

# The Significance and Social Impact of Quarrying in Shropshire in the 19th and 20th Centuries



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By

Dr. Robert S. Galloway

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The book is dedicated to my Late mother Mrs Betty Galloway  
1929-2015.

For her encouragement and financial assistance, without,  
which I could not have completed my PhD.



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## ABSTRACT

This book investigates the technological innovations associated with the quarrying industry of Shropshire during the 19<sup>th</sup> and 20<sup>th</sup> centuries, from the extraction of rough-cut limestone, to greywacke used as road stone, sandstone flags found in vernacular buildings and finally to dimension stone. Examples of these minerals can be found in Shropshire, so such a breadth of geology has made this county unique. Knowledge of geology and minerals is integral and united in the quarrying industry. The inaccessibility and remote location of the raw materials has made the quarrying industry in Shropshire different from factory based industries.

The research found that legislation pertaining to the quarrying industry in Shropshire during the 19<sup>th</sup> century was non-existent, however, initial laws introduced in the 1890's attempted to structure the quarrying industry, its workforce and the local population. Research shows how this legislation would develop, assist and control the burgeoning quarrying industry, until today, planning applications direct industry to address care and consideration for the natural landscape, ecology, as well as saving important archaeological material today.

Evidence gained from original documents has enabled me to expand the knowledge base and broaden the picture, already begun by other researchers into varied aspects of Shropshire's industrial past and geology. Therefore, this book sets out to show the complete historical and archaeological importance of Shropshire's quarrying industry, the lives of ordinary people, land owners and entrepreneurs.

The quarrying industry, associated firstly with agriculture, rose to the ever increasing needs of the industrial revolution by moving from manpower to machinery driven by steam. Shropshire's industrial revolution has been widely researched, however, focus on the bulk mineral quarrying industry has not previously been undertaken. Quarrying and mining for minerals has never been studied before, although many resources can be found in archives, libraries and gained from personal accounts including from historical groups. All of which show the depth and importance of the quarrying industry economically both to Shropshire and the whole country. This book shows how the quarrying industry developed from individual families, to large entrepreneurial groups which swallowed-up these individually owned quarries. Minerals were initially

extracted from the landscape by people with basic tools, until finally large steam, then petrol, driven machinery was developed. Over time it was necessary to change from horse and cart, to canal, to railway and eventually lorry transport to export the increasing quantities of extracted minerals, as a result of the financial and economic development produced by the entrepreneurial companies.

However, there are consequences that come from the quarrying industry such the effects on the ecology of the immediate and surrounding areas. Not only in terms of ecology, but the effects of former quarrying and mining in the 19<sup>th</sup> century, which can and as coursed subsidence's in particular parts of Shropshire, the latest being in the 1980s. This is why today legislation is very important, quarry companies today have to apply for planning permission and comply with planning regulations, but saying this the quarrying industry was and is still very important to Shropshire. One today has only to look at the excellent buildings and bridges in Shrewsbury constructed from Grinshill quarried stone from these it is clear to see the quality of the mineral.



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# CHAPTER 1

## CONTEXT

### 1.1 Introduction

This book aims to provide an innovative analysis of the development of the quarrying industry of Shropshire within the 19<sup>th</sup> and 20<sup>th</sup> centuries. It will investigate all the technological revolutions associated with the extraction of limestone, sandstone, greywacke, and dolerite within the quarrying industry. Although my research has been into the 19<sup>th</sup> and 20<sup>th</sup> century quarrying industry, to give an overall account, one has to look further back in time when quarrying was at an earlier stage and transport was on the backs of people and pack-horses. The processes involved in quarrying for minerals are unlike those experienced in factory-based industries, because the raw material, in some cases, may be remotely located and is often very inaccessible.

