

SubScript

The Sunstar Sub Aqua Newsletter
www.sunstar.org.uk



Welcome back

This is my last SubScript as Matt Yates will be stepping up to the editor's desk for future issues. Please send your trip reports, articles, stuff and indeed nonsense to him from now on. Thanks to this month's contributors – all gratefully received.

Meet your new committee

Chairman	John Cook
Secretary	David Parkinson
Treasurer	Adrian Barker
Diving Officer	Toby Hope
Training Officer	Chris Bond
Boat Officer	Dave Lock
Equipment Officer	Simon Steward
Communications Officer	Matt Yates
Expeditions Officer	Paul Mann
Minibus Officer	Matt Yates
Social Secretary	Chris Nixon
New Members Rep	Adrian Barker

AGM 2008

The AGM was just about quorate, thanks to all those able to attend. Business was carried out as usual, posts elected as above and various decisions made. Most speakers' reports are available on the website – feel free to peruse at your leisure.

Some of the key decisions were that:

- Membership fees are to rise by £5 to £113
- Boat Fees to be suspended for 2008. Fuel charges and launching charges to continue as at present.
- Minibus fees to be held at a flat rate of £5 per person per trip

DO's Doings By Toby Hope

The Annual Diving Officers' conference took place in early December. It was great to hear about the exploits of some of the other branches over the last year - real food for thought – in particular the expeditions (Dave's report of the Victoria expedition is later in this issue).

Here are a few of the things the BSAC has in store for the coming year:

- Clarification of who can teach what to whom under which conditions.
- New SDCs including: underwater photography; marine life appreciation; branch development workshops; advanced decompression procedures
- New material for: Expeditions planning; chartwork & position fixing; first aid
- New online searchable version of Dive magazine.

As this is the off season, not much training has taken place and there haven't been many diving trips, save a couple of visits to inland sites, but by the time you read this, three people will have taken the Theory Instructors Exam in London.

We've got some challenges facing us in the new year – one of the things we need to address is the use of Calypso – there'll be more information about how we can get more out of this important asset in the new year.

There are already a few trips planned for 2009 – Farne Islands, Gozo, Gran Canaria along with a return to Bonaire. By the time this issue

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goes out, there will have been a planning meeting aimed at filling out the calendar for the coming year. Details will be posted on the website.

Wishing you all a very merry christmas and great diving in 2009. Be careful out there.

~ *Toby Hope*

Go West! By Toby Hope



Monterrey Bay in Northern California at latitude 36.9N is slightly more southerly than Athens. You might therefore reasonably expect the pacific waters in this area to be as warm as the western Mediterranean, but at 10C in August, it's surprisingly cold. I was lucky enough to have 2 dives straight off Monterrey's main beach this summer and the diving was every bit as good as I'd hoped it would be.

I'd contacted the Monterey Bay Dive Company and booked myself in for 2 shore dives and turned up there early to get assigned my kit – I'd brought my computer and mask with me but hired everything else. The equipment provided was largely ok, except the suit, which was rubbish – a bit small - I thought it better to have a snug (and therefore warm) suit. This turned out to be a mistake, but more of that later. I was assigned a buddy and the group of 4 of us headed out for our first dive with our guide.



Sealions in the harbour

The richness of the marine environment was apparent from my first early morning stroll along the bay – Seals, sealions and countless sea birds all congregate on the rocky granite shores, while dolphins and sea otters were visible on the fringes of the kelp beds. All these predators have to eat something, so I was fairly excited about the abundant fish life I would see on my dives.

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Porcelain crab + general encrustations

Our first dive was a very leisurely dawdle down the length of the harbour wall - progress was hindered by a very annoying buddy pair in our group - constantly getting lost and not keeping with the rest of us. However, this gave the opportunity to investigate the nooks and crannies of the harbour wall. Every possible square mm of substrate was colonised by a great variety of encrusting marine creatures and there were loads of weird and wonderful crabs, anemones, snails and slugs wandering about too.



