



The viz on this day was no more than 10 metres but a Pano shot gives the impression that it was much more. A Greenwater Magic Filter helps too! The light in the top right was from an on-housing Joby Beamo LED light.

photographer and good dive buddy Dan Bolt who opted to shoot conventionally (and vertically) with overlapping frames. His experience was that the software he used afterwards, given frames with very few straight lines to reference, struggled to come up with an acceptable result. It was only by using a combination of apps that he was able to achieve an end result. Now this all takes time and needs to be done on a shot by shot basis. The beauty of the iPhone is that it is live and saves the images to your Photos folder.

I have always dreamt of being able to shoot in this mode underwater and it has been quite a while coming but now that it is as simple as pressing a button and panning, the underwater

experience and possibilities are very exciting.

The big attraction of Panos in limited viz like the UK is that you can achieve images which have much more space in them. The longer you pan, the wider the image and this has never been possible live before so I think this will be an exciting capability. Just imagine how exciting it will be when I get the housing in some clear blue water...

I apologise for this being such a one-sided review but the Pano function is very important to me. However the housing allows you to shoot quality stills, 4k 60p video, timelapse, slomo and even the arty Portrait mode so the capability is truly unique in a package which

would fit into a large BC pocket when not needed.

Oh yes and to cap it all there is a flip colour filter for blue water which I was able to modify crudely to take a Magic Greenwater filter. But then I would, wouldn't I :-)

Measurebators and quality freaks will no doubt denounce the iPhone as a tiny sensor, poor low light gimmick and they would have a point but I would counter that with, use them in the appropriate natural light or with additional LED lighting for close up/fill, and you will get a quality which will satisfy the majority of average underwater photographers. Sure, if you want to capture the intricate detail of a gnat's cock with 50mp resolution with a finance

stretching, weight busting 'rig', you will obviously be disappointed so it's each to their own.

The funny thing is that the vast majority of underwater photographers will use iPhone/Smartphones quite happily on land and be very pleased with the results yet they would never consider them for use underwater.

I maintain that you are missing out on a very exciting development but that's up to you.

Either way, enjoy yourself.

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The Lens that Changed My Life

by Patrick Baker

In 1970 my photo by-line, Patrick (or Pat) Baker, began to appear in underwater publications and Archeological reports. I had been fascinated by the underwater world since the age of 10 and became a keen photographer towards the end of high school. Working towards a quite different career I suddenly realized that photography was what I was most interested in - even secretly dreaming that someday I might be able to combine photography and diving.

The sixties were well swinging by 1963 when my full-time studies began at the Polytechnic School of Photography. The Poly had a basement swimming pool (now the Deep End Cafe) and I joined the small BSAC Special Branch (#182) there, struggling through the swimming tests, on to SCUBA training and at Easter 1965 my first sea dives, out from Salcombe.

I bought a second hand Nikonos, self-made underwater light meter and close-up lens but despite several years of photographic experience struggled to get much more than indifferent underwater photographs.

My career decision had given me

direction for my working life, but in March '69 a recreational underwater archeology course revealed to me my future photographic speciality.

The School for Nautical Archaeology Plymouth (SNAP), created by three enthusiastic amateur diving archaeologists (Alan Bax, Jim Gill and Owen Gander) had just began to run, each month, training courses to encourage amateur appreciation and involvement in the field.

Owen had been a member of the 1968 expedition to survey, excavate and raise the cargo and hull of the c.50BC cargo-carrying "Kyrenia ship", discovered off the Cyprus north coast. Alan, then still a serving Navy Hydrographer, was already involved with the Committee for Nautical Archaeology and he and Jim (a Polymath; Architect, Builder, Photographer and Artist) had worked together on the Shetland VOC ship wreck, de Leifde (1711) expedition.

When Jim saw the wreck site photographs of visiting USA photojournalist Flip Schulke he immediately purchased from him (at the then almost unthinkable price of £500 each) two underwater Nikon



Nikonos 1 with Canon FL19mm f:3.5 Lens in Pat Baker Dome-Ported Mount

lenses – a super-wide-angle 21mm and circular fisheye (diagonal angles of view 90° and 180° respectively). He returned from the 1968 de Leifde expedition with perhaps the best underwater photographs yet taken in British waters.

In early 1970 the SNAP team took a long lease on the semi-derelict

Fort Bovisand, magnificently located at the south-east corner of Plymouth Sound, with Jim and Alan overseeing the transformation of the 120 year-old buildings into The Fort Bovisand Underwater Centre. Later that year I began make the 350 mile drive down from my Yorkshire home, to assist in the occasional weekend courses



Pioneer British underwater photographer Geoff Harwood with his ingeniously-lensed Exa underwater camera, carrying out polarising light trials in the kelp beds just off Fort Bovisand; 19mm lens, natural light with visibility of 2 metres

in underwater photography and archaeology.

This led me to an invitation to my first expedition, that being to an underwater archaeological search and survey of the north east tip of Cyprus; led by Jeremy Green. Here in the 25°C, 30 meter visibility of Cape Andreas and using the expedition's excellent water-corrected 28mm UW-Nikkor lens on my Nikonos I finally got the high quality photographs I had been yearning for. The following year I joined a Swedish Maritime Museum expedition, this time in the 8°C Baltic with 2-3 metre vis. Despite these factors, and still using a 28mm UW-Nikkor I successfully made several full-length photomosaics of an intact, circa.1700, 25metre long Baltic trading ship. But, how I needed a super-wide underwater lens of my own!

