



down in the depths

David Hodgson, a London based photo-journalist whose work appears in LIFE, PARIS MATCH, STERN and QUICK. Photographer on three recent underwater expeditions, has just returned from a wreck hunting trip in the Mediterranean.

WE CAME, the scientists tell us, from the sea. Looking around the tube on my way to work this morning I believed them. Amongst the tweed skirted spinsters and bowler hatted business gents, I spotted enough basking sharks and old trouts to stock an aquarium. Anyhow whether we came from the sea or not, we are certainly returning to it in a Lemming-like swarm.

Paddling around with rolled up trousers may have been OK for Dad, but today the attraction lies beneath the waves. Skindiving is one of Britains fastest growing sports and the British Sub Aqua Club, the national body for the sport, has more than 15,000 members.

Once they have taken the plunge and become at home in the strange, fascinating world underwater, most people look around for some activity to occupy themselves within inner space. For some it is simply spearfishing. For others more creative, and to my mind far more interesting, activities are the lure. Marine biology,

underwater archeology or wreck hunting for example and, of course, sub-aqua photography.

There are two types of would-be underwater cameraman. The experienced divers who want to capture on film, so far as is possible, the fleeting magic they find in their new world. Either for the sheer pleasure of creating pictures or as a valuable tool in some other sub-aqua activity. In underwater archeology, for example, photography has an absolutely vital role to play. The other type of underwater cameraman is the serious surface photographer who wants to branch out in a new and extremely challenging direction. There is certainly plenty of room to explore! Two-thirds of the world is covered by water and the Pacific ocean alone provides the underwater cameraman with a studio of 70 million square miles! Not that you need to go to exotic places to get good underwater pictures. Certainly the clear, warm waters of the Mediterranean and Adriatic

are easier to operate in, and obviously far more inviting than the grey waters of the Channel, but perfectly good pictures can be taken in British waters.

In this article I want to explain some of the technical snags of underwater photography and describe how these can be overcome. Describe a practical approach to the subject, both for the experienced diver who may not know too much about photography, and the competent photographer who is all at sea when it comes to diving. I shall also go into some important do's and don'ts about diving for those who intend to get into the swim of things for the first time.

But, before looking at the problems in detail, let us consider the kind of equipment needed for underwater photography. My own, first, sub-aqua camera could be said to have been a Nikon which I accidentally dropped over the side of a boat some eight years ago. The result of this experiment can best be described as a washout, my insurance company were not amused.

However, there is one type of Nikon which I could have dropped into the ocean with impunity. This is a fully sealed 35mm camera called the Nikonos. Modelled on the lines of a now discontinued French camera, the Calypso, the Nikonos is a versatile, cleverly designed piece of equipment, which comes with either a 35mm or a 28mm lens protected by a built in window. The body, which is flash synchronised and has speeds from 30th/sec to 500th/sec is sealed by rubber "O" rings and watertight to a depth adequate for all normal dives. This camera can be used on land under adverse conditions, mud, rain, dust etc, and is therefore a first

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comes quite easily with practice.

Clearly, though, a wide angle lens is vital for all but extreme close-up photography. For a start you need the depth of field which a wide-angle lens gives you to make certain the picture is reasonably sharp. Because light levels underwater are low, for reasons which I will explain in a moment, you are usually working at a fairly wide f/stop so you can't rely on stopping down to get depth of field.

The second reason for using a wide angle lens relates to the refraction problem mentioned earlier. Our subject, 8ft away, appears 6ft away. So to cover a long subject, such as a diver, or a wide area of view, you are obviously going to need to be much further away than on land. Unfortunately the medium in which you are operating is seldom this kind. Even the clearest water contains suspended particles which lower the clarity and make the pictures look soft. These organic particles also help to upset light meters and lower the light levels.

Exposure

The subject of exposure can usefully be dealt with here, since it is a major problem of underwater photography. It might seem that a fully automatic camera would be ideal. In practice this is not so. For a start reflected light meters are confused by the scatter of light from suspended particles. Nor can this be overcome by taking a reading close to the subject and then moving away. At once the light stopping effect of the water, now between you and your subject, makes the reading inaccurate.

In the Mediterranean I have used separate meters with some success, but using them correctly requires experience. Until this has been gained a better way of

estimating the exposure is probably to use a surface reading and then open by two stops for every 10ft of water. For example an exposure of 1/500th sec f/11 on the top, becomes 1/250th sec f/8 at 10ft, 1/125th sec f/5.6 at 20ft.

But even when there is plenty of light, pictures may not turn out well because of the mass of suspended material in the water. Rocky seabeds give the clearest water, sandy seabeds the worst. After a storm the sea may be stirred up into an impenetrable fog for days. So far as light penetration is concerned the best time for photography is towards mid-day when the sun shines directly down on to the sea, before and after that period the light strikes the water at an angle and losses due to surface reflection are greater. The surface conditions are also important, a calm sea is best, slightly rough conditions cause considerable light loss.

The best advice on exposure and estimating clarity is to take the plunge and experiment. You will get disappointing results at first, but every shot is another stepping stone on the hard road of experience. A good idea, at first, is to keep a note book and jot down exposures and conditions. Make a note of the area dived, the weather conditions and results obtained. This way even failures are useful and you will soon build up a valuable diving log which can be used under similar conditions to cut down lost shots.