Nudi snacking on some delicious bryozoans

Despite the dozens of sealions hauled out on the promenade, none accompanied us for the dive, which was a shame, but we were buzzed by a very timid harbour seal which disappeared before I could take her picture.



Huge decorator/spider crab

The second dive was out from the centre of the bay, following a now disused pipe. I found out after the dive that this metre wide pipe was used to transport sardines from fishing boats moored in the bay into the processing plants of nearby Cannery Row.



Delicate tube anemone

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Giant kelp

We left the pipe and headed off into the kelp beds – very eerie diving through this as not much light penetrates through from the surface – rather like diving in a submerged forest. I saw some of the strangest creatures I've ever seen – giant sunstars. These are very similar to the ones we get here in the UK, except they've got 20+ arms and are a metre or more in diameter. Not so much a starfish as an insidious hearthrug. Tube anemones were plentiful, as were slugs and sea pens.



That's not a sunstar, THIS is a sunstar

We eventually emerged from the kelp bed onto a smallish reef which was covered by the biggest plumose anemones I've ever seen – some nearly a metre tall – they put the Rosalie's infestation to shame!



Plumose anemones (giant, naturally)

At the end of the dive, I discovered that my ill-fitting suit had come unzipped at the feet – I'd been bare-ankled for most of the dive, so the chilly water seemed freezing. If I ever get the chance to return, I'm definitely taking my own kit.

In summary, if you like invertebrates,

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Monterrey is for you. There's loads of them, they're properly weird and they're huge! For those who have more time than I did, there is certainly the prospect of diving with sealions, dolphins and maybe even the odd fish.



Brrrrr.

Later in the holiday, I visited San Diego, where I did a spot of snorkelling – great vis, a lot warmer and seas just as full of life. The particular stars were the Garibaldis – very attractive 30cm long bright orange fish with piercing blue eyes. They were very inquisitive and schooled around me throughout the time I was in the water.



Garibaldis

I'd thoroughly recommend a trip to California

as a top diving destination – I'd love to go back and investigate more of the available sites. Anyone fancy organising a trip? Let's hope the exchange rate recovers...

~ *Toby Hope*



Stocking fillers for divers?

A list of useful 'spares' compiled by Trevor Kent in response to a sunstar mailing list item. All useful dive-savers to have in your kit.

- Credit/debit cards and money
- Gaffer tape (Chris Hall seems to think this is required in abundance).
- Fin-strap
- mask-strap and/or spare mask
- Cylinder o-rings (store in 35mm film canister)
- A-clamp adapter for DIN cylinder (and appropriate Allen key)
- Second stage mouth piece & cable ties
- Blanking ports (for the first stage and appropriate Allen key)
- Weight retainers
- Clips and D-rings
- Spare batteries: torch, camera, flash, computer etc
- torch or HID bulbs (latter for the wealthy @ ~£80 a go)
- BC / wing hose
- A simple tool kit including the Allen keys noted above, adjustable spanner and screwdriver(s)
- Assorted cable ties
- Velcro strap
- Marker pen
- Wrist strap (for attaching to hand-held torch etc)

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- A first aid kit – Chris Bond suggested a simple travel kit from Boots (bandage, zinc tape, plasters, scissors) to which he suggested adding paracetamol/aspirin, decongestant and seasickness pills.

Drysuit specific spares

- neoprene cement (or aquasure <http://www.aquasure.com/>) if you've a membrane suit)
- drysuit hose
- a bike puncture repair kit – see below – 1 - from Pete Young
- a seal kit – see below – 2 – also from Pete Young

1. If you have latex seals on your suit, a bike puncture repair kit can sometimes save a dive if you get a small hole or tear. I've got some new self-adhesive patches but I haven't tried them on a dry suit - for conventional use a Cure-C-Cure patch (tm. Romac) is the best.
2. If you are going on a liveaboard to somewhere like Norway, it's worth taking a seal kit comprising of a set of seals, some aquasure, some aquasure thinners, some sandpaper, some seal adhesive, a 2l lemonade bottle, a plastic bag and a couple of lollysticks. That's all you need to replace a set of wrist seals or a neck seal (use a cylinder) if there is no dive shop within range. The plastic bag is to cut into strips to wrap round the adhesive while you line up the seal with the cuff. Then pull it out, hey presto no wrinkles.

