The History of the Back Plate

By Greg Flanagan

In 1979 cave diving was still very much in its infancy and as a junior at the University of Florida, I was privileged to be taking the first cave diving course offered by the newly formed NSS Cave Diving Section, taught by none other than Sheck Exley.

The serious cave rigs of that period included double 104s worn with a Navy harness or a simple three strap harness, both of which consisted only of stainless steel tank bands and webbing. There rigs were used in connection with a belly-bag BC for buoyancy control.

For those "new" to cave diving, a belly-bag was essentially a horse collar type chest mounted BC without the collar. The diver, while swimming horizontally, lay on the buoyancy pillow created by the belly-bag in order to keep his feet up and off the cave floor. However, the weight of the heavy back-mounted tanks, separated from this buoyancy pillow by the diver's torso, necessitated the diver to constantly perform a balancing act to avoid being flipped over. This aspect of their use, coupled with the belly-bag's separate harness system, did not make for a very comfortable, stable or user friendly rig.

A few people, myself included, had tried the then new Scuba Pro Stabilizing Jackets with doubles. These were much easier to dive but they lacked adequate attachment points for light canisters, reels, and other gear. The only back-mounted BC's of the day, At-Pacs and Scuba Pro BCPs, used a conventional injection molded plastic single tank backpack in conjunction with "bridged bands", which were only available for 72s and 80s. The injection molded backpacks needlessly raised the tanks high off of the back and were very uncomfortable. Nevertheless, I realized that a back-mounted BC offered several major advantages; a clean chest with an infinite number of gear attachment points on the harness, and natural balance, due to the diver's center of gravity, i.e. his tanks, being surrounded by the center of buoyancy , i.e. the BC wings. As such, I set out to find a way to have the advantages of the back mounted wings without the molded back pack. To do this the harness had to be detachable from the BC and the BC detachable from the tanks. I concluded that what was needed was a thin strong metal backplate (with attached harness) which would sandwich the BC between the plate and the tanks, without adding appreciably to the profile of the rig.

I made my first back plate in early 1979 from a surplus aluminum road sign of unknown alloy. I traced the outline from the solid center section of the Scuba Pro BCP onto a paper stencil and transferred this onto the aluminum. I next cut out the aluminum and had a single parallel set of bends, about 2" apart, made in the center of the plate, running from top to bottom, forming a sort of flat bottomed "V", into which I drilled two holes (one top/one bottom), which were used to bolt the plate to extended studs on a set of bands on double 72s. I then proceeded to beat the aluminum around the curvature of the tanks with a sledge hammer, soon discovering that aluminum alloy is pretty tough material, taking several hours to conform the aluminum to the tanks. The webbing off a Navy harness was then attached through a series of slots cut in the metal and the first back plate was born. I used this first back plate on both Double 72s and Double 80s throughout the rest of Sheck's cave course with awesome results. Balance was so easy and my cave diving technique was so improved that I became the envy of my classmates who continued to struggle with their belly-bags.

Vaughan Maxwell, another student in the same cave course, then persuaded me to make him a plate and I agreed, but by this time I had decided that a second set of bends running top to bottom of the plate just outboard of the center set of bends (in order to get the plate to lay flat against the tanks) was preferable to spending another afternoon of pounding with a sledge hammer. It was also at this time that I devised the harness and slot configuration that continues in use today, facilitating the use of a single continuous piece of two-inch webbing. This second

back plate was completed the night before the 1979 NSS Cave Diving Section Workshop held in Branford, Florida, and was essentially the same as those produced today. Aside from minor changes in dimensions and the selection of superior alloys, my basic double bend design and slot and harness configuration has remained essentially unchanged to date.

Having standardized the design with that second plate, I received requests to make more. Over the next few months, I proceeded to make additional back plates for myself, Sheck Exley, Will Walters, Dale Sweet, Steve Straatsma, Tex Chalkley, and other "old timers" of the cave diving fraternity who used them with much success, but it was my dear friend and cave diving buddy Bill "Hogarth" Main, through his relentless pursuit of cave diving, who popularized my back plate and harness as foundational components of what has simply become known as the "Hogarthian Rig".

Since its birth in my garage in 1979 the back plate has been commercially produced by a number of vendors. However, Dive Rite was the first diving equipment manufacturer to produce and commercially offer the backplate to the diving public in the early 1980s.

In hindsight it is ironic that I went to law school in 1980 and became a lawyer but failed to procure a patent for my back plate. However, it is gratifying to know that I was able to invent something which has obviously helped so many divers worldwide safely enjoy the challenging sport of cave and technical diving. Now, if I can just come up with something else...