a possible supplier of the Mk. VII wrist watch for navigators.

As mentioned above, the King's visit to Cheltenham provides evidence that 1944 was the year in which production of the 12.15 started. 1944 was not, however, the start of production in any sort of quantity and the centre-seconds project for a British made Mk. VII did not progress beyond the prototype stage. Instead, a subsidiary seconds specification was created by the Ministry specifically for Smiths under the new

designation of Mk. X. These were given the stores reference 6B/300 and 2500 were ordered. It is logical to conclude that the Ministry decided (wisely) that Smiths was unlikely to succeed in achieving mass production of a centre-seconds version of the 12.15 and decided it would be more realistic to order the basic subsidiary seconds movement. It was normal practise in such contracts to make a number of pre-production watches for evaluation and it is, therefore, possible that some Mk. X prototypes were made.

However, the Mk. X order was placed in the latter half of 1944 and by 1945 the end of the war was coming into sight. In consequence, a very different situation was beginning in which the ongoing demand for watches caused by the war was changing to a reduction in demand and a position of redundant stock. Because of this, questions about what to do with surplus stocks began to take place and in January 1945 internal Ministry of Supply memos evidence the preparation of lists of clocks and watches for which orders had been placed; analysed by type, stores reference and the outstanding position with respect to stock and deliveries. The remarks on the schedules show that, with respect to the order placed on Smiths for Mk. Xs, though no watches had been delivered, 'Smiths hope to commence shortly'.⁵ But by then the war in Europe was nearly over, the demand for watches was changing dramatically, and any 'hope to commence shortly' was no longer relevant to the situation.

Fortunately for Smiths, the Government's position remained one in which the need for a British watch and clock industry post-war was seen as vital to the industrial health of the country, and on behalf of the Air Ministry the Ministry of Supply was still keen to buy a British centre-seconds wrist watch. Finally, by 1946/47 a series production line was in place and reliable deliveries of high grade pocket and wrist watches to the domestic market began. Crucial to that endeavour had been the creation by Smiths of the All British Escapement Company in 1928. However, a problem with respect to high grade watches had remained throughout the war years

because whilst ABEC had been successful in producing most escapements in quantity from 1931, the production of high grade watches could only take place by hand finishing the escape wheels. The mass production of high grade jewelled lever watches could, therefore, only be achieved with the use of an escapement finishing machine. Development of such a machine had started in 1931 shortly after the creation of ABEC but took fifteen years to perfect, taking the start point for high grade mass production to 1946.⁶ Then, at long last, both the pocket watch and 12.15 became perfected movements that could be mass produced. They were made with gilded plates, balances with poising and timing screws and, in the case of wrist watches, made available in higher grade versions with overcoil balance springs and more than 15 jewels. It had been a very long and difficult haul. At a BHI convention in July 1950 Robert Lenoir was invited to speak on the subject of 'British Watch Production Today'. He concluded with respect to Smiths:

The production of high-grade watches was a slow and expensive process – very expensive – but they were determined to establish a successful high-grade watch production.⁷

The movements of the high grade Cheltenham watches are particularly distinctive in their appearance and it is immediately obvious that the pocket and wrist watch are essentially the same design except in size. In spite of this, a widely held view can be found on the Internet that the design of the 12.15 originated from Jaeger LeCoultre; an opinion largely based on the fact that Robert Lenoir, Director of Smiths watch making division, had started his career working at both Jaeger and LeCoultre, moving to London in 1920 to work in Jaeger's UK subsidiary. However, Lenoir himself stressed that

It should be noted that our methods of watch production were not copied from the Swiss practice but were modified so as not

5. As per footnote 4.

6. The date is derived from Lenoir's comments at the July 1950 Convention – see footnote note 7.

7. *Horological Journal* (July 1950), 441-42.



Figs 8 and 9. The Smiths (right) and Jaeger LeCoultre (left) pocket watches, both supplied to the British army at the same time and to the same 15 jewel GSTP specification.

to be dependent on highly skilled labour not available in this country.⁸

In fact the 12.15 is based on the 19.15 pocket watch and examination shows that, with the exception of the detent click for the winding ratchet and associated keyless work, these watches are the same design, both in the shape of the plates and the technical details; indeed the escape wheel and jewelled lever

are interchangeable except for the length of the arbors. Therefore, and because the 12.15 is basically a small version of pocket watch, any Jaeger influence should be readily apparent by comparing the Smith pocket watch with the Jaeger pocket watch, both supplied to the British army at the same time and to the same 15 jewel GSTP specification.