~ Trevor Kent

Diving HMS Victoria by Dave Lock

Invite

Last Christmas I received an E-mail inviting me to participate in a 2 week expedition to

dive HMS Victoria which is regarded as one of the top technical dives in the world. Unfortunately I was ill and didn't reply in time to get a place on the main part of the expedition. However there was an extension of 1 week on the expedition and I managed to reply in time to get a place on the second phase.

The expedition was composed entirely of BSAC members, mostly people I have dived with on previous expeditions to such places as HMS Repulse and HMS Prince of Wales in the South China Seas.

History of Sinking



HMS Victoria was one of two Victoria class battleships of the Royal Navy. On 22 June 1893 she collided with HMS Camperdown near Tripoli, Lebanon during manoeuvres and quickly sank taking 358 crew with her, including the commander of the British Mediterranean Fleet, Vice-Admiral Sir George Tryon. One of the survivors was her second-in-command, John Jellicoe, later British commander at the Battle of Jutland.

She was originally to have been named Renown, but the name was changed before launching to celebrate Queen Victoria's Jubilee (i.e. 50 years since becoming monarch) which occurred the year that the ship was launched.

The Collision

The British Mediterranean Fleet was one of the most powerful in the world at the time. The Royal Navy saw the Mediterranean as a vital sea route between the United Kingdom

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and India, and under constant threat from the navies of France and Italy and concentrated an impressive force in it. The bulk of the fleet, eleven ironclads (eight battleships and three large cruisers), were on their annual summer exercises off Tripoli in Syria (now part of Lebanon) on 22 June 1893.

Tryon was a strict disciplinarian who believed that the best way of keeping his crews taut and efficient was by continuous fleet evolutions, which before the invention of wireless were signalled by flags, and had gained a fine reputation as a daring and highly proficient handler of his ships. A taciturn and difficult man for his subordinate officers to deal with, he deliberately avoided making his intentions known to them to train them to be adept in handling unpredictable situations.

Tryon led one column of six ships, which formed the first division of his fleet, in his flagship *Victoria* travelling at 8 knots. His deputy, Rear-Admiral Albert Markham was in the lead ship of the second division of five ships, the 10,600 ton *Camperdown*.

Markham's normal divisional flagship, *Trafalgar* was being refitted. Unusually for Tryon, he had discussed his plans for anchoring the fleet with some of his officers. The fleet were to turn inwards in succession by 180 degrees, thus closing to 400 yards and reversing their direction of travel. After travelling a few miles in this formation the whole fleet would slow and simultaneously turn 90 degrees to port and drop their anchors for the night. The officers had observed that 1,200 yards was much too close and suggested that the columns should start at least 1,600 yards apart. Even this would leave insufficient margin for safety. Tryon had agreed to 1,600 yards but had later signalled for the columns to close to 1,200 yards. Two of his officers gingerly queried whether the order was correct, and he brusquely confirmed that it was.

He ordered speed to be increased to 8.8 knots and at about 15:00 ordered a signal to be flown from *Victoria* to have the ships in each column turn in succession by 180 degrees inwards towards the other column so that the fleet would reverse its course.

However the normal "tactical" turning circle of the ships had a radius of around 800 yards each (and a minimum of 600 yards, although standing orders required "tactical rudder" to be used in fleet manoeuvres), so if they were less than 1,600 yards apart then a collision was likely.

Although some of his officers knew what Tryon was planning they did not raise an objection. Markham, at the head of the other column, was confused by the dangerous order and delayed raising the flag signal indicating that he had understood it. This precipitated another flag signal from Tryon which translated as "What are you waiting for?". Stung by this public rebuke from his commander, Markham immediately ordered his column to start turning. Various officers on the two flagships confirmed later that they had either assumed or hoped that Tryon would order some new manoeuvre at the last minute.

