

COLD WAR - COLD WATER



Left: Robert Graham gave a fascinating talk at our AGM. Right: A view of IPSA from the back; the metal frame is double sided and encloses the oxygen bottle, scrubber tank and counter lung. Opposite Page: IPSA internals. The green rubber bag is the counter lung, atop it is a pin for automatically activating the excess pressure release, while the gadget immediately below in the foreground is for manual operation. The green drum is the scrubber tank with the oxygen bottle and valve on the right. This unit has a pressure gauge (left). The rearmost section of the metal frame has been loosened by removal of pin in the background and swung away to the bottom. (R. Graham photos)

A paper presented by Robert Graham at the HDS Aus-Pac conference - October 2016.

Post-World War II, the Soviet Union's attempt to match the West in submarine power led it into a contest where, lacking the requisite economic power to compete, projects were rushed and corners were cut. Quality control was allowed to lapse. Quantity and size mattered to the Soviet Union's political masters, their 'bean counters' and propagandists.

This period is well covered in Peter

Huchthausen's 2002 book, *K 19 the Widow-maker, The Secret Story of the Soviet Nuclear Submarine*. The Harrison Ford/Liam Neeson movie, though largely fictionalised, captures something of the book's overall message, that these vessels were dangerously under engineered, under manned, and with many poorly-trained conscripts of whom the Soviet state expected high performance.

Huchthausen wrote: *Accidents occur in all navies. Taking large numbers of complex submarines packed with weapons and men to sea is an inherently dangerous business. The Soviet*



variable) and then set aside in store houses, from where it became available for sale via 'military surplus' stores. Today, many of these stores now sell things online. In addition to quality control issues, another characteristic of Soviet products is their overwhelming conservatism. Despite flashes of innovation and brilliance, the gear issued tended to be at least one generation behind western counterparts.

system, however, with a centrally planned and controlled economy, and strict secrecy in all military matters, exacerbated an already accident fraught enterprise. Immense pressure was put on the navy from the Communist Party Central Committee in Moscow and its economic planners. These directorates imposed unrealistic requirements on the shipbuilding and atomic energy ministries and the navy to meet goals set in five- and ten-year economic plans. We now know that party officials and naval construction leaders falsified records to show compliance with these impossible goals. Nuclear engineering work was undertaken with little or no quality control, and shipyard safety during construction was minimal. Personal advancement was based upon meeting construction quotas. Throughout the Cold War period, and still in today's Russia [i.e. the early 2000's] ships were sent to sea with minimal attention to living conditions and the safety of the crew.

One result of this emphasis on production was that much ancillary equipment was produced in enormous quantities (even if quality was

Often it was several. While that was unfortunate for the fighting men who had to use it, it nevertheless preserved technologies we would consider historical.

I suspect many HDS members would like to own the gear used by WWII frogman and commandos – the problem being, it was well used in its day and is now some seventy years old. Much of the gear is made from rubber, and 20th century rubber is, museum conservators tell me, probably the hardest of materials to curate. The Dead Sea Scrolls will still be around in 1,000 years, while Commander Crabb's rebreather will be a smelly stain darkening the bottom of some museum drawer in 100 years or less.

However, one can own the equivalent equipment, much newer, in good condition and even in many cases unissued in its original containers with associated accessories. Most of it in working order – and some is now being dived, albeit rather gingerly by some of our historical diving colleagues.



The Russian IPSA:

I'm not sure what the initials stand for. I suspect something along the lines of Individual (i.e. personal) Under [water?]- something Apparatus(us). It was manufactured across the late 1950s and 1960s and possibly later, I'm not sure. A Soviet

navy rebreather, it looks to have been used as both an additional escape lung and by commandos.

It consists of a single Oxygen bottle, a rubber counter lung and a scrubber container. Some sources suggest it used the potentially explosive substance, potassium oxide, or 'O3', though I suspect it used a more conventional soda-lime to clear away the CO2. (These are behind the green protective metal 'shell' seen in the photograph.

It is a simple rebreather like the Davis, Pirelli or Desco Model B. Charged with Oxygen

and soda-lime, I could see myself giving this one a go in a swimming pool.

The Russian IDA 59:

Introduced in the early 1960s the IDA, Russian for

Individualny

Dykhatelny Apparat

[Individual (or

personal) Breathing

Apparatus] this seems

to have been the Soviet

escape lung until after

the fall of the Soviet

Union. Robust and in

some ways innovative,

its designers claim it

could be used to 1,000 metres. Again with a single oxygen bottle (with constant flow valve) it has a large counter-lung serving as a floatation device as well (and designed to keep the users head above water when on the surface). It also has a second



flask (containing a diluent, nitrox, mix) and well-designed regulator set to automatically adjust and provide suitable amounts of breathable mix for safe use to 20 metres, 40, 55 and over 60 to a maximum of 90 metres. An additional Helium bottle could be strapped on for use to 300 metres, (1,000 feet).

