Between the Lines

Land of Oak & Iron Mapping Project Newsletter

May 2019

This month, in addition to reporting progress being made at volunteer meetings we are pleased to present an article introducing the geology of the Land of Oak & Iron and its surrounding area written by one of our volunteers. We hope to feature more volunteer contributions in the coming months.

Volunteer meetings May 2019

The first stage of the digital map is largely complete with rivers, woodlands, higher level contours, modern roads, township boundaries and main settlements included in layers. The preliminary video slide show, which is being prepared for future issue as a resource for display, presentations and web access, was shown at the meeting on 8th May and well received.

Topic interest groups continue to develop and start implementing their plans. Waggonway team is initially focusing on The Western Way and producing a chronological progression showing the several changes in route that occurred throughout its existence. The Mills team is concentrating on producing a database of the numerous mills in our area and will then marry this with the mills already identified and plotted on the OS maps. This database should be adaptable to include many other point location items. Leisure and Recreation team is working on its plan of how to prioritise and collect data for this very wide ranging topic, and the Early Roads Development team is developing a plan on how to progress this complex investigation.

Identifying other local history/interest groups remains to be progressed over the next few months and some possible input from them is to be explored (starting with Consett & District Heritage initiative).

Plotting ancient woodlands continues as a background activity and the possibility of plotting land utilisation using information from a major survey from the 1930s and subsequent updates is being investigated. The availability of mining maps showing the underground workings is also under investigation for possible inclusion in the project at a future date.

With the demands on people's time that the summer holiday period entails we will be holding one meeting each month through June, July and August. From September we will revert to two meetings per month. There is already a considerable level of research taking place outside of the group meetings which is most welcome and of course this can continue over the summer months.

How the geology and structure of the North East of England has influenced Land of Oak & Iron.

The surface of the earth has been forming and reshaping for hundreds of millions of years. Early in the 20th Century the concept of continental drift was proposed by German meteorologist Dr Alfred Wegener. The article below and overleaf, written by Land of Oak & Iron mapping group volunteer, Georgina Hodgson, explains how our area has been shaped by geology, its effects on the landscape of today and industrial development. (RH)

An ancient dome of millstone grits was formed in what would become the North of England between 500 and 420 million years ago, in the Ordovician and Silurian periods of Earth history. They were once mud and volcanic ash at the edge of a wide ocean, known to geologists as the Iapetus Ocean. This ocean closed about 420 million years ago as the continents on either side collided. The mud and ash were squashed and altered to form hard slate rocks. These rocks are mostly buried deep underground, but can be seen at the surface along the North Pennine escarpment and in part of Upper Teesdale. They were pushed upwards by the volcanic dome that underlies the Alston Block – which form Cross Fell and its neighbours.

This dome trends downwards towards the east and has given a radial pattern of river valleys; the South Tyne, East and West Allen rivers flow generally northwards into the Tyne Valley; the Devil's Water flows broadly north easterly to join the Tyne near Corbridge; whilst the Derwent and Team flow eastwards, ultimately reaching the Tyne west of Newcastle. The Wear also drains off this block taking a somewhat meandering path towards the sea; nowadays at Sunderland, but in the past other routes have been followed. *(continued over)*

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Today these rivers cut deep valleys through later Carboniferous coal measures; which were laid down throughout numerous climatic phases; of hot deserts (giving sandstones), river delta sediments (giving shales), and tropical rainforests (giving the extensive fossil fuel deposits of gas, brown coal and black coal). These climatic fluctuations, known as cyclo-therms, were driven by swings in the Earth's axis and also by continental drift. In Carboniferous times, around 350 to 300 million years ago, our region was located periodically close to the equator in Tropical conditions producing luxuriant tree growth but also, importantly; more temperate wet areas of high rainfall, producing much riverine mud; or in dry, hot conditions which lead to various deposits of sandstone such as the Old Red Sandstone of the Tyne Gap area round Brampton. Because the volcanic dome had pushed up in an irregular fashion the land trends as a lengthy dip slope towards the North east.

During the last 2 million years Northern Europe drifted towards the pole and a very cold phase lead to huge accumulations of ice over the Scottish Lowlands, the Lake District and the Cheviot Massif. Slow moving ice sheets and glaciers brought loose material (moraine) towards the Tyne Lowlands leaving a surface cover of drift; a layer of ice-borne morainic material over the upper slopes of much of the area. Typical features are shoals of drumlins - small egg shaped hillocks of boulder clay, which align with the flow of the ice; whilst subglacial meltwater channels helped to deepen valleys such as that of the Derwent. As the last phase of ice retreated and the ice sheets shrank, some 12,000 years ago, large lakes of meltwater pooled at the edges; moraine dammed some streams and new meltwater channels evolved, allowing the large volumes of water to drain away. Hown's Gill, at Consett, and Clough Dene near Burnopfield are two such, now dry, deeply incised, valleys. After the ice completely retreated the previous river pattern was restored, but now with much deeper valleys. These valleys have been described as mis-fit; their shape being much wider and deeper than their current flow would explain e.g. the Browney Valley.

The large amount of water running off the ice sheets, along with the isostatic readjustment; uplift of the central dome owing to the removal of the weight of the ice, resulted in deeply incised sections of the upper valleys such as at Muggleswick, the Allen Gorges and the Devil's Water at Linnel's Bridge. During the retreat of the ice, glacial boulder clay was deposited, blocking the course of the upper River Team and beheading what was a large volume tributary of the Tyne. Much of its flow, along with that of the Beamish Burn and the Cong Burn was diverted into the Wear via Washington to Sunderland.

The net result in Land of Oak & Iron are deep valleys, unsuitable for agriculture but ideal for oak/ash woodland to develop and to survive; and allowing easy extraction of coal from the exposed valley sides. The oak woodland cover was quickly exploited by successive waves of people who moved into the area throughout the historical period; from indigenous Britons to Romans, Vikings, religious communities and early Iron workers. In the higher west of the region coal measures were not laid down and mineral deposits of galena, fluorite and ironstone were readily available and exploited.

The upper levels of the Derwent drainage basin, covered by boulder clay and till, are largely unsuited to arable agriculture. Thus, the farming of the area tended towards extensive grazing. Poorer grass quality means that dairy farming was not a large contributor to the rural economy. Lowland heath developed on the poorly drained surfaces above the Lower Derwent, whilst in the upper catchments such as the area above Blanchland, birch scrub would have dominated, until a sheep and cattle grazing economy developed in the medieval period. Cereal crops grown on the more fertile lower slopes supplied the many corn mills.

Thus, a ready source of timber suited to charcoal manufacture; plentiful water in fast flowing rivers with a well-developed agricultural economy supplying wool and hides for leather, provided a launch pad for the early industrial development of the area. Later exploitation of the coal reserves and iron ore deposits would multiply the historical influence of the area.

An overview of the Geology of Northern England can be viewed on the British Geological Survey (BGS) website, with further information available on http://www.northpennines.org.uk/exploring/special-qualities/geology-and-landscape/ (GH)

Coming up in June/July:

Tuesday 18th June 2019, The Winlaton Centre, North Street NE21 6BY (in Winlaton village)

Wednesday 17th July 2019, Clara Vale Village Hall, Clara Vale, Ryton NE40 3SY

Please register to attend using the links above.

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