However the columns continued to turn towards each other and only moments before the collision did the captains of the two ships appreciate that this was not going to happen and even then waited for permission to take the action which might have prevented the collision. Captain Maurice Bourke of the *Victoria* asked Tryon three times for permission to order the engines astern and only acted once he had received that permission. At the last moment Tryon shouted across to Markham "Go astern, go astern".

By the time that both captains had ordered the engines on their respective ships reversed it was too late and *Camperdown's* ram struck the starboard side of *Victoria* about 12 feet below the waterline and penetrated nine feet into it. Reversing the engines only had the effect of causing the ram to be withdrawn to let in more seawater before all of the watertight doors on *Victoria* had been closed.

With 100 square feet open to the sea, the fore-castle deck was underwater in four minutes and five minutes later the gun ports in the large forward turret reached sea level and water started to pour through them. She

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capsized just thirteen minutes after the collision and sunk a few minutes later.

Camperdown herself was in serious condition with her ram nearly wrenched off and hundreds of tons of water flooded into her bows but survived, and her crew had to construct a coffer dam across the main deck to stop the flooding. The following ships had more time to take evasive action, and avoided colliding with each other in turn. 357 crew were rescued and 358 died. Tryon himself stayed on the bridge as the ship sunk and was heard to murmur "It's all my fault". It has been hypothesised that he had confused turning his ships through 90 degrees with turning them through 180 degrees when he considered how much sea room was needed. The former manoeuvre was much more common and required considerably less room.

The aftermath

The news of the accident caused a sensation and appalled the British public at a time when the Royal Navy occupied a prime position in the national consciousness.

A court-martial of the captain of Victoria, Maurice Bourke, was held on HMS Hibernia at Malta. It was established that the ship would have been in no danger had her watertight doors been closed in time. Bourke was found blameless since the collision was due to Admiral Tryon's explicit order but carried an implied criticism of Vice-Admiral Markham by saying that "it would be fatal to the best interests of the Service to say that he was to blame for carrying out the directions of the Commander-in-Chief present in person".

There is a memorial to the crew killed in the disaster in Victoria Park, Portsmouth. It was originally erected in the town's main square, but at the request of survivors was moved to the park in 1903 where it would be better protected.

The wreck was discovered in September 2004 in 140 metres of water. Probably uniquely for a shipwreck, she stands vertically with her bow and three quarters of her length buried in the mud and her stern pointing directly

upwards towards the surface. The unusual attitude of this wreck is thought to have been due to the heavy single turret forward containing the main armament coupled with the still-turning propellers driving the wreck downwards.

The 1949 comedy movie *Kind Hearts and Coronets* featured a satire of the accident, in which Alec Guinness plays a pompous and stupid Admiral D'Ascoyne who stands saluting on the bridge whilst his ship sinks beneath his feet.

Wreck today

The wreck lies in general depths of 141 metres with a scour to 144 metres; uniquely she lies vertically with her bows into the seabed with the stern at 78 metres! She is completely intact and quite a sight. As soon as you reach the stern you can see the brass lettering spelling her name. The usual trip is to quickly reach your maximum depth and slowly ascent looking at the wreck. Major points of interest are the ornate stern rails, propellers and rudder, the stern gun, the gun ports on the stern and all the deckhouses. She is buried up to the front gun which is missing but the ammunition scuttles and the rotation gear is recognisable. The funnels are also missing but everything else is there!

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Diving logistics

This is almost exclusively a rebreather dive because of gas logistics and decompression penalties. Open circuit divers do dive to these depths but have to carry multiple gas cylinders and be prepared to have very little time on the wreck and complete prolonged decompression schedules. There are limitations for rebreather divers as well but these are better tools for this type of diving.