### 1.2 Geology

Many scholars have written about the geology of Shropshire, such as the pioneers, Sir Roderick. I. Murchison, in the early 19<sup>th</sup> century, Professor Charles Lapworth in the early 20<sup>th</sup> century and recently Mr Peter Toghill, one of the foremost geologists of the 21<sup>st</sup> century. All these men and others have described the geological composition of Shropshire. Toghill describes the geological formation of sandstone at Grinshill, the limestone at Llanymynech Hill, Wenlock Edge and Lilleshall, greywacke at Bayston Hill and the dolerite at Brown Clee Hill Quarries. Toghill also talks about the individual colours, compositions, grains and the uses of the different minerals (Toghill, 2000).

### 1.3 Historical Background

A sound basis for this research was gained by investigating the archaeological and historical background of each quarry site, from monastic

origins, agricultural, individual or family quarry owners, through the various landowners, until the last quarry industrialists. This provides a wider understanding of the background of the origins of mineral extraction in Shropshire. The research will establish how the industry worked and expanded through the two centuries.

The research established that the disparate workforce, men, women and children, was drawn from both outlying and local villages. From this, various questions arose as to: why was the workforce drawn from outlying villages and towns, and if they lived a distance away from the quarry or mining sites, how long did it take to get to work, how long was their working day and was it impractical to walk back home at the end of a shift? In this case where did they live for the working week, on site, or in local villages or towns?

Documentation from archives provided information about quarrying companies that built houses for their employees, and indicated how near, or far from the quarry, the accommodation was sited. Where the quarry owners provided accommodation for their employees, there were consequences for the workforce, which was that they had to work longer hours in the summer months in order to keep their homes. The quarry owners' reasoning was that hours were lost in winter months, when there was bad weather, which needed to be made up in the summer months during the longer daylight hours. If the workforce did not put in the extra summer working hours they and their families would be evicted from the company's housing. This also brought into question the number of hours and days worked during 19<sup>th</sup> century quarrying leading to the supposition that health and safety was not taken into consideration at that time.

Shropshire has been one of the most rural and sparsely populated counties in England, yet its geological composition offers a wealth of mineral resources. These are not only of local importance, but of national too, in particular greywacke, which is a limited resource in Britain, being found only in a few places in the country. The extraction of these different minerals has and continues to contribute to the local and national infrastructure of our society and the wealth of the county and country. However, minerals can only be worked where they are found, and their extraction, in populated areas causes conflict within society, either through the loss, or change to valued landscape, of habitats, or features of archaeological and historical importance. This is why Shropshire, because of its rural makeup, more so in the 19<sup>th</sup> century than today, was and still is ideal for mineral extraction. Shropshire has built new towns and villages and existing estates have expanded, but compared with other English

counties, it is still very rural and less populated (Lapworth *et al*, 1910 and Toghil 2006).

A further aim of this research has been to investigate the difficulty experienced when legislation was initially sought to be established in the quarrying industry, and to show how the laws became more exacting throughout the period of study to the present day. Changes in the laws, within the quarrying industry, encompassed recognition of the need for improvement in working conditions in the 19<sup>th</sup> century, to environmental concerns of the late 19<sup>th</sup> century. These concerns included an awareness of the local population who were affected by dust, noise pollution and latterly subsidence.

Did these concerns about quarrying operations continue to escalate as the 20<sup>th</sup> century came and flourished? If so how did legislation evolve to address the people's apprehensions about present and future quarry sites? Research at Shropshire archives and local libraries discovered documentation concerning quarrying operations and the local communities in the 19<sup>th</sup> century. How did the 20<sup>th</sup> century approach the issues concerning the local residents living near quarrying operations? An interview with the Shropshire County Council's Mineral Planning Officer highlighted the attitude of governments and council policies on past, present and future quarry operations. Parish councils are another resource researched and interviews with local councillors provided their local community's perspective on the effects of quarrying, such as in the case of Bayston Hill village, which has Tarmac Ltd operating on their doorstep.