Fig. 8 shows the plates, bridges and cocks of the movements and Fig. 9 shows the dial plates.

8. Lenoir papers (see n. 2).



Fig. 10. The movements of the Jaeger LeCoultre 6B/159 (Fig. 6) and the Smiths prototype in the Science Museum (Fig. 7).

It is clear from these images that the layout of the wheel trains is completely different and results in the escapements and balance wheels being on opposite sides of the movements. In addition, the setting lever design used by Smiths and traditionally used to identify makers is unique to Smiths. It is different in that the setting spring does not form part of the setting lever bridge (Swiss part 445) as it does in all Swiss makes including Jaeger LeCoultre. Instead, Smiths used a separate wire spring that acts on the setting lever.

Let us move to specific consideration of possible Jaeger influence on the design of the 12.15 wrist watch as envisaged for use in the RAF. In Fig. 6 we saw the Jaeger LeCoultre 6B/159 wrist watch as supplied through Smiths and in Fig. 10 its movement is compared with that of the Smiths prototype in the Science Museum. It is very clear that both are 12 ligne, indirect centre seconds versions of their respective 19 ligne pocket watches as shown in Fig. 8. The Smiths pocket watch origin of the 12.15 design remains true for its derived calibres in the 6B/542 and the W.10 wristwatches that were supplied to the armed forces post war.

A final proof of independence from Swiss influence can be found in the novel method used by Smiths of attaching all cocks and

bridges to the dial plate in both pocket and wrist watches. These are secured by screws that enter tapped holes in posts standing proud of the dial plate. The posts enter holes in the bridges and cocks in the manner of steady pins to locate the parts precisely. This method of construction (probably deriving from clock manufacture) is unique to Smiths and not, as far as I know, found in any other manufacturer of high grade watches. In summary, the Smiths 19 ligne pocket watch is entirely a Smiths English creation and the 12.15 derived from it owes its design and appearance to no other watch.

Post-War

By the time Smiths had the facilities in place for quantity production, the MOD requirement for general service military pocket watches had come to an end. However, a few were made as railway watches for the London and North Eastern Railway (LNER) (Fig. 11) and a requirement for Smiths pocket watches by the military in Pakistan continued until at least 1952. For the domestic market, pocket watches first appeared with the name *Smith* and *Made in England* on the dial, then *Smiths* and lastly *Smiths De Luxe*. But inevitably, pocket watches were soon seen as impractical, demand in the British domestic market declined in favour of



Fig. 11. Smith railway watch for the London and North Eastern Railway (LNER).

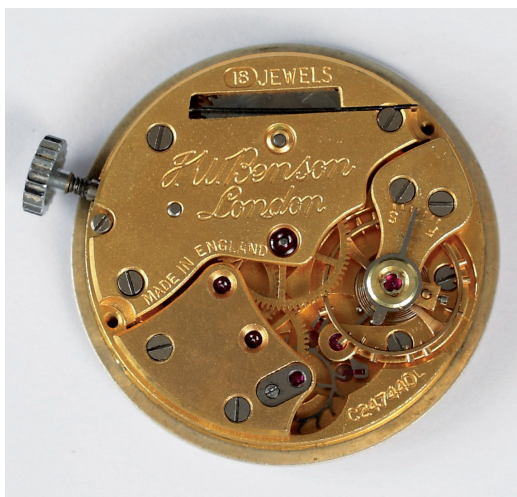


Fig. 12. Smith 12.15 movement made with specially finished, high jewel count, in a watch retailed by Benson of London.

wrist watches, and Smiths discontinued production in 1953.

For wrist watches, the De Luxe name in conjunction with the Astral 'Crown' logo came into use in 1952. Famously, in 1953 Edmund Hillary, with a 12.15 De Luxe in his possession, conquered Everest. It was not surprising that

the name Everest was then used to enhance the Smiths range of watches. The most telling name, however, was the 'National 15', personifying the revival of jewelled lever watch manufacturing in Britain and shown in Fig. 1. The 12.15 made with specially finished, high jewel count movements now became of interest to prestige retailers such as Benson for use in their own watches (Fig. 12).

