British Cave Diving: Wookey Hole and the Cave Diving Group

By Dr. Duncan Price

Typical diving conditions in Britain: Jamie Alderson in Haws Gill Cave, North Yorkshire

IT IS DIFFICULT to write an article about cave diving in Britain without mentioning the famous show cave at Wookey Hole in Somerset, for this is the place it all began in 1935 when a team of cavers conducted a summer long campaign to probe the source of the River Axe which rises here. The leader of the group was a telecommunications engineer named Graham Balcombe who was based nearby. Balcombe was originally a rock climber who pioneered a number of difficult routes in the English Lake District before being introduced to caving. A transfer to the Bristol area gave him plenty of opportunity to pursue this activity in the caves on the Mendip Hills. One particular site was Swildon's Hole near the village of Priddy, where a small stream went underground. The water had been followed down a series of cascades which ended in an ominous pool where the cave

roof came down to meet the water. By probing the area with a stick, it was established that the passage continued, and attempts were made to open up a way over the top by the judicious use of high explosives. Unfortunately, the sump lay directly beneath the village church and a particularly large charge happened to be fired during a religious service. Further exploration would have to be conducted by diving.

In the mid-1930s, amateur diving was in its infancy; it would be another ten years before Cousteau's aqualung was developed. Balcombe and his friends approached Siebe Gorman and Co. in the hope of borrowing lightweight military kits which would, in a few years' time, see use by combat divers riding "human torpedoes" to attack shipping during World War II. This was deemed too dangerous for civilian use, so, instead, the team was offered the loan of two sets of commercial hard-hat diving gear and the services of an instructor to teach them how to use it. The equipment would not fit down the confines of Swildon's Hole, but, not wanting to pass up on the opportunity, the would-be cave divers found somewhere more suitable to use their gear.

After getting used to the gear in a local pond, the cumbersome apparatus was taken by horse and cart to the Third Chamber in Wookey Hole. As the cave was operated as a major tourist attraction, all diving operations had to be carried out after hours so as not to disrupt business. Just after midnight on July 14th, 1935, the first dives were made upstream into the unknown territory between Wookey Hole and the caves which feed it. At first the divers took turns to work their way along in their bulky outfits, but soon it became apparent that a single lead diver supported by an assistant was the best approach. Graham Balcombe was the obvious choice for the former and it fell to the only woman in the party, Penelope "Mossy" Powell, to act as support diver. Together they reached the flooded Seventh Chamber, some 52 meters from base, before the effort of dragging their breathing hoses with them became too much.

The following year Balcombe's co-worker and caving accomplice, Jack Sheppard, passed Sump 1 in Swildon's Hole using a lightweight pump-fed diving suit of his own construction. Balcombe replaced the air hose with a cylinder of oxygen and, by opening the cylinder valve manually to take each breath, made an attempt on the next sump. When war broke out, Balcombe was posted north to Harrogate and though conditions were difficult, he managed to build his own oxygen rebreather with which he was able to make a few pioneering dives in the caves of the Yorkshire Dales. Not only was the early equipment home-made, but the techniques had to be worked out from scratch, a philosophy which can still be found amongst British cave divers today. In an era where fuel was rationed, transport was by tandem bicycle towing a trailer with all the gear on it. In the years following the war, it was not uncommon for cave divers to send their equipment by parcel post!

In 1946, an attempt was made to enter a cave system by diving the Black Spring or "Ffynnon Ddu" in the Welsh hills. Although unsuccessful, this led to the formation of the Cave Diving Group (CDG)—likely the world's earliest technical diving organization and certainly its longest lasting one. With the conflict over, military surplus gear was hoarded by the fledgling CDG and modified for use in caves. As a consequence, closed-circuit equipment stayed in use by British cave divers well into the 1960s, long after open-circuit SCUBA had been adopted by sport divers. Since both equipment and training were in short supply, aspirant cave divers were rigorously selected—a process which gave the CDG a certain elitist reputation around the time.

The CDG returned to Wookey Hole and made a further advance upstream to the large, dry Chamber Nine in April 1947. This part of the cave was opened to the general public in the 1970s by the construction of a tunnel which now allows divers to start from an advance base. The rules about only diving outside of the show cave opening hours have also been relaxed and cave divers' activities are now an added "attraction" for visitors. This is probably a good thing—the post-war divers also used stimulants to be able to stay awake during the late night explorations.

