

H O W E R ' S

≡ LIGHTNING ≡

SLATE RECKONER

— ON —

33 PRACTICAL SIZES ROOFING SLATE.

BEING A COMPLETE AND MOST CONVENIENT SYSTEM OF COMPUTING THE AMOUNT IN "SQUARES" OF ANY GIVEN NUMBER OF SLATE, REQUIRING NO ADDITION ON THE FIRST TEN SQUARES OF ANY SIZE AND SIMPLY ONE ADDITION FROM TEN TO SIXTY SQUARES. ALSO, A VERY CONVENIENT RATIO ON EACH OF THE THIRTY-THREE DIFFERENT SIZES FOR EACH TWO, THREE AND FOUR INCHES LAP, MAKING NINETY-NINE DIFFERENT RATIOS; TOGETHER WITH RULES AND PRACTICAL INFORMATION

To Quarrymen, Operators on Slate, Slate-roofers and Others,

By F. M. HOWER,

Proprietor of the Peach Hill Slate Quarry and President of the Eagle Slate Company.



≡ \* PRICE, - \$1.50. \* ≡

Cherryville, Pa., 1888.

## History of the Slate Industry.

The Castle of Conway was built by Edward I., A. D. 1283, at the seaport town of Conway, in England. A century later Conway Castle afforded shelter to Richard II. when he landed in Wales. This noble structure, though respected by Parliament when it dismantled most of the other castles of Wales, has fallen and crumbled before the inroads of time and progress. The roof, which was of slate, and the floors were removed by the Earl of Conway. The erection of the Castle of Caernarvon was begun about the same time as that of Conway by Edward I., and, owing to several interruptions, was not completed until A. D. 1317. According to the testimony of the earliest accessible records, these two celebrated structures were the first upon which it is definitely stated that *slate* was used as roofing material, and to this period must be referred the use of slate as an economical and commercial product. The record of the development of quarries are also very scant. It will be convenient to divide the slate region of North Wales into four districts—the Llanderis (Nantlle) district lying on the west, the Ffestiniog, the Corris and the Llangollen districts lying toward the east, in the order named. In point of time quarry development may be separated into three periods, the first belonging to the thirteenth century, the second to the sixteenth, and the third from the middle of the last century to the present time.

The quarries of the first period (thirteenth century) are few in number.

The only one at present in operation definitely known to belong to this early period is the Cilgwyn quarry at Nantlle.

When Edward I. visited Drwyscoed in North Wales at the close of the thirteenth century, he lodged in a house in Nantlle roofed with slate from these quarries. In 1872 they employed 260 men and produced 6000 tons here, valued at \$121,000. There are other quarries in this district belonging to the thirteenth century period. To the second period (sixteenth century) belong the Penrhyn quarries, at Bethesda, in the Llanderis district. In 1780 these quarries produced yearly 1000 tons of roofing slate. Up to 1793 the quarries were worked on small leases, or taken by a large number of operators who each paid a small yearly rental. Richard Pennant, the then owner, increased the yield to 10,000 tons yearly, and in 1800 the export rose to 20,000 tons per annum. In 1872 the number of men employed in these quarries was over 3000, and the quantity of slate produced is quoted at 250,000 tons, valued approximately at \$2,700,000. It is described as producing roofing slate in the

time of Queen Elizabeth, and its origin was probably about A. D. 1500.

The Delabole quarries of Cornwall have long been celebrated for producing beautiful and durable material, combining lightness with strength. This great quarry in 1760 was 900 feet long, 300 feet wide and 240 feet deep. The first quarry opened in the Festiniog district was in 1765 by two quarrymen from the Cilgwyn quarry. It was purchased in 1800 by two young men named Turner and Casson, who called it the Diphwys-Casson quarry. It was again resold in 1862 for \$481,000.

The great quarries known as the Welsh Slate Co., at Rhiwbryfdir, were opened in 1816.

Slate was used in the construction of the Castle of Angers about the end of the twelfth century. The houses in the greater part of the city were built of wood and coated with slate, and in some instances were entirely constructed of slate. The city of Angers was noted for its extensive quarries.

The history of the slate industry of North America belongs distinctively to the present century. Its records, though recent, are far from being full and satisfactory, most of the facts being stored in the recollections of the early pioneers in this industry who are still living. Considerable information has been collected by newspaper correspondents and preserved in the columns of their papers, and much reliable data is interwoven with the history of counties, towns, quarries and individuals embraced in the limits of the slate districts.

The slate producing districts of this country, as far as at present discovered and developed, are widely scattered, extending from the State of Maine on the east to Michigan on the west, and from Canada on the north to Georgia on the south. The two principal districts both in the extent of deposit and development and the amount of production, lie, the one along the boundary line dividing New York and Vermont, and the other along the south side of the Kittatinny mountain range in Pennsylvania.

In tracing the progress of the slate industry of this country it is proposed to consider first the early development of the separate quarries in the former of these two districts.