By now you will have understood that photography beneath the waves begins to make surface snap shooting in a fog, a piece of cake. But there are other snags. On the land if you run out of aperture, just can't open the lens wide enough to get a properly exposed shot, you can often use a slow shutter speed. Good old terra firma and a tripod see you out of trouble. Underwater, tripods are out and even if your subject is static—say a coral reef, you may not be. The current may be drifting you along, or, if your buoyancy isn't adjusted just right, you may rise or fall slightly when you stop swimming to take the shot. Another difficulty is caused by camera shake. Even experienced photographers who, on the surface, would never dream of snatching at the shutter may find themselves unable to smoothly squeeze the shutter button underwater. One problem is the unaccustomed weightlessness of hands and arms, another, the series of linkages within the case which trip the shutter mechanism. The secret is to remain calm and never try and snatch a shot. You might get away with this on land, but until you are experienced underwater, such attempts will lead to unsharp pictures with the magnifying effect of the water increasing every error by a quarter! I would say that the slowest possible speed, for most beginners is 1/125th sec and even this will produce a crop of unsharp pictures in every roll at first.

Flash underwater

Obviously with speeds like this a wide aperture is necessary and flash, bulb or electronic, will be needed to get many pictures. It is quite easy to use flash underwater, although you must remember that, because of light scatter, large areas cannot be illuminated with a single bulb. You can calculate exposure underwater using flash factors, as on the surface, but reduce the factor by one-third to correct for light loss. (Example: Surface flash factor 200, distance 20ft, f/stop f/10. Underwater the 200 factor becomes approximately 140, f/stop now = f/7. In practice this would mean opening up from f/11 to f/8.) In fact this one-third reduction can only be looked on as a rough guide and, again, experience is the best guarantee of results. Take a note of flash picture exposures and results in the same way as

you do available light shots.

On the surface, shooting colour, you would use a blue coloured bulb, underwater, clear bulbs are used because the water absorbs the red part of the spectrum.

In a short article it isn't possible to do much more than skim some of the cream off the problems of underwater photography and suggest a few answers. The same goes for my observations on diving itself. The would-be skin-diver who goes along to a sports shop, buys a lot of expensive equipment and drops off the end of a pier is on a one-way ticket to the hereafter. Diving is dangerous, you can kill yourself in ways even Ian Fleming didn't dream up for Bond. Having said that I hastily add that, with properly supervised training, it is no more dangerous than any other active sport, such as motor racing or gliding.

You don't need to have aqualungs and all the other costly equipment of the skin-diver to take underwater pictures. Perfectly good and very interesting shots have been taken by snorkel divers in depths around 15/20ft. Providing you are a good swimmer, and take reasonable precautions, snorkel diving is absolutely safe. The equipment is simple and cheap; a mask, fins and a tube. Don't buy one of these snorkels with a ping-pong ball valve at the top. They aren't satisfactory and can be positively dangerous. Use a straight tube and learn to blow and not suck to clear the tube when you surface. With practice a diver who is in trim should have no difficulty in staying down at 20ft for 30 seconds or so, quite long enough to get pictures. One tip: when using fins for the first time take it slow and easy, don't trash around like a Mississippi paddle steamer. You'll exhaust yourself and scare every fish within a hundred miles. Masks tend to steam up unless you rinse them in sea water before putting them on. Make sure too that your mask fits snug. When you try it on, breath in gently through your nose. The mask should pull against your face if the seal is OK.

SCUBA (Self Contained Underwater Breathing Apparatus) diving will require an outlay of about £100 if you intend to buy your own equipment. Even if you have this sort of cash to lash out, it's far better to join a diving club and use their equipment at first. Many people who are enthusiastic to dive change their minds after going into the training pool or the sea for the first time. Until you know that you are psychologically and physiologically suited to the hobby don't invest in costly gear. As I said earlier the British Sub Aqua Club is the national body for this sport in Britain. They have branches all over the country which provide excellent and very safety conscious training at local pools. You can get in touch with them by writing to the Secretary at 25 Orchard Road, Kingston-upon-Thames, Surrey.

Fully kitted out and standing on the sea's edge waiting to take the plunge the diver looks a strange and, I confess, slightly absurd figure. He wears a rubber wet suit for protection against the cold, flippers, weight-belt to keep him down, life-jacket to keep him up in an emergency, knife on one leg, depth gauge and possibly a compass on one wrist, mask, bottles, demand valve, snorkel and perhaps a hood to keep his head warm. Ungainly as a spaceman he lumbers into the oggin camera at the ready . . . but once in his element the ugly duckling becomes, well a sort of underwater swan. Perfectly at home, sleek and weightless, an explorer always on the verge of a great discovery, fish to photograph, a wreck to explore, a drowned city to be found and captured on film. A whole new world of pictures waiting for those who are prepared to take the plunge. □

Below: a typical underwater shot taken just below the surface at a depth of about 15ft. No complicated diving gear needed here. Bottom: don't forget that you can take interesting pictures of the divers when they are above the surface.



