

UNDERWATER LEGACY

When it arrived on the market half a century ago in the early 1960s, the European designed underwater camera the Calypsophot was the epitome of creative engineering, and highly specialised, innovative design. Paul Kay FRPS discusses its enduring legacy

By the mid-1950s, exploration of the ‘shallow’ seas, to about 50m depth, had begun in earnest, following Jacques Cousteau and Emile Gagnan’s development of the aqualung, and the increasing popularity of scuba diving. Most of the underwater cameras then available were actually land cameras, which were placed inside bulky watertight housings and far from easy to use. Aware of this, Cousteau teamed up with Belgian engineer Jean Guy Marie Joseph De Wouters.

As a result, De Wouters was commissioned by diving

equipment manufacturer Spirotechnique, to develop a new design of purpose built underwater camera.

He commenced working on the project in 1956, and the first Spiro model prototype appeared in 1957. When the final camera was produced, its name was derived from a combination of Cousteau’s research vessel, the Calypso, and photo, hence Calypsophot.

When it arrived on the market half a century ago, the Calypsophot was the epitome of creative engineering and highly specialised, innovative design. Despite this, it had only a short lifespan as a production camera in Europe, and its enduring legacy is due to both its manufacture and subsequent development being transferred to Nikon, at the time one of the fast growing Japanese camera companies.

De Wouters’ design was highly inventive. Its combined wind-on and shutter release lever was unique and unconventional. Its method of interlocking the two body halves as the lens was fitted, which ensured that both the main waterproof seals were properly engaged and could not be disturbed inadvertently, was ingenious. The lens design meant that, as the lens housing was pushed home and then rotated, the spring-loaded optical assembly was pulled backward by the camera’s internal bayonet until it seated correctly.

Other developments included a simple two bladed, Duralumin focal plane shutter, required because the camera’s lenses were interchangeable. The problem of porosity within the diecast, aluminium body shell, was

dealt with by use of both anodisation and heat-treated resin impregnation.

Once developed, the Calypsophot was produced for Spirotechnique by French camera manufacturer Atoms. It is difficult to find any precise



Above: The original Calypsophot camera. This appears to be a version from mid-production in grey. The standard Som Berthiot lens is fitted. Strap was not removable.

information about production dates or numbers, but something in the region of 4-8000 cameras appear to have been built from about 1960-63, and were on sale for a couple of years more.

There were various guises and modifications throughout the Calypso’s short production life, about which little definitive information seems to exist. Originally the camera had shutter speeds from 1/1000-1/30 sec, but at some point the 1/1000 shutter speed was dropped. The serial number ended up on top of the camera on the ‘flash’ shoe (in reality for a viewfinder or light meter) after having started on the back, to the right of the viewfinder. Apparently, later models were also marked, ‘made in France’.

Priced considerably lower than a housed camera, the Calypsophot should have been a commercial success. Perhaps it didn’t sell as well as had been anticipated however, because within a year of its release, Spirotechnique had allowed Nikon exclusive rights to both produce and market its own version of the camera, and a Nikon produced version debuted at the eighth Photokina in March 1963. Japanese domestic sales began that August, while Spirotechnique gained distribution rights for the Nikonos camera within France and EEC. Spirotechnique had apparently



initially approached Nikon, which was gaining a reputation for producing high quality camera optics, to see if it could build and supply a lens.

There are suggestions that there may have been some flaws in the original camera. The flash connection (Spirotechnique supplied a bulb flash holder on a pivoting arm) was less reliable than could have been desired; the rewind lever mechanism was apparently not as perfect as it might have been; the lack of a film sprocket drive meant variable film frame inter-distances; and there may have been some problem with either the camera's Som Berthiot lens or its supply.

The fact that Nikon retained the fundamental body design however, indicates that it was basically sound, although extra development and some modifications were probably still needed.

Despite the Nikon camera, badged as either Nikonos or Calypso-Nikkor (the European version?) going into production, original Calypsophots were apparently still on sale in the UK as late as 1965, although now for as little as half the original price, suggesting that stock of the original cameras had taken quite a time to sell. The name Calypso-Nikkor has inevitably led to confusion over this part of the camera's history.

By the first half of 1964, sales of the Nikon produced cameras had rapidly increased, with an average of 1300 being sold each month. In 1968, Nikon made design changes, and produced the Nikonos II; and in 1975, the Nikonos III appeared. This model earned the reputation of being the sturdiest and most reliable of those based on the original design. By now, Nikon had ironed out any flaws, and the result was, by the standards of the day, an effective underwater imaging tool.

The legacy of the Calypsophot remains with us today. Nikon's dominance of the underwater camera market,

Above: Diver and Nikonos 4a. In the mid-1980s, Nikonos were still the most widely used underwater cameras. Optics still retained the original, well thought out Calypsophot mount.

which started when it took over the original camera, led to the Nikonos V, which still used Calypsophot-type lenses, and featured a five-pin flash socket, required to enable the camera to electronically link to the flash unit for automated control. This socket remains the industry standard even today, with the majority of underwater housings for DSLR using it.

LENSES



Above: Som Berthiot and Nikon lenses. Bottom left is the standard Nikon lens, bottom right the Som Bertiot and above is the 28mm Nikon underwater (only) lens.