The Vermont and New York slate deposits are found along the western flank of a broken range of mountains belonging to the Green Mountain system. The slate producing district is a narrow strip of country lying near the middle of the slate formation, with its longer axis bearing nearly north and south, and extending from Benson, in Rutland county, Vermont, on the north, to Salem, in Washington county, New York, on the south; embracing within its limits the towns of Castleton, Hyderville, Fair Haven, Poultney and Pawlet, in Vermont, and Middle Granville, Granville and Hampton in New

York. The first quarrying in this region was done as early as 1839 by Col. Alonzo Allen, of Fair Haven. In the year 1845, M. F. W. Whitlock manufactured 500,600 squares of roofing slate at his quarry at Castleton. In the year 1849, Deacon Ranney opened a quarry at Scotch Hill. In the year 1850, William and John R. Williams and John Humphrey, the first Welshmen to engage in the slate business in Vermont, leased a parcel of land known as Cookville and opened a quarry.

In 1851 the first quarry was opened in the town of Poultney.

About the year 1852 Newel Sturtevant, of a Boston, Mass., Slate Company, began the manufacture of slate mantels and roofing slate.

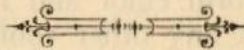
In 1852 an Englishman by the name of Hanger, who learned the art of marbleizing slate in England, went there and marbleizing was commenced. In the same year, 1852, the Eagle slate quarry was discovered by John Humphrey and another Welshman, and in 1853 the Eagle Slate Company was incorporated. The slate of this quarry proved of a superior grade. In 1864 the Gibson quarry was discovered two miles south of the village of Poultney. In 1866 another quarry was opened by the same company. The Sea Green bed is in Rutland county and extends from near the village of Poultney, south as far as West Pawlet. The material which it produces is durable, of uniform color and remarkably tough, and so more easily worked than any other roofing slate yet discovered. Since first found no less than twenty-four different openings have been made on its grounds.

The second important slate producing region in this country is situated along the south side of the Kittatinny or Blue Mountains, extending from a point near Lynn, in Lehigh county, on the west to the Delaware river on the east, a distance of forty miles. This region is both naturally and commercially divided into four districts—the Lehigh district on the west, comprising all the slate operations having their commercial outlet on the Lehigh river, the Bath and Chapman district, the Bangor and Pen Argyl district, and the Delaware district.

The earliest slate operations were in the Delaware district. As early as 1805 a charter was here granted, and twenty-three years later, in 1828, the Lehigh district was opened in Whitehall. Two years later, in 1831, Robert McDowell, of Slatington, began operations there. In 1845 a quarry, known as the Heimbach quarry, was opened. In the same year several parties, among them Owen Jones and William Roberts, opened the first quarry on the west side of the Lehigh river, on the hill near Welshtown. The Washington and Douglass quarries were opened in 1848, at Slatington. The mantel quarry was opened in 1848 by George and Nelson Labar, at Slatington. The Joy quarry was begun in 1848 by J. Weise, at

Slatedale. The Locke slate quarries by George and Nelson Labar were opened in the same year, and so also the Diamond quarry of Schall & Balliet. The Williamstown quarry was opened on the Trout Creek, west of Slatington, in 1850. The Danielsville quarry was opened on the east side of the Lehigh river in 1847 by Owen Jones and Owen Williams. The Chapman slate quarries were opened in the year 1850 and incorporated in March, 1864, with a capital stock of \$400,000. The celebrated Peach Hill or F. M. Hower's quarries near Danielsville, Northampton county, were opened in 1865 and are in successful operation ever since, putting forth a large quantity of superior roofing slate annually.

R. M. Jones, a slate quarrying expert from North Wales, has done much towards the development of the slate trade in the regions of Bangor and Pen Argyl. These, together with the many other quarries that are so extensively developed in these sections, are well worth a place of notice in the "History of the Slate Industry," but want of space forbids. As railroad facilities develop the slate quarries increase and time alone will reveal the prominent position Northampton county will take in the future of the great American slate industry.



### **As to Cost of Maintenance and Repairs.**

It is scarcely necessary to compare slate roofs with shingle roofs under this head, for although they are similarly built and would seem to be subject to like rules as to repairs, yet the life of a shingle roof is of so brief a span that the most industrious repairs could not prolong its existence to such a period as would make it a competitor with slate. The same is true of board roofs.

The most powerful enemies to which tin and iron roofs are subjected are rust and corrosion. To protect them from the "ravaging tooth" of the atmosphere and its hanging moisture, the surface of each must be completely covered so that the atmosphere may not attack them. This involves painting the entire roof, at periods of from two to four years, with a mineral paint. Omit this costly precaution and the roof itself is speedily sacrificed. On the other hand, a slate roof when once in position, needs no repairs, requires no painting or other preservative care. It is mineral, it is rock, and demands no artificial aid to resist decay.

Add to the superior merits of slate as above enumerated, it is well