+ + OCEANS WORMLEY + +

Number 5 (December 2012)

A newsletter linking people who worked at NIO, IOS and IOSDL and those who still carry on their proud traditions.

OCEANS WORMLEY *was the telegraphic address of the Institute. Telex was the means through which much of the communication, particularly with ships, was sent. It seems appropriate to use it as the title of this newsletter.*

Editorial

This autumn *RRS Discovery* has completed her last science cruise and at the end of an illustrious career serving the science community is now heading for the breakers yard. Gerard McCarthy of NOC in Southampton was the Principal Scientist on this cruise and he has provided some photographs and reminiscences. Sadly the blog set up for people to post their memories of the ship during her last cruise was poorly supported (only 8 anecdotes)

Howard Roe has provided a valedictory to Gwyn Griffiths who has taken early retirement from his position as the undoubted leader and champion of innovative technology at the Natioanl Oceanography Centre.

I came across this passage in the book *Hunting Mister Heartbreak* by Jonathan Raban that I thought would resonate with many who have spent time at sea.

"Lying hove-to is a state of mind. You mark time in a world that tilts and slides a lot but is going nowhere. You can't remember when it wasn't like this and you can see no particular reason why there should ever be an end to it. The tangled shaggy ocean strikes you as the ultimate emblem of meaningless activity. For as far as you can see, it goes on heaping itself up and pulling itself to bits. There is something profoundly numbing in the monotonous grandeur of the thing. Staring at it makes you fee empty-headed."

Please keep sending me any material that you would like to share with others who have worked at NIO/IOSDL and its successors and who have an interest in the proud heritage of UK oceanography. Without material submitted by you ++Oceans Wormley++ cannot continue.

John Gould

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21-12-2012 Farewell to RRS Discovery

At 10.00 on a bright morning about 40 NOC staff, a few children and several "old lags" stood on the quayside in Empress Dock , Southampton to wave farewell to Discovery as she ended her involvement in science. She left on time - some remarked that this was unusual - and with a rousing three cheers to send her on her way. Her next port will be Chatham where she will stay until the new owners, a Belgian company, take her away to be recycled.

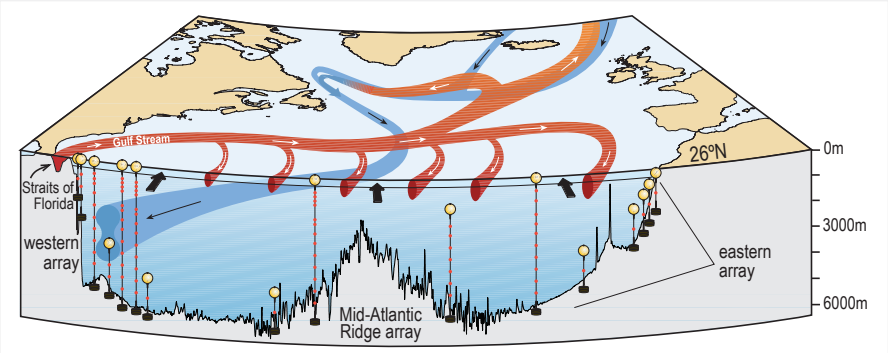
Photographed by Rod Beggs (Radio Officer 1971) as Discovery passed Lee-on-the-Solent National Coastwatch Station. Rod described her as "Almost a ghost in the mist "

Discovery's last cruise - the end of an era

Gerard McCarthy (National Oceanography Centre, Southampton)

Discovery's last cruise, her 382nd, left Southampton on 8th October and it was to be 47 days before we finally arrived in Freeport, Bahamas. Certainly, we didn't let the old girl have a gentle swan-song. This was a cruise to refurbish all 16 of the moorings in the RAPID array and was the first time that the full array of moorings–spanning the full breath of the Atlantic from the Canaries to the Bahamas, was to be serviced in a single cruise.

RAPID The RAPID mooring project monitors the Atlantic Meridional Overturning Circulation (AMOC - the transport of warm surface water northwards and cold deep water southwards) at 26.5ºN. This transport is important for maintaining northwest Europe's mild climate.



