Friends of Bidston Hill

Newsletter, February 2016

Hello and welcome to our latest newsletter which is now available on our website, via email and paper format.

We are working on our events for spring/summer and, so far, I can advise the following:

On Saturday, 5th March, we will be supporting the national '**Clean for The Queen**' event, specific details about this can be found below and we hope there will be many people turning up on the day to take part.

Free guided walks of Bidston Hill take place every Saturday from 11 am. Come along and enjoy the wonderful historic woodlands and monuments of Bidston Hill and Flaybrick Memorial Gardens. Walks are supported by the Friends of Bidston Hill, Friends of Flaybrick Memorial Gardens, and Tam O'Shanter Urban Farm. Over 16s only. No dogs. Please wear sensible footwear (may be muddy or slippery). No sandals please!

On **Saturday, 12th March**, we will have a table at the **Wirral History & Heritage Fair** at Birkenhead Town Hall. Do try to come along when you will have a chance to see what we, and other friends groups, get up to locally. Admission is free and the event runs from 10:00am to 4:00pm, refreshments will be available.

April sees the return of our popular **Windmill openings**, starting **Saturday, 2nd April**; it will be open from **10:00am until 12:00 noon every 1st Saturday of the month** up to and including September. Dog owners are welcome to leave their pets in the hands of our friendly dog minders (right) whilst they take a tour of the mill with a fantastic view from the top!

Nearby **Bidston Lighthouse** will also be open on these days between **12:00 noon and 4:00pm** (and most Saturday afternoons from Easter Saturday until September). For further information visit the website on www.bidstonlighthouse.org.uk

Especially for the children, we are planning our usual **Teddy Bears Picnic** during the summer months. Children must make sure they bring their favourite teddy along, together with a picnic to be enjoyed in the woods (weather permitting). There will be a teddy bear hunt, nature trail competition and prizes! We are not sure of the dates yet but will let you know,

keep checking the events calendar on our website. We also hope to arrange our Rhododendron & Tree Walk again this year; dates will be advised shortly.

At this time, with the fate of the Observatory being unknown, we thought it might be appropriate to include an article written by Philip Woodworth regarding the role of the building during its working years, particularly relating to tidal predictions. I think you will find this most interesting. Equally of interest is a reproduction of a letter written by Brian Cheesman, to our Secretary Peter Vincent in October 2014, which reflects fond memories of Bidston Hill and the Observatory.

Memberships of the Friends of Bidston Hill became due for renewal on 1st January 2016. The annual fee of £5 covers a whole family for a year. If you haven't renewed your membership, or want to join, you can download the membership form from our website (or collect one from the Ranger's office at Tam O'Shanter Farm). Payment can be made by cheque, payable to Friends of Bidston Hill and sent to Tam O'Shanter Farm, or transfer, our bank details are: **A/C No: 71507958. Sort Code: 40-10-26**. It is important you **use your name as a reference** so that we can ensure we allocate your payment correctly.

As you can see we have a lot going on so hope to see you out and about on the Hill from time to time!

*Roy Caligari – **Chair***
February 2016

CLEAN FOR THE QUEEN

As part of its support for the country's biggest-ever community clear up The Friends of Bidston Hill are organising a community litter-pick on Saturday March 5th 2016.

The national 'Clean for The Queen' campaign aims to give the country a tidy-up ahead of The Queen's 90th birthday in April.

The campaign is being backed by organisations including the Women's Institute, the National Trust and RSPB, as well as businesses including McDonald's, Costa, Greggs, KFC and Wrigley and anti-litter charities such as Keep Britain Tidy and the Campaign to Protect Rural England.

Supported by the Government, Clean for The Queen has also won the backing of councils across the UK and is centred on a weekend of activity from March 4th to 6th, 2016.

As part of this weekend of action The Friends of Bidston Hill will be holding an event for volunteers to meet at Tam O'Shanter Farm, Boundary Road, Bidston CH43 7PD, which will run from 10am until 4pm. All are welcome but children must be accompanied by an adult. Boots and gloves are sensible (and litter pickers if anyone happens to have one!) There is free car parking.

Roy Caligari, Chair of The Friends of Bidston Hill said: "Clean for The Queen is about everyone working together to give the country a big spring clean ahead of Her Majesty's

birthday. We do what we can as a group to keep on top of litter but would really appreciate some help on this special occasion".

Litter is a problem that affects every corner of the country. By taking part in Clean for The Queen, individuals and communities will not only be giving The Queen a suitably impressive gift to mark her 90th birthday, they will also be giving themselves and their area a present – a clean space in which to live, work and play.'