So let's look at some typical equipment configurations:

Personal kit:

- Rebreather with 2 x 5 litre cylinders, one containing O₂ and the other containing a 6/72 mix (6% Oxygen, 72% helium and 22% nitrogen)
- Possible 2-litre cylinder of O₂ for redundancy
- Possible 2-litre cylinder of air for dry suit inflation
- 1 x 11 litre side slung with 10/60 mixture – this is to get you to 60 metres in case of rebreather malfunction
- 1 x 11 litre side slung with 20/30 mixture – this is to get you from 60

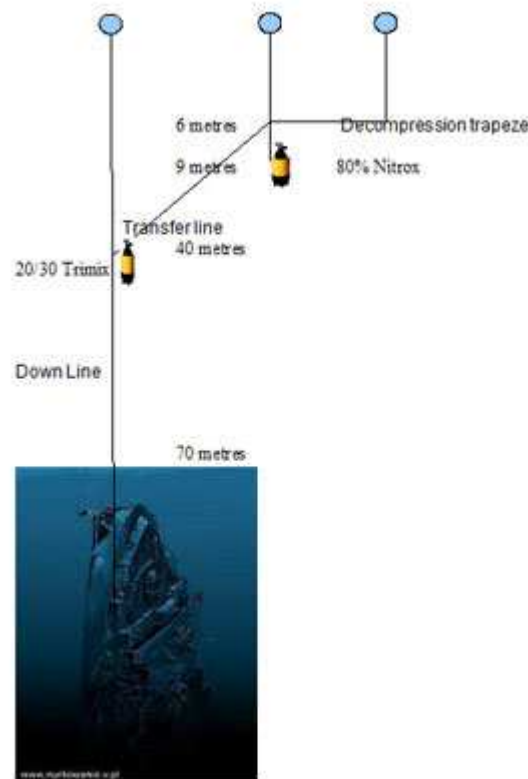
metres to 9 metres in case of rebreather malfunction, by plugging this into the rebreather loop on the ascent you can also drastically reduce your decompression schedule

As your buddy carries the same emergency gas supplies there is adequate to get 1 person to 9 metres if their rebreather malfunctions

Group kit:

- Vertical down line to the wreck
- Decompression trapeze with transfer line to down line at 40 metres
- 1 x 11 litres of 20/30 at 40 metres
- Tagging system for the divers
- 2 x 11 litres of 80% nitrox at 9 metres

Diving methodology

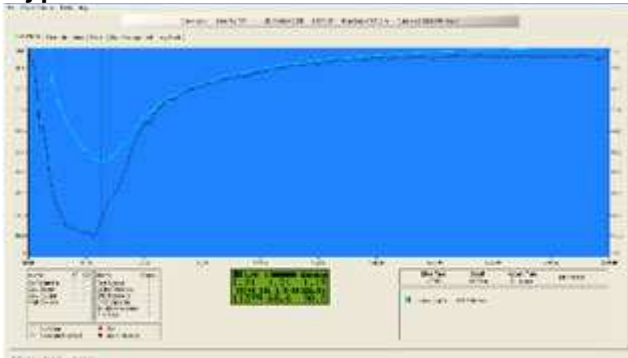


The first pair enters the water carrying the transfer line, which is attached to the decompression trapeze with the cylinder containing 80% nitrox. They descend to 40 metres, attach the transfer line to the down

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line and leave individual tags at this depth to indicate they are on the wreck. They then start their dive and descend to their maximum depth and slowly ascend looking at the wreck. The second pair enters the water within 5 minutes of the first pair carrying the group cylinder with the 20/30 mixture. They attach this cylinder to the junction of the of the transfer line and down line, leave their tags and continue their dive. Subsequent waves of divers can then get in the water descend, leaving their tags at the 40 metre mark and continue their dive. All divers then complete their dive ascending the down line and then the transfer line picking up their tags on the way up at the 40 metre mark. The last pair to ascend (only 2 tags left) pick up the group cylinder with the 20/30 mixture and disconnect the transfer line from the down line before ascending up the transfer line. The whole decompression system is free floating and is allowed to drift in any current.