A high grade watch was also needed for the ladies, but the 12.15 was too large and a smaller version was not a practical option. A small ladies calibre had been foreseen as a post-war requirement but its development and tooling for mass production would not be quick. In order to fill the gap Smiths sensibly used the *ébauche* system of manufacture and bought-in a 15 jewel $8\frac{3}{4}$ ligne *ébauche* from the Judex company, a French watch maker based in Annemasse near the border with Geneva. The Judex calibre 130 *ébauche* was finished, signed and gilded at Bishops Cleeve thus enabling a ladies watch to reach the market in 1951. From 1952 it was made with De Luxe on the dial as shown in Fig. 13a. The movement of this example (Fig. 13b) is in a gold case manufactured by Dennison and hallmarked for



Figs 13a and b. Dial and movement of Smiths ladies watch, made from 1952.



Fig. 14a. Smiths post-war military wrist watches based on the 12.15 movement and its derived calibres.

1955/56. In 1955 Smiths completed the development of their own ladies movement and the calibre 200, a small 17-jewel rectangular watch for ladies was introduced.

With high grade wrist watches at last being made in reliable mass production it had become possible by 1949 for the MOD to return to their requirements. This was a

matter of sufficient concern for the Air Ministry to stress the urgency of placing a contract with Smiths for the development of a centre seconds watch for the RAF, and that work should start without delay 'with the strategic purpose of reducing the total dependency on the Swiss and also avoiding the expenditure on Swiss currency'.⁹

9. K. Grant, IRP.6 to Watson, R.D.Inst.2 (20 March 1950), TNA: AVIA 55/200.



Fig. 14b. Smiths 6B-542 pilots watch.



Fig. 14c. Smiths W10 General Service Watch.

Discussions resumed between Smiths and the relevant Ministries and the development of a centre-seconds version of the 12.15 was again initiated. This was achieved by fitting a drive wheel on an extended pivot of the third wheel; an indirect-seconds method similar in principle to that used in the Science Museum war time prototype. The new calibre 27 C.S. proved to be successful and an order was placed under the 6B/542 stores classification. Deliveries to the RAF began in 1954 after which it was made for the domestic market. Smiths post-war military wrist watches based on the 12.15 movement and its derived calibres are shown in Fig.14a. The centre-seconds version for pilots (Fig. 14b) was further developed with a hacking function under the NATO classification W. 10 for all three services (Fig. 14c) in which role it was made in large quantities as a General Service Watch with deliveries starting in 1967. It represented the final development of the basic 12.15 and appeared for sale in the domestic retail market under the Astral name.

During the 1950s two completely new high quality movements were needed; the first to

replace the ageing 12.15 and the second to replace the RAF's Mk.11 navigation watch made by IWC. To meet these requirements, a horological laboratory was established at Colindale and a design and development team appointed. Shortly thereafter the laboratory was moved to new premises in Clerkenwell where the prototypes were made. Production would be carried out at Bishops Cleeve as usual but with escapements made in Switzerland.

Replacement of the 12.15 involved a new design with directly driven centre-seconds and improved winding work that could also be made as an automatic. This was achieved with the calibre 0104 and first used in the hand-wound Imperial (Figs 15a and 15b). The mechanism of the automatic winding version was based on the method designed in 1950 by Albert Pellaton, technical director of IWC and reviewed in the *Horological Journal*.¹⁰ Incidentally, there is a much repeated story that IWC challenged Smiths on the grounds of an infringement of patent – however IWC has recently confirmed there is no record of such a challenge.¹¹

10. *Horological Journal* (March 1961), 161-64.

11. I am grateful to Dr Seyffer and Mr Zimmermann at IWC for conducting a search of the IWC archive on my behalf to put to rest this myth.



Figs 15a and b. Smiths Imperial and movement. Top right: Fig. 16. Smiths Everest.