We really hope you can come and join us for this worthwhile event, you may find that you enjoy the project so much that you would like to help the friends group with other tasks we perform on Bidston Hill for the benefit of the local and wider community, so that this lovely beauty spot and heritage can be enjoyed by all. We meet each Friday morning at the Tam O'Shanter Farm for a cup of tea before embarking on our duties. We are a friendly lot so please do come and join in.

Memories of Bidston Hill

My memories of Bidston Hill are fond. They go back to about 1965 and, in association with my wife Jo (thanks to the blitz) even to May 1941. When I worked in Liverpool University from 1955-67 as a Science Sub-Librarian, I got enthused by technology and created a pocket-sized list of a couple of dozen departmental collections of scientific or medical periodicals – around 6,000 titles which sold lots of copies at 5/- each and made my reputation. The snag about periodicals for scientists was, and still is, that most library catalogues listed titles under the location of the society or institution issuing them, e.g. LONDON Royal Society, or WASHINGTON afterwards NEW YORK American Chemical Society, whereas references to articles gave only the title itself, such as J. Amer. Chem. Soc. An early computer was involved.

I learnt that the Tidal Institute and Observatory had a collection, mostly accumulated because it had published its own astronomical and tidal data and received reports from exotic places in exchange. So I took the ferry across and came up Bidston Hill. A staff member greeted me and showed me the corridor with a row of coathooks. They all had names alongside: Rear-Admiral X, Commodore Y, Capt. Z, etc, etc. Then I found the last one, it was labelled 'General Use'.

Next I climbed up a long ladder to the top shelf opposite the front entrance to start my listing. Heavy volumes had to be pushed aside. Behind them was a generous layer of dust, plus a large number of chunks of glass. Can someone confirm that a stray Luftwaffe bomb in 1941 blew in windows? That's my firm belief. Jo was living in Martin's Bank premises near the Liverpool waterfront then. Her father returned from fire-watching to find his family hiding safe in the basement of the demolished building.

I wish you well in your ventures, particularly if conservation of the Observatory can be achieved.

Brian Cheesman – Durham
October 2014

Bidston Observatory and Its Tide Prediction Machines

The role of Bidston Observatory has changed several times through the years. In its early decades, following the decision in the 1860s by the Mersey Docks and Harbour Board to move the Liverpool Observatory from Waterloo Dock to Bidston Hill, the focus was on astronomical measurements. These were required in order, amongst other things, to determine accurately the latitude and longitude of the site. Famous names involved included John Hartnup and his son (also John) and W.E. Plummer. Other areas of science undertaken by the Observatory included meteorology and seismology. In addition, it provided several local services, such as the calibration of accurate chronometers for port users and precise timing via the "One O'Clock Gun".

By the 1920s, the Observatory had become 'moribund' (to quote from the excellent book by David Cartwright) and, after the death of its then Director Plummer, the decision was made to combine its work with that of the University of Liverpool Tidal Institute, with both to be located at Bidston. The latter had been founded in 1919 on the university campus in Liverpool with Joseph Proudman as Director and Arthur Doodson as Secretary, with funding from several sources including the major Liverpool shipping companies. The formal amalgamation of the Observatory and the Tidal Institute took place in 1929.

Proudman is another famous name, with Bidston Observatory later becoming known as the Proudman Oceanographic Laboratory. However, it is Arthur Doodson who is more relevant to this article. In the first year of the Tidal Institute, Doodson and Proudman began work on the problem of predicting tides, especially in shallow waters. They also undertook an evaluation of the benefits of mechanical tide prediction machines, which had been invented in the late 19th century by Lord Kelvin (William Thomson) and later developed by Edward Roberts. In effect, they were 'analogue computers'. By 1924 Doodson had taken delivery of a brand new tide machine, the so-called 'Bidston Kelvin machine' thanks to the generosity of Liverpool ship-owners. Then in 1929, with all staff now installed at Bidston, he acquired and refurbished the so-called 'Roberts machine' which had been constructed by Roberts in 1906. The Roberts family had used this machine as part of a business of providing tidal predictions to the government but, due to the death of Roberts' son, were no longer able to continue.

The Roberts machine was in many ways superior to the Kelvin machine, being capable of predicting 40 'constituents' of the tide instead of 29. Such machines can only have a decent stab at simulating the tide at all thanks to the fact that the tide is capable of being described as the sum of individual harmonic constituents. Constituents can be thought of as cosines with particular frequencies (or periods) that are known from astronomy. So, for example, two of the most important constituents are called M2 and S2. These come from the Moon and Sun respectively with periods of 12 hours 25 minutes for M2 and 12 hours exactly for S2. These two terms are responsible for the regular twice-daily tide we have at Liverpool. However, many more constituents than these two are required to do a decent job of simulating the real tide to the accuracy required, and a machine with as many constituents as possible is highly desirable.