The research will examine the social and life-style issues within the quarrying industry from the quarry owners to the workforce through the access of personal wills. Although each site was individually owned and worked, the processes of extraction of the minerals were similar. When examining the historical documents from the Shropshire archives the importance of the records relating to the Grinshill sandstone quarry were realised to be particularly significant. Ledgers concerning Grinshill sandstone quarries from the 18<sup>th</sup> and 19<sup>th</sup> centuries document what the sandstone was being used for, the cost of the stone, how it was transported and the workforce who moved the sandstone. Shrewsbury offers an ideal example of the different purposes to which Grinshill sandstone was put, for example: bridges, and buildings. However saying this, there was and still are many different minerals of equal importance quarried in Shropshire, which made, and still make, the county unique in the Britain. The limestone extracted from Llanymynech Hill, a major quarry site on the English Welsh border, was used in agriculture and for building lime. When reviewing the aggregates quarries at Bayston and Brown Clee Hills,

Bayston Hill is still worked today for greywacke, which is a very limited resource, while Brown Clee Hill is now a worked-out quarry. However, although these minerals were both used for road making their locations reflect and give example of Shropshire's diverse geological landscape (Lapworth *et al*, 1910 and Toghill 2006). The limestone from two of the former limestone quarries, at Lilleshall and Wenlock Edge, were used for industrial purposes and originally in agriculture.

The heyday of Shropshire's quarrying industry was in the middle to late 19<sup>th</sup> century, the time of the industrial revolution when the limestone at Lilleshall was in demand for flux in the ironworking operation locally. The entrepreneurs saw their chances and took them; they constructed canals, it was Lord Granville Leveson-Gower in the beginning of the 19<sup>th</sup> century who obtained the services of the Gilbert brothers who had the legal and creative knowledge to construct Shropshire's Donnington Wood Canal and railways on the Lilleshall estate. Technological improvements in the quarrying and mining industries would be seen across Shropshire in the 19<sup>th</sup> and 20<sup>th</sup> centuries. Grinshill sandstone quarries had the first gas powered machinery and were first to use Bristar powder in the extraction of sandstone in Shropshire. Bristar powder is a very environmentally friendly way of extracting minerals. In my research no other quarry company in Shropshire used this Bristar powder method of extracting minerals; one wonders why, when it is proven to be environmentally friendly. This procedure does not seem to have been promoted by Shropshire County Council, but Grinshill Quarry Company was requested not to change to any other method of extraction. Maps of the area under research show how the quarrying industry started and expanded through the two centuries to the present day. In some cases the maps show the former quarry sites after the quarrying had ceased. Key themes in applications made today to Shropshire County Council, Mineral Planning Department is the need to show plans for the restoration of quarry sites after mineral extraction has been completed. Planned restoration at Bayston Hill greywacke quarry is an example of this procedure, which is outlined in this book. This shows how the quarrying industry has changed from the 19<sup>th</sup> century to the late 20<sup>th</sup> and early 21<sup>st</sup> century. One can see that redundant quarries of the 19<sup>th</sup> century were left to be reclaimed by nature. The danger of quarries just being left after extraction of minerals can be seen at former Grinshill quarry sites.

The book shows what can happen when groups of people get involved to save, conserve and renovate former quarry sites; a prime example of this it at Llanymynech. However, it also brings to light the difference when the two former quarries are situated in different countries namely

England and Wales. It needed the approach of an independent person who could see the national and local importance of the former quarry sites at Llanymynech. Mrs Harriet Devlin, M.B.E, would approach and point out the need to work together for the conservation of the now scheduled monument. Figure 1.1 shows the location of the quarries being researched in this book, along with some of the key sites mentioned.