The pioneer underwater photographic guru, Dimitri Rebikoff had categorically stated that a dome port could not be used to correct very wide-angle lenses. By 1968, the work of leading photographers Flip Schulke, Walter Starke, Al Giddings, and no doubt others, were showing this advice to be wrong. The dome port proved to be a simple



Pat Baker in the Azores; with 19mm lens ready to record 90% of the 4 month long expedition's underwater photography. On this dive he also had the Rollei-Marine slung around his neck, ready for close-up details. [Photo: Erik Karlsen 1972]

and effective way of achieving the full angle of view of a camera lens, avoiding the narrowing of angle produced by a flat port and edge of image unsharpness. A dome port produces a virtual image of the whole 180° view at a distance of four times the dome radius. The camera lens, focused at this close distance and depending on its angle of view, is able to record all, or part, of this virtual image.

On seeing Jim Gill's photographs



Shaun Whittaker swims through Thongweed beds at Bamburgh, Northumberland

and actually using his rectilinear 21mm, it was clear that such lenses were the path to good photography in British waters. The cost then was beyond me and it took another two years before I found an affordable, second-hand Canon 19mm lens (actually 10% wider angle than the Schulke 21mm) and mounted it for my Nikonos. This was not as straightforward as I had hoped and I had to remove the lens from its focusing mount, effectively making it a fixed focus lens. By calculation, then fine tuning, with the lens aperture at f:5.6 I was able to get high quality, 95° wide angle photographs, in focus from 0.6 to 10 metres. My wide-

angle lens recorded an area of view four times greater than my own face-masked eyes. A engineering friend turned my underwater lens mount design into reality, using hard PVC and a 4" marine compass dome. The 4½" circular flat back of this mount blocked the clear swing-out of the Nikonos release/wind lever. Flip and Jim's pragmatic solution to this problem had been to cut off the outer half of the lever. Not wishing to take such drastic action I realized that I could rotate the whole control through 180°. This made the operation of the control with my thumb, rather than index finger, to be very convenient. I then constructed a viewfinder,

floating the top of a mushroom-shaped light globe in a shallow cup of Tensol acrylic adhesive. This material set solidly, creating a lens that showed almost the same view as the lens. After pool tests and minor adjustments success was immediate!

The very first sea dive with my 19mm lens produced a photograph of dive buddy Shaun Whittaker swimming through Thong Weed beds off Bamburgh, Northumberland. This was judged by guest BSAC worthies, Horace Dobbs and Reg Vallentine, as "Best Picture" at the BSAC NORFED 1971 'Windive' Rally. Two weeks

later my 19mm recorded another image, a shipwreck diver in less than one metre visibility; my first front cover, used in June '74 by Sub Aqua Magazine. Jim Gill had one on Triton the following month, of a diver surveying the HMS Coronation wreck site. Even at that time it was extremely rare for any dive magazine to use a cover shot taken in British waters.

For the next three years my Nikonos 19mm was almost always with me underwater – in Britain, the Azores and then in Western Australia. There was seldom a dive that I did



not get useable, and often very good, photographs; a complete turnaround from my previous diving photography

When the chance came of spending 4 months in the Azores, searching for the Tudor war ship *Revenge*, I decided to take a chance on a career in maritime archaeology and leave my Senior Photographer job with the British Geological Survey to do this. The expedition leader, Syd Wignall, owned a Hans Hass Rolleimarine outfit (the absolute “classic” and for 25 years the most admired underwater camera, although limited to close-up photography in all but the clearest waters). I did eventually buy this camera, feeling that with it and my 19mm Nikonos I now had the potential to photograph anything underwater.

Back in UK I moved down to live at Fort Bovisand, satisfyingly employed through the week as one of the POP (Plymouth Ocean Projects) fort restoration team, and at the weekends assisting with training courses.

In early '73 one of the Underwater Photography Course participants was a young businessman and sport diver who had recently bought a Rolleimarine at auction and wanted to know how to use it. His name was, and still is, Peter Rowlands and we became friends. That weekend, almost 49 years ago,

probably became the first step in his deep (no pun intended) involvement with Underwater Photography, for which we must all be truly grateful.

Whilst in the Azores a job offer had arrived from Australia; from Jeremy Green who in 1971 had been appointed Curator of Marine Archaeology for the Western Australian Museum. His Department, one of the first, world-wide, to be well-funded, well- equipped and well-staffed, but needing a full-time specialist photographer. I would need to emigrate, thus staying for at least two years. Not a difficult decision...and I stayed in the job for a wonderfully rewarding 44 years.

When the superb Nikonos UWNikkor 15mm became available in 1974 (Jeremy Green and I shared the considerable cost, purchasing lens number 00018, the first in the Southern Hemisphere), I retired my fixed focus, fixed aperture, Canon 19mm, although continued to use it for very wide angle, above water, wet environment photography. It now sits, in pride of place, in my Underwater Photography Museum!

Pat Baker
Western Australian Museum