These two machines were responsible for many important achievements in the Observatory's history. Bidston had become the undoubted centre of excellence in tidal research, both from theoretical perspectives (primarily Proudman) and on more practical bases such as the provision of tidal predictions worldwide using these machines (primarily

Doodson). Doodson was excellent at devising techniques for handling numbers within complicated scientific calculations that nowadays would be undertaken by digital computers. He also became an expert in the technical design and construction of the tide prediction machines.

Although important individual machines were constructed in Germany and the USA, the majority of the 33 ever made (24 machines) were designed and manufactured in the UK, in either London, Glasgow or Liverpool. The UK was the only country to export machines to other countries. The construction of the majority of the machines made after 1920 was supervised, one way or another, by Arthur Doodson. These included a series of machines made after World War II, of which one (called locally the "Doodson-Légé machine") was to be found in the lobby of the main POL building for many years until the move of the laboratory to the Liverpool campus in 2004.

Two of the three machines at Bidston have an importance in a notable period in the Observatory's history, in providing tidal predictions during World War II and, in particular, for the D-Day landings and in other military operations around the world. These were the Kelvin and Roberts machines, which were located in separate buildings at the Observatory during the 1940s in case of bomb damage. The Kelvin machine, Doodson's first, is now to be found in good condition at the headquarters of the French Hydrographic Service in Brest. Its disposal by Bidston after the war was a financial requirement in order to obtain funding for the Doodson-Légé machine.

The Roberts and Doodson-Légé machines are still located in Liverpool and are now owned by the Liverpool Museum. Recently, they have both been refurbished excellently and are capable of working as well as they can in order to show how things were done at Bidston, before the advent of digital computers in the 1960s saw their demise as the Observatory's main technical assets.

Both machines are now on long-term loan from the Museum to the National Oceanography Centre in Brownlow Street on the Liverpool University campus, NOC being the successor to POL and therefore the 'spiritual home' of the machines. They are available for viewing by the public but arrangements must be made beforehand with the NOC Administration (judd@noc.ac.uk).

For anyone interested in Bidston Observatory and these machines, there is more to read. For an excellent introduction to tidal science, see Cartwight (1999), while histories of the Observatory and the people who worked there are given by LOTI (1945), Jones (1999) and Scoffield (2006). Aspects of Doodson's career have been described by Carlsson-Hislop (2015). An 'inventory' (or overview) of tide prediction machines can be obtained from me (plw@noc.ac.uk), while the story of the use of the Kelvin and Roberts machines in World War II is given by Parker (2011).

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December 2015

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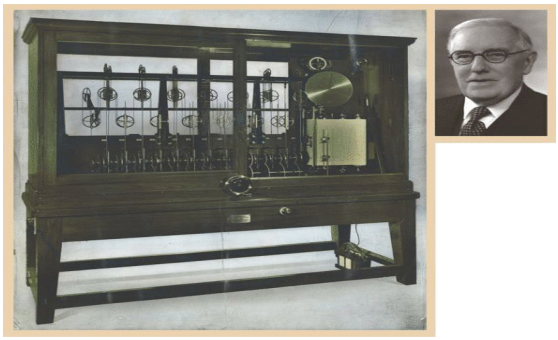
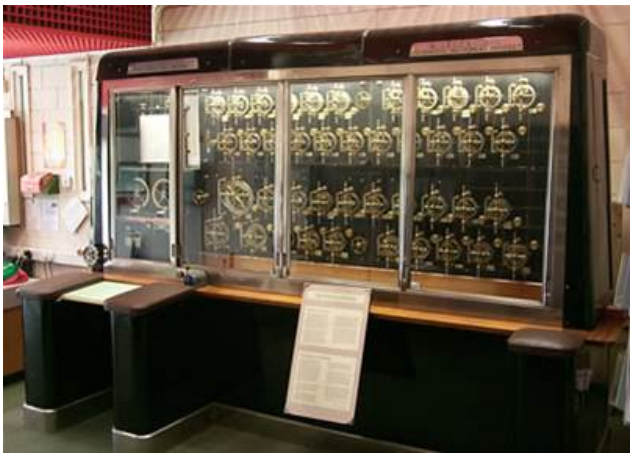


The Bidston Kelvin Machine and (inset) Arthur Doodson (from Parker, 2011) – Left.
The Roberts machine at an exhibition in Paris in 1908. This machine is now on display at the National Oceanography Centre in Liverpool – Right.



The Doodson-Légé machine in the 1990s in the reception area of the Proudman Oceanographic Laboratory. The machine is now on display at the National Oceanography Centre in Liverpool.