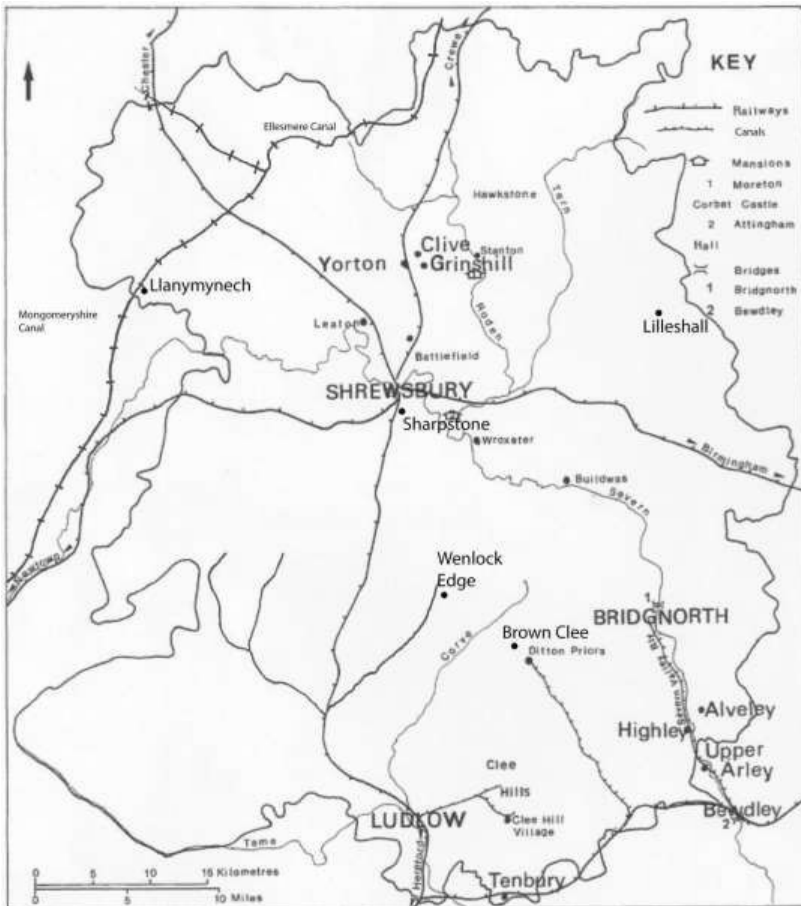


Figure 1.1: Map of Shropshire showing location of quarries studied and principal transportation infrastructure contemporary with the quarries. (Based on Scard 1989).

The research shows how quarrying companies introduced new blood to expand and develop their businesses. However, all these developments had long lasting effects on the local individual and family operated quarries, already affected by the Enclosure Act, 1818, which worked to benefit the entrepreneurs, rather than the individual operators. Further issues considered how safety was addressed and developed in the quarrying and mining industries during the 19<sup>th</sup> and 20<sup>th</sup> centuries in Shropshire. Of significant concern was the consequences for quarry or mine owners should accidents occur, whether fatal or not, and this is shown in the difference in response recorded from the quarry and mine owners and from their workers. With the development of inclines and the addition of new machinery, safety issues arose for those who operated them, whether men, women or children, who were unprotected until the introduction of safety legislation.

Concerns for safe working conditions raised in the 1830s by the quarry and mine workers were gradually addressed in 1842 by the appointment of a Commissioner for Mines and the publication of its report. Finally, the workers' concerns were championed by Lord Ashley with an amendment to the Factory Act, 1891, enabling open air premises to be considered as 'a factory'. Up until that point the quarry and mine owners had argued, at length, that an open space was not the same as a regular enclosed factory site and were therefore not under the jurisdiction of the 1891 Factory Act.

Reasons for quarry and mine closures in the 19<sup>th</sup> and early 20<sup>th</sup> centuries are addressed, as well as a review of the viability of some of the quarries continuing to work today. The government of today is aware of the importance of the mineral industry to the national and local economy; they also recognise the need to maintain a viable minerals industry, while at the same time protecting the natural environment. The National Planning Policy Framework, 2012, enables each local authority to protect both the safety of the local population and the maintenance of the environment for future generations, whilst at the same time enabling viable quarry working to continue.