Schematic of the RAPID array and the MOC

The RAPID project consists of an array of moorings measuring temperature, salinity and currents. These moored observations have revolutionised our understanding of the AMOC. A series of papers have described the previously unknown variability of the AMOC on subannual, seasonal and, most recently, interannual timescales. The RAPID project is a standard bearer for NERC-funded oceanography. So, no pressure then on this, my first cruise as Principal Scientist!

Discovery's contribution It was fitting that Discovery's last cruise was a RAPID cruise. Since the project started in 2004, two cruises per year have serviced the mooring array. Of the 9 ships that have been involved in the 24 RAPID cruises since 2004, 8 have been on Discovery–twice as many as the next most frequently used ship. This heavy load of sea-going led to Stuart Cunningham, principal investigator of the RAPID project from 2004 to earlier this year, shooting up the 'leaderboard' of Discovery principal scientists. He is only a few places behind the great John Swallow and has overtaken such illuminati as John Gould.

Setbacks and adversity The cruise was ambitious. As a team, we were in transition with Stuart Cunningham leaving as leader of the RAPID team this summer . this was the first time the full array was to be refurbished in a single cruise and we were doing all this on a 50 year old ship. On top of all that, they put me in charge. It would be okay as long as everything went to plan…...

Before we left Southampton, we knew we would have an unscheduled stop in Tenerife to pick up spares for the ship. Also, worryingly, we didn't have diplomatic clearance to work in either Moroccan or Portugese waters. By the time we started mooring work, a week after sailing, I was already on Plan C–we would be as far as Plan H by the end of the cruise. Having not been able to enter Moroccan waters, we docked in Santa Cruz de Tenerife for a few days to wait for an air conditioning unit for the ship. It was an opportunity for most of the scientific party to relax but I was learning that the primary responsibility of the principal scientist was to worry.

Relaxing in Tenerife

While sailing westwards from Tenerife, we got word that we had Moroccan diplomatic clearance. By this time, what had at one stage looked like ample contingency time had pretty much evaporated. This time luck was on our side, the normally tight cruise schedule wasn't going to be a factor to get extra time as this was the last cruise for Discovery. Following some hard work on the shore side, we were granted our extension. Heading back east was psychologically difficult but we got the work done. All of our eastern boundary moorings successfully recovered and redeployed, we could finally head westwards ever westwards, three weeks after we had left Southampton.

Mooring recovery in Moroccan waters

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Halloween party

Expecting the trade winds at our backs, we had a surprise when we ran into the tail end of a tropical storm on our transit to the mid-Atlantic. Battling heavy seas for five days, we reacted in the traditional manner and threw a party. Very little was seen of the science party for a few days as all sorts of Haloween outfits were fashioned from miscellaneous items around the ship The male members of the science party also kept themselves amused by growing mustaches in aid of men's charity Movember.

Triumph In spite of setbacks external to us, the work was progressing well. We had finished the eastern and mid-Atlantic moorings and were back on schedule by the time we reached Nassau, Bahamas for a crew change and to clear customs. Unusually for a modern cruise, we managed to call at four ports during the cruise: Southampton, Santa Cruz, Nassau and Freeport. We set sail for the final week of the cruise on 16th November. The new team settled straight in and brought an enthusiasm that had long evaporated from the rest of us. The final week's work went well. On Tuesday 20th, we recovered our most crucial mooring and spent a long night in the lab generating the updated AMOC timeseries

It was nice at the end of a long cruise to be able to see the final product. The final CTD of the cruise–the final piece of science Discovery would do–was finished on Friday 23rd November 2012. All that remained was for the Principal Scientist to show up late for the cruise photo. I'd like to say it was fashionably late but, in reality, I was in the shower and didn't hear the tannoy!

Nostalgia We packed up the main lab in Discovery for the final time, played the last few tunes for Disco's last dance and left. I'd like to say there was a tear in my eye as I walked down the gangway but after 7 weeks at sea, I was bloody glad to be done. She served us well.