The hand wound calibre 0104 was also marketed under the Everest name as shown in Fig. 16. Replacement of the IWC Mk.11 involved the design from scratch of a new high specification navigation watch. The

specifications of the 6B/542 pilot's watches derived from the 12.15 were good enough for navigation using a radio beacon, but for independent astro-navigation a watch with a tighter specification for daily rate was needed and the IWC Mk.11 had served in this role since 1949. The last orders for the Mk.11 had been placed in 1953 and the procurement of a new generation of navigation watch had been under consideration by the Air Ministry. Following successful deliveries of the Smiths 6B/542 pilots watch, the company was seen as the preferred supplier and a set of Ministry of Supply minutes confirm that a contract would be placed with Smiths with production beginning in 1957.¹² Amongst the criteria to be considered, ease of servicing was emphasised. Three initial prototypes were made at Clerkenwell and submitted to the Air Ministry for evaluation (Fig. 17).

The movement is shown in Fig. 18. Could it be a step backwards to the out of date, traditional, English three-quarter plate layout that the image might suggest? Yes and No. It is three-quarter plate but the movement has 21 jewels and a re-designed wheel train with

12. 'Notes on Meeting on Watches and Clocks at Smith's Cheltenham Works' (8 January 1953), TNA: AVIA 55/200.



Fig. 17. Smiths Navigator, and Fig. 18. Smiths Navigator movement.

directly driven seconds that avoids the backlash inherent in the indirect system, plus a new design of hacking function that does not touch the balance. To top it all it has a jewelled motor barrel similar to that made by Hamilton in the USA and used only in some of their highest grade railroad and military chronometer watches. All this is hidden under the gilded main plate of traditional English appearance. The large 13 ligne movement is housed in a specially made waterproof stainless steel case of superb quality, with inner antimagnetic shields and fitted with the existing RAF dial, itself forming part of the shield. I doubt that the design of the Hamilton type motor barrel had ever been seen in an English or European watch before, let alone a wrist watch. The standard barrel arrangement has its arbor pivoted in the barrel itself and the mainspring is hooked to the barrel arbor which is turned by the ratchet wheel to wind the watch. Once wound, the arbor is held stationary whilst the barrel turns round its large axle to drive the wheel train. The Navigator motor barrel is very different in that two arbors are used. A barrel arbor that is fixed solidly to the barrel itself, plus a ratchet wheel arbor that is hollow, fixed to the ratchet wheel, and which fits freely over the barrel

arbor. The barrel arbor is pivoted in jewel holes in the pillar plate and ratchet wheel, and the inner termination of the mainspring is hooked to the ratchet wheel arbor. Now, when the watch is being wound, the hollow ratchet arbor turns round the fixed barrel arbor. When unwinding, the barrel arbor rotates and the barrel with it. This arrangement, totally different from conventional practice, allows for much finer barrel pivots and these turn in jewelled holes in the pillar plate and ratchet wheel. When invented in the USA in the first decade of the 20th century this barrel design was justified for exceptional watches by the greatly reduced friction, the even delivery of power, and the longer run time. However, it is complex, very expensive, and not easy to service. I presume that it was justified in the minds of the development team at Smiths on the basis that it would only be made for the small number of exceptional watches required for astro-navigation.

The IWC Mk. 11 had been serviced exclusively at the Royal Observatory's workshops in order to ensure that its specifications and daily rate were maintained. Unfortunately, when the Smiths navigation watch was submitted to Greenwich for evaluation it failed to be approved (Fig. 19).

Smiths prototype navigation watch

Thirteen ligne 21 jewels

Direct centre seconds with
hacking system free of the
balance wheel

Jewelled Hamilton design
motor barrel

Double shell steel case

Designed and made
in Clerkenwell by
Smiths horological
research & design
team

Three made for
acceptance by the
chronometer dept
Royal Observatory
Herstmonceux

Approval to proceed to
production quantities not
given



Fig. 19. Smiths navigation watch.