It is only natural that some quarries will close over time, either from becoming exhausted, or when extraction is no longer economically viable. However, when quarry sites become redundant they are left to return to nature, or are landscaped by the quarry company. At this time there will be the development of local, specific fauna and flora, some of which are uniquely associated with the exposed underlying rock. As a result, certain areas within the former quarry sites may be designated as Sites of Special Scientific Interests (SSSI), which will need to be taken into account in any future plans for the restoration of the area. The SSSI designation enables the legal protection of these unique and limited areas. In towns and cities



former factories and their machinery may be considered of national or local importance and are listed in order to protect and acknowledge their contribution to the industrial revolution of this country. It is important to recognise the significant role of Shropshire's quarrying industry in the construction of bridges, buildings, factories and railways across the country. Therefore, more should be done to conserve, not only the fauna and flora SSSI, but also some the former quarries and machinery, a prime example of this is the moth-balling, in 2007, of Lea Quarry site at Wenlock Edge, and its subsequent complete clearance. It is now a timber yard; nothing is left of the old buildings. Llanymynech is an example of another similar quarry site which was scheduled on the 14<sup>th</sup> July 2006 under the Ancient Monuments and Archaeology Areas Act 1979. Llanymynech is of archaeological and historical interest and so of equal importance as any sites and artefacts from Neolithic or Roman period. These former quarry sites could then become heritage places of local and national interest, by relating and expanding on the knowledge of the archaeological, historical and human past.

At the end of the 19<sup>th</sup> and early 20<sup>th</sup> centuries, the quarrying industries started to go into decline. Research indicates that causes of the deterioration in the minerals industry were related more to a labour shortage than to that of economy. With the coming of World War 1 in 1914 the quarry labour forces were needed as soldiers, and the country's economy was directed to the support of the war effort. Even where, at Llanymynech in 1899, a new highly efficient kiln had been installed, the whole quarry was forced into closure by 1914.

## **1.4 Field Visits**

All the quarry sites researched in my book were visited to achieve and gain knowledge from the still working quarries, which would hopefully provide a better understanding and perspective on the redundant quarries. By looking at redundant quarries reclaimed by time and nature, it was possible to envisage what the future would be for the quarries that were still active. Lilleshall and Wenlock Edge Quarries, both redundant, were the first sites of the six researched. Lilleshall Hill Quarries are located northeast of Lilleshall Village. Wenlock Edge Quarries are located on the B4371 the Much Wenlock to Church Stretton Road. Grinshill Quarry was the next quarry to be researched. It is a working quarry which lies approximately 7 miles northeast from Shrewsbury on the A49. This quarry contains creamy white and light reddish colour sandstone. Llanymynech Limestone Quarries, now redundant, was the third site researched and lies

approximately 5 miles southwest of Oswestry. Bayston Hill, greywacke, and Brown Clee Hill, for dolerite, quarries were the next sites researched. Bayston Hill Quarry is a working site, backing onto the outskirts of Bayston Hill village, located 3 miles south of Shrewsbury. Brown Clee Hill quarries are a redundant site located near to Clee Village on the B4364 Bridgnorth to Ludlow Road.

The former Lilleshall quarry sites were the first to be visited on the 22<sup>nd</sup> August 2009. On this visit photographs and notes were taken of the canal and former wharf where minerals were loaded and unloaded. In addition, at Lilleshall, access roads and bridges were noted and the landscape of the former quarry's sites was visited to see what it looked like today and how nature had reclaimed the mines and quarries site now.

The site of Wenlock Edge's former quarries and surrounding areas were visited on 14<sup>th</sup> April 2010. Photographs and notes were taken of the former quarries and surrounding landscape, which included the former railway. Former quarry machinery such as the primary crusher, hoppers and conveyor sheds of Lea and Coates Quarries were examined. Buildings at Coates Quarries had been dismantled, all excepting for the primary crusher, to create a storage area for fencing and other items. Talking now to the former workers of the closed Coates Quarry was interesting because they said now that they import limestone from France to use when required. In addition, I walked up and onto Wenlock Edge where one could get an overview of all the former quarry sites. Looking from this vantage point one could appreciate the amount of limestone that had been quarried within the vast area, as well as see former individual quarries once worked by one person or a family. The site of the former Wenlock railway could also be seen. The disused redundant quarries are now being reclaimed by the natural elements, animals and plants. While standing on Wenlock Edge fencing can be seen, but it would appear to be inadequate to prevent the general public and walkers from falling over the edge. The dangerous depth of the former quarries from such a height could cause fatal injuries to people.