Gerard McCarthy
Principal Scientist Discovery Cruise 382
Disco's last dance

If you would like to learn more about the Rapid project and the monitoring of the MOC please visit

http://www.rapid.ac.uk/
and
http://www.noc.soton.ac.uk/rapidmoc/

The stars of the show

Above: Discovery alongside in Teneriffe
Below: The team of scientists and officers

Marvelling at the new MOC data
From left: Ben Moat, Darren Rayner, Gerard McCarthy, Alex Clarke, Charlotte Mielke, David Smeed and Rafael Jaume Catany

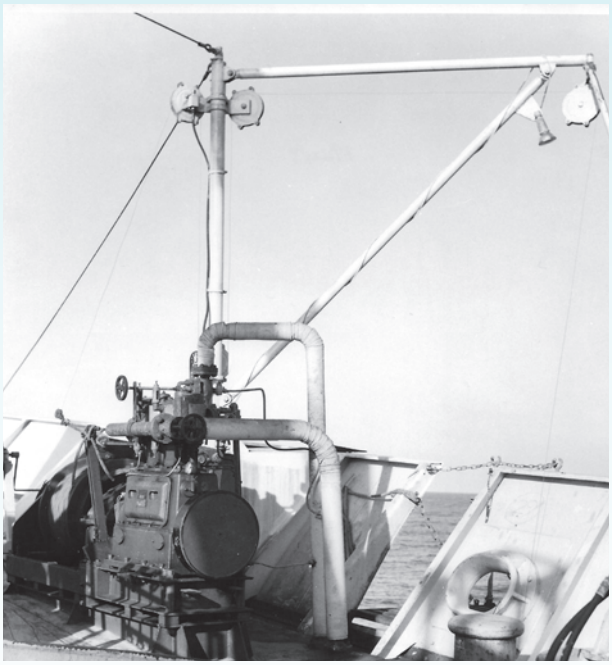
Tellus* tales

"Ace" Wallace (Wormley and Southampton 1967-2002)

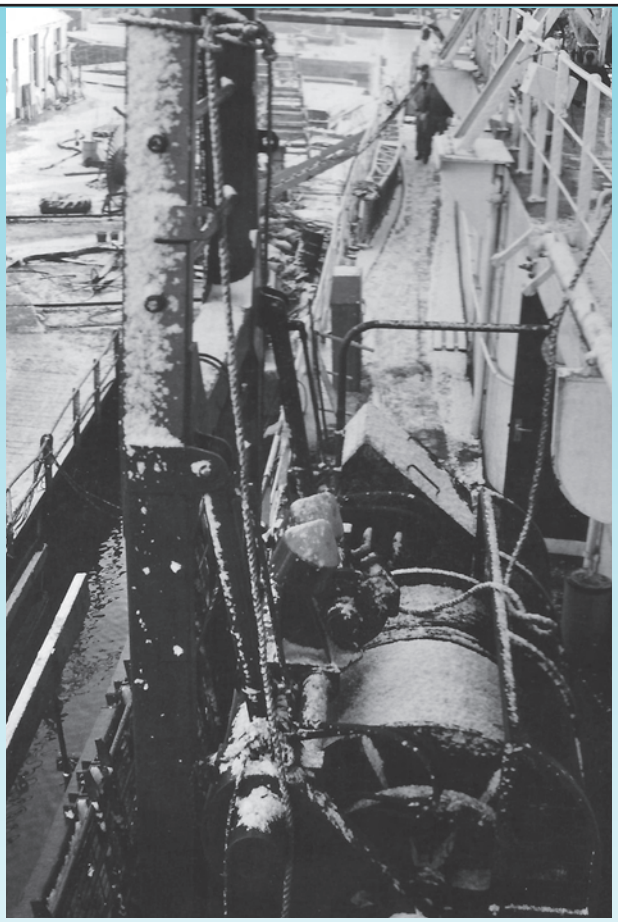
Following Charles Clayson's article about the Electric winch in the last newsletter, "Ace" has written a few words about the change over from steam winches to hydraulics.