The first Nikonos, built by Nippon Kogaku K K (Nikon) apparently left the Calypsophot's camera mechanism almost as it was, but changed its Som Berthiot 35mm f/3.5 Flor lens (a name the company used for its Tessar-type lenses) to a faster, Nikon produced, Nikkor lens, the W Nikkor 35 mm f/2.5, a more sophisticated but still compact, 4-group, 6-element, typical Gaussian type. The design for this was based on the optics of an

existing lens, released in 1952, for Nikon S and Leica screw mount cameras. This may simply have been because it provided the Nikonos with a higher speed lens, of good performance, which could be easily fitted into a Calypsophot type-lens barrel.

Arranged in front of the front element of both the French Som Berthiot and Japanese Nikkor lenses was a flat glass plate. Simply a watertight window that protected the lens against high water pressure, its use meant that chromatic aberration and pin cushion distortion were generated in the periphery of the picture frame. The later Nikon-built lens housing also included a filter thread, so that (eventually numerous) accessories could be screwed in front of the lens.

It seems reasonable to assume that, like the Nikkor, the original Som Berthiot lens was also derived from an existing rangefinder fitting lens. Som Berthiot did produce a lens of the same design type, focal length and apertures in Leica screw mount (which are now highly collectible and very expensive). Performance of the older design Som Berthiot lens may have explained why Spirotechnique investigated the possibility of utilising a newer Japanese designed and produced lens, as the European designs from the 1950s had different performance characteristics, and were of lower contrast. Newer, higher contrast lenses would have been preferable for use in the low contrast conditions found underwater.

CALYPSOPHOT DESIGN

It is interesting to speculate further on the contribution of Leica screw mount cameras to the design of the Calypsophot. Not only did the original lens choice potentially influence the design, the body design too has great similarities to Leica screw mount bodies models IIIA and B, in that, during strip down of these models, the inner mechanism is lifted out of the body shell in much the same way as is the Calypso's top section, complete with full internal mechanism. Replacing the Leica's baseplate on its body shell meanwhile produces a casing not entirely unlike the Calypso's lower body shell. It might just be that De Wouters saw what potential this had, and then sought to apply it to an underwater design. If so, his genius in succeeding in doing so, and producing such a compact, pressure proof unit, should not be underestimated.

Unfortunately, the original decision to use a lens which appears to have originated as a Leica screw thread design ultimately led to the demise of the non-reflex Nikonos system. By the late 1980s, auto focus SLRs had appeared, as had underwater housings for them. Their advantages were enormous, and they effectively revolutionised underwater photography (as later did digital imaging). The original Nikonos was outclassed, and despite diehards sticking with it and continuing to take excellent images, the versatility, relative ease of use and increased hit rate of the housed cameras was difficult to ignore.

Information about the other French lenses built for the Calypsophot is very difficult to find. The original Calypsophot instruction book mentions a 45mm f/2.8 lens, which it states is 'recommended for land use'. This actually was an Angenieux lens (another French manufacturer, and a competitor of Som Berthiot). For underwater use an 'extra-wideangle', six element, 28mm f/3.3 Angulor (another name used by Som Berthiot) was shown.



Above: Velvet crab. Close-up lenses required 'framers' (wire guides) to be placed over subjects, which excluded many organisms of interest, and made others (like this) difficult to photograph.

Right; Jellyfish. To use a Nikonos camera in the murky waters of the North Atlantic required accessories such as close-up lenses. While these increased versatility, they did not always improve optical qualities of some of the already old lens designs.

A Field Guide to the Marine Fishes of Wales and Adjacent Waters
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HB, 256 pages
Marine Wildlife
ISBN 978-0956204806

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Two other focal lengths were mentioned, a 90mm and a 135mm, but neither seem to have materialised. Considering the difficulties that would have been faced in focusing these by estimating distance under water, this is hardly surprising!

As later produced Nikonos lenses were usable on the Calypsophot, the lack of French produced lenses did not remain a problem for early adopters of the camera. Eventually, waterproof 15mm, 20mm, 28mm and 80mm (effective with the close-up attachment also produced) lenses joined the 35mm, as well as various other accessories. Independent manufacturers also produced accessories, including light meters, viewfinders, close-up units, and extension tubes.

Of the several thousand Calypsophots produced and sold, the majority probably saw use in the conditions for which they were designed – the harsh and corrosive undersea environment – and many would have had a hard life. A good number probably flooded, and would have been destroyed by the ingress of salt water which, if not cleaned out immediately, soon rotted the delicate internal parts.

Others would have been used only briefly by their owners, the difficulties of underwater photography in the early 1960s resulting in many being quietly put away and no longer used, and these are the cameras most likely to have survived.

Consequently, although there are quite a number of Calypsophots still in existence, it is difficult to estimate how many. Amazingly, those that survived can still be serviced, and would probably be usable underwater. In reality, they are now collectors' items. For the most part, prices are not terribly high (although mint, unused, boxed outfits have commanded silly prices).

The Calypsophot, although not a massive commercial success in its original guise, led to the Nikonos, which was, for nearly 40 years, the standard by which other underwater cameras were judged, and sold in huge numbers. As such, the Calypsophot has earned its place in photographic history, and should now be considered to be an icon, not just of underwater photography, but also of the emerging 1960s diving scene – a unique era of discovery, when relatively ordinary people were able to explore a new and largely unseen environment for themselves.

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