On the 8<sup>th</sup> November 2011 I met Trevor Kirkham who gave me a tour of the Grinshill Quarries, which lasted all morning and I was able to take photographs and notes. Trevor firstly took me around the working quarry site and then the redundant quarries sites. He informed me of the archaeological and historical background of today's and former quarries. We looked at the ashlar blocks that had been extracted by the Bristar powder method; Trevor went on to explain the benefits of this powder. Then we also walked around Corbet Wood where old, individual redundant quarries could be seen and the former site of quarrymen's

cottages had been. In the interview Trevor talked about the future of Grinshill Quarry. I asked about the present owners, Mr John O'Hare and his wife. I asked Trevor if he thought it would be possible to talk to the new owners, but he did not hold out much hope of obtaining an interview with them. I did telephone asking for a formal interview which was declined without a reason.

After undertaking my research on Bayston Hill Quarry, I decided to do a site visit on the 29<sup>th</sup> March, 2011. A Public Right of Way runs straight through Bayston Hill Site from the entrance of the processing area and around the outside of the redundant and working greywacke quarries. The Public Right of Way was altered to go around the outside of the quarries. This footpath now provides an excellent view point from which to take photographs and make notes of the quarrying operations. I was able to see the new quarry from this vantage point and in particular how the newly quarried greywacke was transported from the face at the base of the quarry by dumper-truck via constructed roads that go around the quarry sides and so taken to the processing area up above.

From the Public Right of Way, I was able to see where trees and shrubs had been planted on top of a mound to help screen the quarrying operations. I took up different points along the Public Right of Way to give me different views of the quarry. Fencing had been constructed around the working quarry at a safe distance, which I observed from different points. I also noted the safety notifications and warning of blasting times. Walking back through the processing area, byway of the Public Right of Way, I was aware that the dust from the processing sheds was quite visible and had thickly covered my car. By this observation I wondered about the working conditions within and around the processing sheds. I could see that the workingmen had safety clothing on, but how much of the dust did they keep out? In addition, I could understand these safety points from the viewpoint of the Bayston Village Liaison Committee. However, the Committee seemed to have good working partnership with Tarmac Ltd who were constantly cleaning the in and out access road to the site. Llanymynech was visited on the 4<sup>th</sup> April 2013 where I met Mrs Joan Zorn. I was able to take photographs and notes throughout my tour. Mrs Joan Zorn showed me around the former horse stables and the tracks to the two canals and wharfs. From there we went into the Visitors' Centre which contains information boards on the working history and ongoing restoration funded by the Heritage Lottery Fund and undertaken by the Friends of Llanymynech. Also within this building was a model of the Llanymynech Limeworks. She showed me the former incline tracks within the woods and throughout the lime works, as

well as the English and Welsh Drum Brake Houses and she informed me of the work being proposed for the English Drum House. From the top of Llanymynech Hill, I was able to see both the English and Welsh quarry inclines and the distance between them. Joan also showed and told me about the Tally House and its working, where the quarried stone was weighed and recorded.

At Llanymynech, it was quite obvious to see the differences between the ownership of the English and Welsh quarries. There were two separate tunnels under the road, one belonging to the English and the other to the Welsh owner, with their own inclines and tramways from the separate quarries. Joan also told me of the lime kilns and the introduction of The Hoffmann Kiln and how it worked and was loaded with limestone blocks, as well as about the conditions and daily work of the quarrymen who loaded the lime. I was given a tour around the Hoffmann Kiln inside and out. I was impressed by the amount of informative boards placed at many strategic points all around Llanymynech Limestone works. Later I was informed by Mrs Joan Zoan of the historic background of both the English and Welsh families that owned the quarries and the differences between them.