In the early 80's the steam winches had seen better days, having provided nearly 20 years of excellent service on Discovery, so it was decided to change them to hydraulic power. This did not go down well in some circles as they could see the whole ship covered in oil due to the obvious leaks and burst hoses, etc. At times they were proved to be right.

Above Jim Crease with the old trawl winch
Below The focs'l steam winch. It was good for keeping your coffee mug warm



First of all we had to decide where to fit the main pump to supply the power to the winches. Fortunately there was a spare 90HP electric motor in the forward space of the ship which was previously used to power the coring winch, which had been removed some time before. Dennis Gaunt was in charge of this project aided by Geoff Lodge from the drawing office and myself. A large Lucas pump was fitted to the existing electric motor followed by all the pipe work needed to supply three winches; midships winch, forward hydro winch, and



The midships hydraulic CTD winch.

double barrelled capstan on the foredeck. This entailed removing some of the teak deck and replacing it with steel channel in which to run the pipe work.

Hydraulic motors were fitted to the winches, replacing the steam engines. Finally the day came to test the system. The main pump was powered up and - hey presto - oil everywhere. After lots of "I told you so "comments from various quarters, the winches did work, but the Forward Ring Main as it was called, or The Tellus Mine, was very noisy and all the forward cabins would vibrate with the din. A firm was called in to sound proof the pump room overseen by Dennis Gaunt and Keith Tipping. This worked and the result was accepted, albeit dubiously by the occupants of the forward cabins.

The main pump proved to be a bit temperamental at times and needed constant tweaking. Also there was a continuous oily path from the pump room along the starboard alleyway, much to the dismay of the occupants of the six cabins in that area, as the technician walked up and down to check on the pump when the ship was on station doing science using the winches. Also, the pump room was no place for the timid in bad weather, being so far forward. What with the noise and smell of hot oil and going up and down like a lift, you had to have a stomach of steel.

The old midships winch was replaced by a new one which, after a few modifications, proved to be a good winch, Charles Clayson did a superb job on the electrical control side; one special feature was that when the instrument got to

within 90 meters of the surface the winch would go into low torque mode and so the winch would stall if it hit the top of the "A "frame. Also, there was virtually no pipe work in the winch console as Dennis Gaunt had designed a manifold block so that all the controls for the hydraulics were bolted on.

Over the next ten years - and about 1000 gallons of Tellus oil - the system kept going with, as far as I know, no loss of equipment due to winch failure. Yes, there were a few near misses. On one occasion the pump failed with 5000 meters of wire out and FIDO hanging on the end (FIDO means Fluxes in Deep Oceans or Fiddling De Overtime)

But the forward crane had been converted to act as a backup for the main pump so it was hooked up to the winch and FIDO was recovered, much to the relief of the scientists.

The impressive hydraulic pipework of the new traction winch.

In 1982 the main after trawl winch was removed and a whole new aft hydraulic system fitted, with a new Traction Winch and piston coring system, but the forward system was kept until Discovery's major conversion in the early 90s.

• Tellus is a comonly-used hydrauic fluid produced by Shell. It is supplied in large drums and was consumed in large quantities aboard Discovery

Two anecdotes from *Jos Fasham*

"The ship's cat and the screwdriver",

On Discovery II, in the 1950s John Swallow was developing his "pinger" floats. We had been examining the compressibility of the scaffold tubing enclosing the instrument, to be able to calculate neutral buoyancy at varying depths. But when ready to test the Pinger, we found that the ship's cat had chosen the top of the hydrophone assembly as the place to have her kittens. So, as we didn't want to disturb the cat, and as I was thinner than Jim Crease, I was sent down to the cofferdams with a screwdriver. I had to squeeze through a very narrow gap between the water and/or diesel]tanks. With the screwdriver held against the hull, I listened for the "pings" and their echoes. I don't remember how I relayed soundings to the others, but it could have been via the ship's intercom.

