An essay on the Origins and Practical Application of Gravanthracite

In most areas of the world, with a little effort, it is possible to find a hard, shiny coal with a high carbon content known generally as anthracite. It is valued as a fuel because it burns with a clean flame and without smoke or odour, but it is much less abundant than bituminous coal. Its existence and qualities have been known for over a thousand years, in fact in the in the first century AD, the Roman naturalist and writer Pliny described the magical and medicinal attributes of this beautiful mineral. However, it was not until 1877 that the scientific world became aware of the existence of the extremely rare mineral - Gravanthracite.

Whilst cataloguing the flora and fauna of the Sind river delta in Khosinda, the eminent explorer and scientist Sir Henry Northbrook observed a group of tribal children at a hot water spring. The children would rummage for hours on end for small red nuggets, and on finding one would excitedly drop it into the water in the spring. Within a few moments, and to the delight of the assembled children, the nuggets would shoot skyward out of the water emitting a high pitched whistling sound. Intrigued by the nugget's behaviour, Northbrook collected a handful for himself, they were composed of a hard mineral, almost identical to anthracite, but with a lustrous reddish hue. After being dropped into the hot spring, Northbrook's nugget raced skyward, as had all the others.

Northbrook's curiosity was aroused. He ordered his bearers to collect a supply of the mineral and set about investigating its properties further in a makeshift laboratory in his camp.

Northbrook (centre) with associates Arnold (left) and Du'Lac (seated) outside the expedition's laboratory tent

After a few days he had a good understanding of the mineral's behaviours, but no clear use for its application, as this entry from his journal shows

"When immersed in water of sufficient temperature, the mineral becomes, in effect, weightless. It propels itself from the liquid that heats it, in direct opposition to the field of gravity that constrains it when it is cold. As the mineral cools, its weightlessness diminishes until it plummets back to earth.

I have observed that repeating the process has the same results, however continued immersion and re-immersion seems to drain the material of its ability to become weightless. Each reheating produces a lesser reaction, till all that is left is an inert nugget that is a dull, deep red colour. The vigour and strength of the lift appears to be proportional to the lustre of the nugget.

Heat alone is insufficient to cause the reaction. Placing nuggets directly into the campfire has had no effect other than to cause the mineral to burn like normal anthracite. Indeed the mineral is identical to anthracite, save for its hue and ability to become weightless.

I am at a loss to propose a use for this material, which I have named Gravanthracite, other than as a novelty item. The lift produced by any given mass of nuggets is insufficient to lift the mass of the water and container required to heat them. All that one is able to achieve in a lidded pot of boiling water is produce an agitated collection of nuggets that assail the lid until they lift it sufficiently to escape. I will investigate some more tomorrow."

It was not until a few days later that Northbrook discovered the first useful property of Gravanthracite

"Today, by sheer chance, I have discovered a most excellent property of Gravanthracite. Whilst clearing the laboratory for the next set of experiments, my manservant Abdulla swept the floor coverings into the campfire. As luck would have it the sweepings contained some of the spent Gravanthracite, which proceeded to burn with an intensity far greater than normal coal. My experiments have shown me that the spent Gravanthracite has a heat output that is ten times greater than that of normal coal. I believe Gravanthracite may be useful to the

Railway engineers in place of normal coal for firing the boilers of their locomotives – assuming we are able to gather it in quantity"

Northbrook and his expedition associates, Archibald Arnold and Henri Du'Lac, spent the following weeks surveying the local area to determine what quantities of Gravanthracite were available. Arnold, a Cambridge graduate and accomplished mining engineer, was accompanying Northbrook on the expedition as a palaeontologist. However it was his experience of mining that proved invaluable on this occasion. Arnold indentified and area inland of the delta that had a significant quantity of the new mineral, in a location that would allow practical mining to take place.

It was during the final week of surveying that Northbrook had his revolutionary breakthrough discovery.

"Eureka! Success indeed. I believe I have discovered a mineral with properties that will change transportation for ever. This evening after dinner, Arnold, Du'Lac and I sat around the camp fire brewing coffee and discussing the days' surveying. I had placed a canvas camp stool close to the fire and had emptied my pocket's contents onto it, so that I could sit more comfortably. The coffee pot must have shifted as the logs in the fire burnt through, as the steam rising from the spout started to come through the stool's canvas top. Within moments, a number of the nuggets that had been in my pocket were rocketing skyward, accompanied by their now all too familiar whistling sound. It appears that Gravanthracite simply requires water vapour and heat to become weightless; it does not need to be fully immersed in water!"

Leaving Arnold and Du'Lac to complete the surveying, Northbrook returned to the camp laboratory to conduct more experiments. Over the course of a few weeks, he perfected a method of heating Gravanthracite filled cylinders using piped steam. By regulating the temperature and humidity in the cylinders, Alexander was able to control their rise and fall. In his final experiment at the camp, he successfully lifted one of the native children on a seat suspended under the Gravanthracite filled cylinder.

On 24th October 1877, Sir Henry Northbrook presented his findings to the Fellows of the Royal Society in London. His demonstration of a scale model flying boat, hovering free of the effects of gravity through the miracle of Gravanthracite, caused gasps of amazement and rapturous applause.

It was at this meeting that Northbrook made the acquaintance of Samuel Harding and James Braithwaite, both eminent inventors and engineers. Harding and Braithwaite were fascinated by the possibilities that Gravanthracite had to offer and set about developing a prototype flyer.

The first Harding-Braithwaite Prototype Gravanthracite Flyer was produced by the end of 1878. Over the next two years Harding and Braithwaite developed their prototypes and by 1880, the first production 'secret weapon' naval flyers were ready, just in time to counter the Prussian invasion of England in the same year.

The rest, as they say, is history . . .