This introduction provides some of the key themes and approaches addressed in my book on the importance of the quarrying industry in Shropshire. The minerals industry of the county has played and continues to play a part in the economics of Shropshire. Today the quarrying industry is not as large as it was in the 19<sup>th</sup> and 20<sup>th</sup> centuries; however, Bayston Hill Quarries are still extracting greywacke mineral. At the same time redundant quarry sites can now be seen in another light, where the ecology of returning fauna and flora can be studied. The redundant sites provide an insight into the development of industrial machinery and the working and living conditions of Shropshire's past. At the same time these sites can now be seen in another light, where the ecology of returning fauna and flora can be studied.

# CHAPTER 2

## LITERATURE REVIEW

### 2.1 Introduction

This chapter outlines the principal research themes of the book thus outlining the current state of knowledge. The first section will cover the diverse geology of Shropshire and its relationship to the quarrying industry enabling different products to be extracted such as dimension stone, aggregates hard-core and setts which were used locally and across the country. I then move on to give an idea of the quarrying industry as a whole; starting with a brief review of early technology, following on to larger scale quarrying as the industrialised era progressed, because the past, present and future contribute to the entirety of our understanding.

The book will examine and show the limitations in previous research, filling in the gaps left in the history of mineral quarrying in Shropshire in the 19<sup>th</sup> and 20<sup>th</sup> centuries. The gaps in the research are significant and therefore it is not possible to gain an all-round understanding of the quarrying industry and its social impacts on the workforce within Shropshire. In particular, I will consider how and why demand on the quarrying industry altered in the middle of the 19th century. Lastly, there is an examination of the legislation relating to the quarrying industry and its impacts upon the continuation of quarrying within the county.

#### *2.1.1 Specific case Study*

This case study was chosen because there has not previously been a detailed research showing the importance of the bulk mineral quarrying of Shropshire between 19<sup>th</sup> and 20<sup>th</sup> centuries. It will provide examples taken from Shropshire's bulk minerals quarries, together with its geological diversity. Shropshire's geology is very diverse and most rock periods and types can be found there. I acknowledge that there are sand and gravel quarries; however, it would be impossible to research both aspects of the Shropshire quarrying industry within the proscribed word limit and time. The approach has been to provide examples of each aspect of the hard-

stone quarrying industry within Shropshire from both working and redundant sites. Shropshire is the largest landlocked county in England. The county provides the greatest opportunities for mineral extraction, while at the same time presenting problems for its transport. These sites were selected because of their resources, their growth and economic importance to Shropshire. The study will show the contribution of these minerals to the industrial revolution as well as Shropshire's infrastructure, such as roads, bridges and buildings.

## 2.2 Geology

Shropshire is considered to be a place of outstanding natural beauty; its hills cover more than a quarter of the county, especially The Shropshire Hills, Wenlock Edge, Long Mynd and the Stiperstones, many celebrated in Houseman's poetry.

Shropshire is mainly rural and sparsely populated when compared to other counties (Lapworth et al, 1910 and Toghil 2006, pp 123-52). Peter Toghil's book provides an up to date assessment of the geology of Shropshire; however, Lapworth et al, 1910, still contributes useful information.

The geology of Shropshire is so diverse that most geological eras and types of rocks found across Britain are significantly represented in this county (Toghil, 2006). Knowledge of geology identifies the location and quality of mineral resources so that quarrying can take place; thus the two disciplines are linked together. It is accepted that in Shropshire there are ten geological periods, whereas, throughout the country there are only twelve in total, so this makes Shropshire very unusual and distinctive (Toghil, 2006, p27 and Stanier, 2000). As Toghil remarks, "*This is remarkable when one considers that in an area like Snowdonia, only three geological periods are present.*" The map above (Figure 2.1) displays the different geological periods giving the intrusive and extrusive rocks: andesite, basalt, and dolerite, all of which are of interest to the Shropshire quarrying industry.

There is evidence that the very diversity of rock types and periods influenced the location and development of many of the early industries in this region. It contributed to the construction industries and infrastructure of Shropshire as well as to the country (Trinder, 2000). In the 19th and 20th centuries, quarrying in Shropshire became a major industry; however considerable quarrying still takes place today. In Shropshire the varieties of stone available to builders, road makers (setts) and agriculture, gave Alec Clifton-Taylor pause for thought to wonder whether any other