The late Richard Good, who had been part of the development team at Clerkenwell, wrote in the *Horological Journal* that D.W. Evans of the Royal Observatory, Herstmonceux, refused to recommend its acceptance.¹³ Ease of servicing had been emphasised by the Ministry from the very beginning of the project and the Smiths prototype with its three-quarter plate direct drive centre seconds movement, with the hacking function buried under the wheel train, and a motor barrel system that no one would have been familiar with, was about the most difficult routine servicing job imaginable and it has

been thought that might well have contributed to the decision. However, the official reason is now known to be that it failed to pass the required tests for position and isochronism.¹⁴ The Royal Observatory returned the three prototypes to the Ministry and there they remained until they eventually came to light in the government disposal auctions that took place in 1982. With the failure of the planned replacement navigation watch the Ministry decided to do without a replacement for the IWC MK.11 and it remained in service until it was decommissioned by the RAF in 1981.

13. *Horological Journal* (November 1999), p. 373.

14. Anonymous referee who worked at Herstmonceux.

As far as the domestic market was concerned, sales on the high street, developed on the back of government support of military requirements, had probably been regarded by industry observers and the wider public as successful. However, profits were not being made and heavy losses continued in the watch division of Smiths. During the 1960s the traditional 18000 beat per hour oscillation of a watch balance, as found in Smiths watches, was becoming out of date. Higher balance wheel frequencies offered improved accuracy and, surprisingly, Smiths new calibres developed at Clerkenwell did not follow the trend to higher frequencies. If Smiths were to compete successfully they would have to return to the drawing board and develop new high beat calibres but without the support of a military development contract. Unfortunately for Smiths, a Swiss high beat military wristwatch in a one piece case and using an ETA direct drive centre seconds ébauche had already arrived that enabled improved performance. It carried the NATO general service classification for all three services and, crucially, such a watch could now be purchased economically without buying from the famous names. The British government lost no time in buying them and, sadly, watches for the military would no longer bear names such as Omega, Longines, Jaeger-LeCoultre, IWC and, indeed, Smiths. Whatever the name on the dial of a military wrist watch, the movement would now with few exceptions be supplied by the companies of Ebauche S.A. in Switzerland. Further support for Smiths from its military sales was now doomed as the prospect of competing successfully with ETA was unrealistic. They had achieved great technical success with their post-war wrist watches for the British and Colonial armed forces and those that followed for the civil market. However, it was not a success in terms of profit because Smiths simply could not compete with the efficiency of the Swiss or the newcomers in Japan. By 1970 the financial situation worsened further and the decision was made to abandon the dream of making watches in the UK and instead exploit the value of the Smiths brand in the domestic marketplace by casing movements made in Switzerland and Japan.



Fig. 20. Smiths Quasar.

The closure of high grade mechanical watch production at Cheltenham was completed by March 1971.

Well away from timekeeping based on mechanical oscillators, work had been taking place in Smiths Special Horological Products Unit to develop a quartz watch Fig. 20, the Quasar, and this was allowed to continue on the basis that success could be achieved by exploiting the superior performance of a much higher quartz frequency than was generally in use. The first quartz watches in the world to be made in series production went on sale in Switzerland in April 1970, and by 1972 the quartz watch had become a well-established technology. In a highly competitive market, dominated by Switzerland Japan and the USA, prices soon came down and during 1973 a quartz watch was marketed in the UK by Timex at around £30 and went on to be one of the most successful analogue quartz watches ever made. So when in the same year the Smiths Quasar was shown at the Basel Fair and described in the *Horological Journal* it was, in reality, already three years behind whilst still a pre-production prototype.¹⁵ Not

15. *Smiths Industries News* (April 1973), 3; *Horological Journal* (July 1973), 12.

only was this at a time when the public could buy a quartz watch for less than half the projected price for the Quasar of £70 upwards, but also, how long would it take for Smiths to move from a prototype to establishing reliable mass production?

Not surprisingly, the Smiths board of directors pulled the plug on the Quasar project. Then, for a brief period Smiths sold Swiss and Japanese ébauches, both mechanical and quartz, under their own traditional brands names such as Astral, but the dream of a British national watch manufacturing industry was over. Nevertheless, interest by the public in good

quality watches that had been made in England did not die. In the 1980s major government disposals of military watches took place and this coincided with the vigorous growth taking then taking place in the collectors market for wristwatches made by famous makers. By the 1990s, Smiths high grade watches made at Cheltenham, and those made for armed forces in particular, had become a significant niche in the collectors market and today are highly valued.

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