At the time, the CDG was the only organization conducting any diving outside of navy or commercial circles. The military took a keen interest in the Group's activities, even to the point of infiltrating the fledgling CDG to keep an eye on them. This is hardly surprising given the remark made at the time by diving physiologist Professor J. B. S. Haldane that "if there was a Bolshevik revolutionary spirit to be found in the UK, it was to be found in the ranks of the Cave Diving Group." Haldane was an honorary member of the organization and provided advice concerning various aspects of diving medicine. The Group's response to his comment was to demote Haldane to non-diving status with the excuse that his oxygen tolerance was questionable. Even today, the author has personal experience of the authorities' surveillance of our activities, though they admit to using Google rather than any covert means.

Sadly, the CDG suffered its first fatality at Wookey Hole in April 1949, when a diver ran out of oxygen returning from a training exercise in Chamber Nine. It was a terrible blow for the Group as the victim was not one of their own, but an experienced open water diver (and former marine commando) who was a guest of the CDG. The loss of another highly experienced diver and protégée of one of the leading lights in the CDG at Porth-yr-Ogof in 1971 hardened its attitude in favor of only recruiting from the ranks of cavers, although this restrictive policy of excluding divers with no caving experience has been cautiously relaxed in recent years. Given the difficult conditions found in UK caves and the scarcity of places where one can cave dive without having to go caving to get there, members of the CDG are still expected to become fully conversant with "dry" caving techniques as well as diving skills particular to the cave environment. Many CDG divers are also members of local cave rescue teams and have provided assistance in incidents outside of the UK.

In the 1950s, British cave divers preferred to walk along the floor of the cave rather than swim freely using fins. This made sense since their long duration war surplus rebreathers and drysuits gave them plenty of time to spend underwater. An early experiment with fins and an aqualung turned into a lucky escape for Bob Davies while exploring the furthest upstream limits in Wookey Hole. The fault lay not with the equipment, but a

Rick Stanton models his innovative sidemounted rebreather in Wookey Hole, Somerset.

failure to secure the guideline. In order to overcome the depth limitations of breathing pure oxygen, the CDG adopted mixed gas semi-closed rebreathers to reach Chamber 15 at Wookey Hole in December 1960.

During the early 1960s, the transition to open-circuit air diving was hastened by the activities of Mike Boon, who simply dispensed with the bulky equipment traditionally worn by CDG divers and strapped a cylinder to his hip, thus creating a streamlined, sidemounted profile for passing tight underwater passages. In extremis, the single cylinder could be removed and pushed ahead of the diver. This meant that any sump could be tackled by a determined diver. The CDG was slow to adapt, however, and was challenged by a young group of university students who perfected Boon's minimalist approach and formed the self-styled "Independent Cave Diving Group." Although ICDG was short-lived and its members soon absorbed into the CDG, the activists reached the current limits of many of the local Mendip caves. One of the young bloods, Dave Savage, made significant progress at Wookey Hole using a leaking backmounted twin set and single sidemounted cylinder to reach a small airspace in Wookey Hole: Chamber 18.

British cave diving moved up a gear in the 1970s with the appearance of a new breed of amphibious cavers. The redoubtable John Parker pushed on in Wookey Hole to find the large dry chamber, Chamber 20, and followed the course of the river further upstream to enter another airspace, Chamber 22. From here, the way on was lost until an opportune visit by Geoff Yeadon and Oliver Statham, who normally operated in the north of England. The pair formed a highly competent team that had revolutionized British cave diving by adopting dry suits and large cylinders, while often using stage diving techniques. The diving aspect of cave diving was now becoming an end in itself rather than a means to an end. The exploration of Keld Head in Yorkshire illustrated this; Yeadon and Statham linked this resurgence to the Kingsdale Master Cave to produce a (then) world record traverse in 1978. The underwater cave has continued to grow in length, and the explored submerged passages now amount to around eight km, although there are currently landowner access issues. At Wookey Hole, Yeadon and Statham passed a series of static sumps to discover the majestic river cave of Chamber 24. Another sump barred the way and this quickly fell to Martyn Farr, who entered the final airspace of Chamber 25 during February 1976. Beyond this, the cave went deeper, explored first by Farr, and then in July 1985 by Rob Parker, who, using trimix for the first time in a British cave, and supported by a team which included Bill Stone and Rob Palmer, reached a depth of 67 meters at a gravel blockage.