The IDA could be used with the same

awkward, poorly designed and poorly fitting 'mask - hood' as was used by the IPSA, or it could be connected to a much more user-friendly mask, that we call the 'windscreen wiper'! In this way it would be used much as any rebreather could be for general diving.

The Soviet Union was, of course, a northern power and many waters travelled are extremely cold. A dry suit was designed for use with the IDA under which protective cold weather clothing could be worn. Bearing a resemblance to the British Sladen suit (and just as difficult

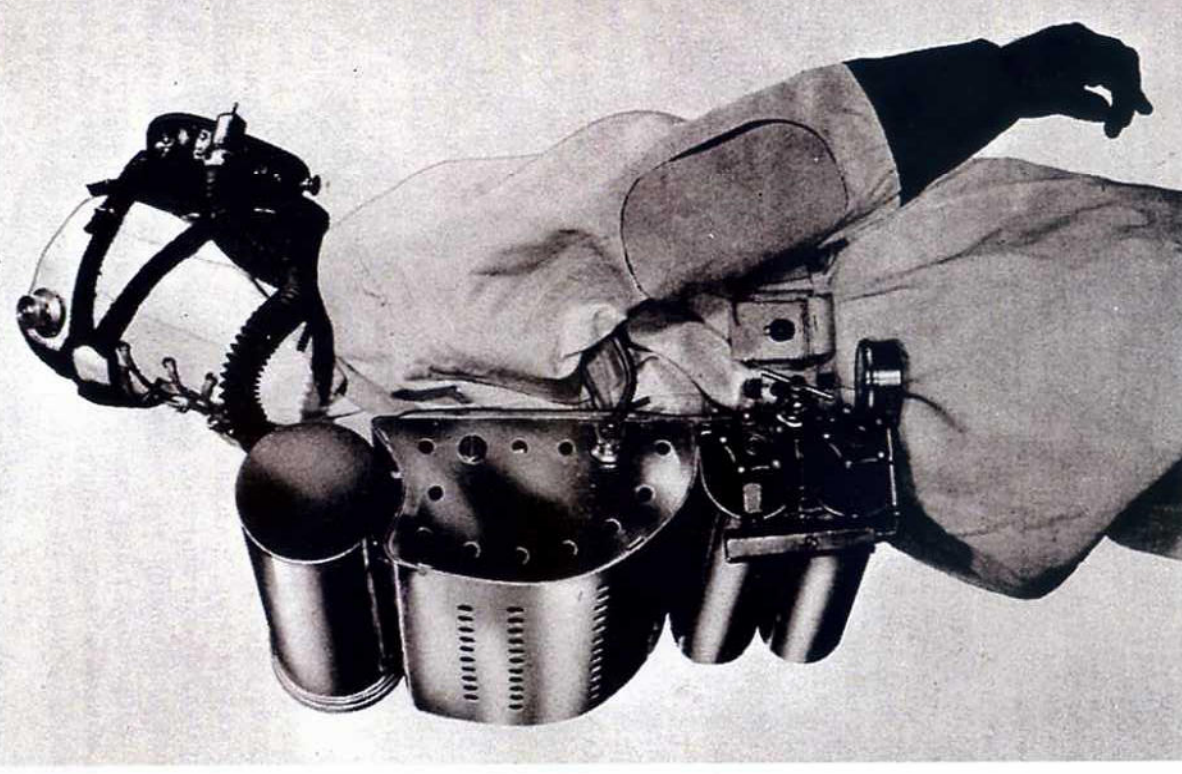
to put on) this was known to the navy as the ISP-60 *Individualnoe Sredstvo Podvodnika*. (Which is again the Individual or personal Underwater something.)

The IDA uses potassium oxide and not soda-lime to scrub carbon dioxide from the system. That's good in that it generates more oxygen, again greatly extending the life of the oxygen flask, but

bad in that it explodes on contact with water!

Coupled with quality control issues, poor training and non-motivated conscript crews the IDA mix is, in keeping with the general pattern of the Soviet submarine fleet, potentially lethal in itself.

The IDA 59 reminds me somewhat of its contemporary the Desco Model C, when the Desco was used with the



additional gas mixture. I would not try an IDA with O3, though some divers do use them utilising soda-lime, after some modification.

If you put 'Russian Rebreather' or the model names into an YouTube search you will find many videos of people diving and explaining this equipment. So, for all you diving history fans who long for the return to the days of the British frogmen, Russian equipment available on the internet, may be your opportunity. But be very, very, careful...

Opposite page top: The IDA with

connected Helium bottle. Notice the regulators, the diluent bottle (left) oxygen bottle (right) and scrubber tank (centre). (R. Graham photo).

Opposite page bottom: Soviet era mask with

internal windshield wiper. Above: DESCO Model C (Schenck/Kendall photo)