As told to Jos by Norman Smith

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This photo by Philip Boyd, is of Mike during Discovery Cruise 182, the BOFS North Atlantic Bloom study in May 1989. This cruise co-ordinated ships from Germany (*Meteor*), the USA (*Atlantis*) and more. Mike was PSO. Most of Mike's international colleagues were either entertained here with us at home, or were taken to pubs and restaurants hereabouts. We noted that all of them enjoyed a glass or two.....

So, on this cruise, Mike became a "Bootlegger". Thinking of his colleagues on the "dry" *Atlantis*, who had only a soda machine and an exercise bike to entertain them, Mike requisitioned the *Discovery*'s inflatable. Amongst the legitimate samples and the latest data to be shared between the ships, Mike managed to smuggle some cans of Guinness on to the *Atlantis,* cunningly disguised as "Light-Sensitive Samples" - which, of course, would not be opened..... 'Duck' (Prof Hugh Ducklow) told this story when he collected ASLO's John Martin Award for the Fasham, Ducklow and McKelvie paper of 1990. Since it is already in the public domain, I can now repeat it.

Farewell to Gwyn Griffiths

The following is a short version of Howard Roe's summary of Gwyn's career given at his leaving "do" at NOC on Nov 30th

Gwyn joined the Applied Physics Group at Wormley in the Autumn of 1976 fresh from his degree in electronics at Essex and his MSc on underwater acoustics at Birmingham. He worked with Peter Collar and John Smithers, learning about CTDs and seagoing and developing acoustic and electronic current meters. His base in the hut on the other side of the car-park from the main building allowed him easy access to the croquet pitch where he stole unfair advantage by wearing alarming Rupert Bear trousers!

1970 Gwyn (left) in the Young Scientist of the Year competition

He soon made his mark as a stickler for accurate measurements and careful calibration, building his own ADCPs until RDI began commercial production. He pioneered the use of ADCPs aboard RRS Discovery during which he established the importance of correcting for ship's heading and achieved hitherto unprecedented access to the ships gyro! For the first ten years or so of his career at Wormley Gwyn confined himself to the world of ocean physics-but light dawned in the mid 1980s when he showed his hand- coloured records of acoustic backscatter to a biologist-me! This lead to several extremely fruitful years both scientifically and financially as a group of us, with Gwyn to the fore, developed ways of visualising and quantifying biological distributions from ADCP records, linking these to physical data and developing state of the art multi-frequency sonars.

By this time NIO had moved to Southampton and our bioacoustic research declined as Gwyn took on additional responsibilities as Deputy Director, and added RVS Scientific Services to his portfolio as head of the Ocean Engineering Division. It was during this period that I really got to appreciate Gwyn's formidable expertise, his unassuming leadership and his dedication to solving problems, be these technical or man-made! At Southampton Gwyn wholeheartedly embraced the opportunities presented by the merger with the University: he was awarded one of the first personal chairs given to NERC staff, became Professor of Underwater Systems Engineering at the University and developed into an enthusiastic and inspirational teacher, of both graduate students and school children. Away from home we visited the Yemen, haggled in the astonishing souks of Sanaa whilst seeking to arrange a cruise which was subsequently re-directed to the Straits of Hormuz and delivered the best multidisciplinary data set that exists for this part of the world still. European framework programmes were a little dull by comparison- despite Gwyn having his briefcase, passport and ticket stolen in Barcelona-again in the company of biologists.

Meanwhile Gwyn had other interests-Autosub. Gwyn's first involvement in this programme was to assess options for control systems for the ocean going version-Dolphin. By 1993 Gwyn was head of Ocean Technology at Wormley and development was under way, Autosub had her first sea trials in Empress Dock in 1996. Gwyn's role in the development and subsequent success of Autosub was absolutely fundamental. The programme itself was more or less continuously threatened throughout the late 1980s and much of the 1990s as NERC questioned whether they should be investing in such high technology. Gwyn played a key part in persuading the doubters, and subsequently successfully promoted the use of autonomous vehicles, including gliders, expanding their scientific capabilities and becoming an international authority on aspects of risk, reliability and power sources. He helped acquire the ROV from Woods Hole in 2000, oversaw the subsequent development of Isis, and the establishment of the Marine Autonomous and Robotics Systems facility at Southampton.