For many, that was the end of Wookey, but British cave divers are nothing if not determined. Digging underwater was tried and although unsuccessful, demonstrated that a highly motivated lightweight team could make "Alpine" style assaults at the end of the cave rather than use the week-long siege tactic adopted by Parker in 1985. The approach taken by British cave divers has always involved a high level of self-sufficiency, with each diver being responsible for their own safety underwater. The nature

of most sumps means that air sharing is impractical and underwater communication problematic. Logistics often dictate that the final penetration is made solo; however, there will be a high level of cooperation and well-planned redundancy needed to achieve this. Given the widely varying conditions encountered in Britain, a highly flexible equipment configuration is often required and, although individual divers adapt their kit to suit their personal preferences, it is not uncommon for divers to share gear and to be comfortable doing so.

Rob Harper prepares to dive Dingley Dell Sump in Resevoir Hole, Somerset.

During the 1990s, it seemed that the heyday of British cave diving was over, as most of the easier caves had been pushed to an apparent conclusion and many divers looked abroad to pursue their activities. At first this amounted to little more than "cave diving holidays" to Europe and the Americas. This exposed British cave divers to new techniques that had developed in places where cave diving had developed as an extension of diving rather than caving. It also presented opportunities for original exploration at foreign sites where the indigenous explorers did not have the same level of innovation and determination that had been perfected in the challenging environment of British sumps.

One of the new breed of British cave divers was Rick Stanton. He had become interested in cave diving after watching a documentary about Yeadon and Statham's record breaking dives at Keld Head and had taken up caving with the express purpose of becoming a cave diver. Stanton had participated in the Wakulla 2 project in 1998 and thus had been trained on the Cis-Lunar Mk5 rebreather. Having noted the shortcomings of such a complex device for sump diving, he had built a compact chest-mounted rebreather, which he had employed to extend a number of caves in the U.K. and abroad. His next innovation was to make a dedicated, sidemounted fully-closed-circuit rebreather for other projects.

Spurred on by intriguing video footage of the end of Wookey Hole shot by Gavin Newman as part of a film about the cave, Stanton took his new "toy" for a trip to the impassable gravel blockage in June 2004. This time the diver's caving experience and research about the site guided him to a route which bypassed the constriction and gained new ground. Joined by John Volanthen, who had also adapted a lightweight oxygen rebreather for deep diving, the pair (supported by a gullible bunch of support divers) dug through a boulder blockage at 70 meters depth and pushed down to a second choke of large rocks at a British record of 90 meters during the following year. Ever the optimist, Stanton believes that this might be passed by no-mount diving techniques.

Of course, Wookey Hole in Somerset is just one of many sites in Britain. Cave divers have been instrumental in forging significant links in the 100-kilometer long "Three Counties" system in North Yorkshire, and divers are close to adding the caves of Kingsdale to this network. The Brecon Beacons of Wales contain numerous caves with many kilometers of dry passages first entered by cave divers. A similar situation exists in the Peak District of Derbyshire, and all four caving areas are represented by regional sections of the CDG. Across the sea, Ireland has significant flooded cave passages and underwater cave systems which have been explored by British and, more recently, locally-based cave divers. Mainland Europe has been a happy hunting ground for the CDG with major discoveries in France, Italy, and Spain (where a CDG team aided by local cave divers is currently at the sharp end of the longest sump in the world). Further afield, its members have been active in Australasia, Russia, and have pushed deep caves in Mexico (setting a North American depth record in the process). All this from an organization that has a membership of just over a hundred!

In many respects, British cave diving has not forgotten its roots in the home workshops of Balcombe and Sheppard. Not only do CDG members still make and modify their equipment to suit their needs, they also share the ethos of their founder. When the early divers organized themselves into the first technical diving organization, they did not limit their aspirations to their own country; Graham Balcombe envisaged a global Cave Diving Group with sections overseas. Although his vision may not have been realized the way that he intended, his legacy has made a world-wide contribution to cave exploration ever since its crude beginnings at Wookey Hole over three-quarters of a century ago.