Typical Dive Profiles



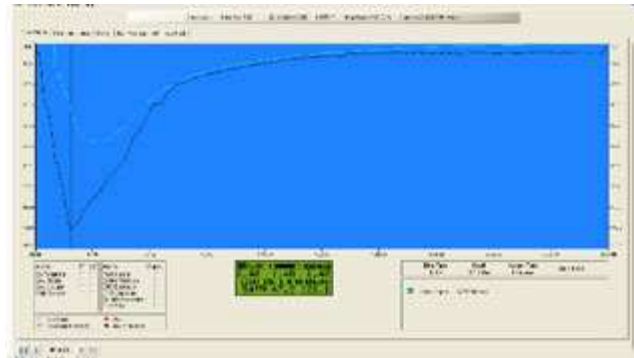
100-metre dive for 26 minutes

The dark blue line is the depth graph and the light blue line is the decompression ceiling. Dive time is from leaving the surface to leaving the wreck.

As can be seen from the graph there is a blip at 40 metres where the group 20/30 cylinder is attached and again on the way up where it is removed and the transfer line is detached from the down line.

The first decompression stop is at 60 metres current depth is 90 metres and the complete dive is 2 hours and 59 minutes, that's 2 hours

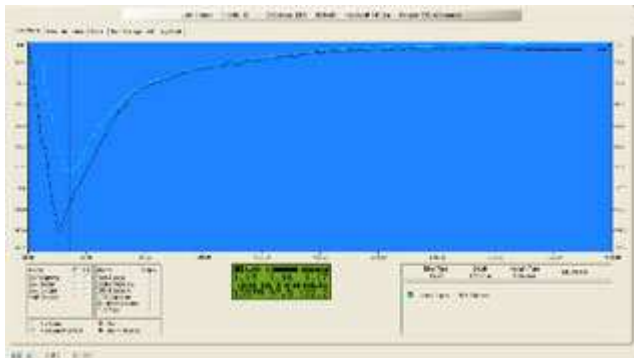
and 33 minutes of decompression!



120-metre dive for 27 minutes

High set point bar 1.3 PO₂, O₂ spiking to 1.4 bar PO₂.

Maximum depth reached at 11:07 minutes, Diluent 6/66, Maximum depth 121.2 metres 54 minutes to the surface, 47.2 metres first stop, current depth 121.1 metres



143-metre dive for 27 minutes

The first decompression stop is at 98 metres current depth is 122 metres and the complete dive is 3 hours and 52 minutes, that's 3 hours and 25 minutes of decompression!

Conclusions

A few things that were recorded on the trip:

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- Maximum dive on HMS Victoria 48 minutes – this required 5.5 hours of decompression
- Maximum dive depth achieved over the trip 152 metres on a wall
- Don't clear your mask too many times at 140 metres – you run out of diluent
- It is possible to pee at 110 metres

Apart from this HMS Victoria is a staggering dive, if you swim off her at 120 metres and look upwards in 40 metres of visibility you can see over half the ship. It's deep for most divers but well worth the cost, effort and decompression penalties you incur.

~ Dave Lock



~ Simon Steward

TOP TIPS

This issue - 'The Flooded Drysuit Emptying Inversion Technique'

When you find yourself in the uncomfortable position of having a drysuit full of water, a handy method for clearing out the water is the new 'Flooded Drysuit Emptying Inversion Technique'.

Step 1 - make sure your suit zip is undone (this is very important!)

Step 2 - lay down on a flat surface

Step 3 – with the assistance of your nearest stout yeoman invert yourself

The cold water will then shoot down your back, but will evacuate the suit via the zip. Repeat until saturated under garments have fully drained as well.

Here you can see the technique undergoing extensive trials

Merry Christmas to you all – have a great winter.

Future SubScripts will be compiled by Matt Yates (contact details on the website) so please send your stuff to him.