Gwyn's career, his awards, his involvement and leadership of many learned societies, his interfaces with industry via events like the hugely successful Underwater Vehicles Showcase, his enthusiasm for involving school children in science exemplified by the Engineering Education Scheme, and his prodigious output of papers, books and reports are a matter of record. As the citation for his SUT's President's Award says "…he is rightly recognised for his achievements in all corners of the world".

Being presented by Geraint West (Head of Sea Systems NOC) with a print of HMS Erebus

Outside work he is a keen collector of Antarctic books and memorabilia, an expert on James Rennell and an enthusiastic promoter of oceanographic history-including the recent 50th anniversary celebrations for Discovery. History spills over into his restoration and collection of old radio sets, which are meticulously documented in typical Gwyn style

Gwyn has made an immense contribution to marine science locally, nationally and internationally. He is retiring to spend more time with Kate and to develop his company Autonomous Analytics. To mark his retirement friends and colleagues gathered at NOC where Gwyn was presented with a book of messages from around the world, a print of HMS Erebus in the Antarctic, a picture of the new Discovery and a cheque to assist his book collection!

Howard S J Roe

NIO on Friends re-united

Jill Halliwell (nee Knights - Kay Clemts' sister) who worked at NIO in the 1960s has posted some photographs of life at NIO in that era on the Friends re-united web site. She particularly refers to JN Carruthers, to Fred Culkin and to the lunchtime walks along Brook Road that were a feature of life at NIO in those days.

Please feel free to use Friends Re-united (http://www.friend-sreunited.co.uk/) to add your stories and photographs.

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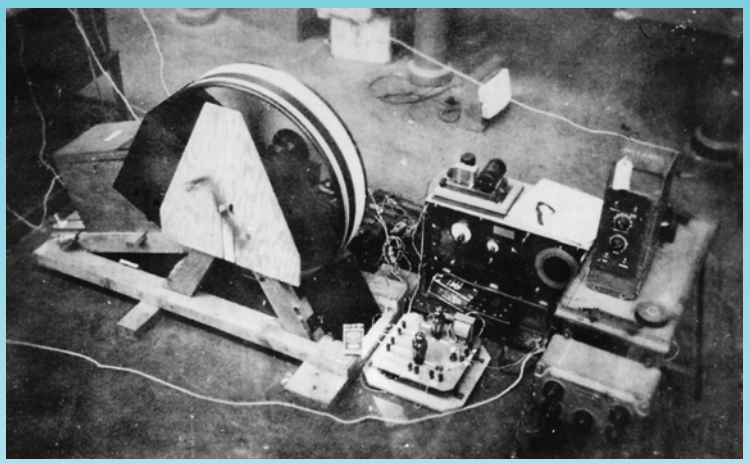
And finally a few more photos

Haircut at sea(and a beard trim?)

JN Carruthers (early 1960s?)



1940s-50s technology. The drum wave analyser.

Sorting out the mess on *Discovery's* foredeck

The next
++ OCEANS WORMLEY ++

I'm grateful for the material that has been sent to me. This issue has been very heavily focussed on sea-going so some more shore-based stories would be good.

As a physicist I obviously call on my own photos to fill gaps but I'd like to have more from our biologists, chemists, geologists and geophysicists. I will do the layout for the next issue (though I'm not a design expert) but will need text and photos. Here are some ideas for possible items

- Reminiscences of memorable cruises
- Reminiscences of life at Wormley
  (not necessarily about science)
- Photographs, preferably including people.
- Articles linking science in the Wormley days to science today.
- Glorious failures (the bits of kit that didn't work).

Please send any material to me at wjg@noc.soton.ac.uk

I would aim for the next issue in June 2013.

Spreading the word

Not everyone has e-mail access so please print copies and give them to anyone you know who might be interested and please let me know the e-mail address of others who might like to be on the mailing list.

John Gould