

SLATE.

By A. T. COONS.

PRODUCTION.

There were 9 States reporting a commercial output of slate in the United States in 1906—Pennsylvania, Vermont, Maine, Virginia, Maryland, California, New York, Arkansas, and Georgia, named in the order of value of output. Besides these States Arizona, New Jersey, Tennessee, and Utah have deposits more or less developed. The production for 1906 was reported as valued at \$5,668,346, while in 1905 the output was valued at \$5,496,207, an increase in 1906 of \$172,139. In 1905 there was a decrease of \$120,988, as compared with 1904, when the value was \$5,617,195, and in 1904 the decrease was \$639,690 from \$6,256,885 in 1903, when the value was the largest that has been reported.

There has been a gradual decrease in the number of squares of slate made in this country, due to a decrease of export trade, the English market, where American slates found considerable sale for several years, being now supplied either from the Welsh quarries, in consequence of the settlement of strikes in these quarries, or by small-sized, cheaper French roofing slates. The decrease is also due to labor troubles in the building trades for the last four or five years, to strikes in the slate quarries, and to the fact that the present building conditions in large cities do not call for slate roofs, the roofs being more nearly flat, and the large number of patent-roofing processes and tiles being cheaper and more convenient than the slate. This condition is, however, offset outside of cities, especially in the vicinity of quarries, by the high price of wooden shingles and the great durability of slate roofing. The scarcity and high price of labor has also been a factor in the decreased output. During the last five years smaller sizes of slate have been sold, making the average value lower. The roofing slate in 1906 was reported as 1,214,742 squares, valued at \$4,448,786; in 1905 the figures reported were 1,241,227 squares, valued at \$4,574,550, a decrease for 1906 in quantity of 26,485 squares and in value of \$125,764. The decrease in average value per square was very slight—from \$3.69 in 1905 to \$3.66 in 1906—only 3 cents.

Slate for milled stock—that is, slate for use in making electrical supplies, table tops, mantels, sanitary ware, blackboards, pencils, vaults, etc.—has been increasing in value, the demand for material of this class steadily increasing. The output for 1906 was larger than for any year previously reported on, the value being \$1,219,560, as against \$921,657 in 1905, an increase of \$297,903.

The following table shows the value of roofing and milled slate quarried in the United States in 1905 and 1906, by States:

Value of roofing and milled slate produced in the United States in 1905 and 1906, by States.

1905.

State.	Roofing slate.		Value of milled stock.	Total value.
	Number of squares.	Value.		
Arkansas.....	50	\$350	\$9,650	\$10,000
California.....	5,000	40,000	.....	40,000
Georgia.....	1,500	7,500	.....	7,500
Maine.....	19,865	106,271	117,983	224,254
Maryland.....	25,845	149,315	1,900	151,215
New Jersey.....	1,340	5,360	.....	5,360
New York.....	10,354	65,051	1,595	66,646
Pennsylvania.....	802,170	2,879,671	612,234	3,491,905
Vermont.....	339,001	1,174,246	178,295	1,352,541
Virginia.....	36,102	146,786	.....	146,786
Total.....	1,241,227	4,574,550	921,657	5,496,207

1906.

Arkansas.....	.....	.....	\$5,000	\$5,000
California.....	10,000	\$80,000	.....	80,000
Georgia.....	1,000	5,000	.....	5,000
Maine.....	18,498	100,916	137,765	238,681
Maryland.....	25,288	129,965	1,004	130,969
New Jersey.....	.....	.....	.....	.....
New York.....	10,788	60,000	12,360	72,360
Pennsylvania.....	755,966	2,710,249	811,900	3,522,149
Vermont.....	354,134	1,189,799	251,531	1,441,330
Virginia.....	39,068	172,857	.....	172,857
Total.....	1,214,742	4,448,786	1,219,560	5,668,346

A "square" of slate is the number of slates required to lay 100 square feet of roof, allowing a 3-inch lap. The estimated weight of roofing slate of ordinary thickness is 650 pounds to the square, and the slate is generally shipped in carload lots of from 50 to 90 squares per carload.

The following table shows the value of slate for roofing purposes and for milled stock from 1902 to 1906, inclusive:

Value of roofing slate and milled stock, 1902-1906.

	Roofing slate.		Value of milled stock.	Total value.
	Number of squares.	Value.		
1902.....	1,435,168	\$4,950,428	\$745,623	\$5,696,051
1903.....	1,378,194	5,345,078	911,807	6,256,885
1904.....	1,233,757	4,669,289	947,906	5,617,195
1905.....	1,241,227	4,574,550	921,657	5,496,207
1906.....	1,214,742	4,448,786	1,219,560	5,668,346

The following table shows the average price of roofing slate per square since 1901:

Average annual price per square of roofing slate for the entire country.

1901.....	\$3.15	1904.....	\$3.78
1902.....	3.45	1905.....	3.69
1903.....	3.88	1906.....	3.66

The following table shows the total value of the slate production of the United States from 1902 to 1906, inclusive:

Value of slate produced in the United States, 1902-1906, by States.

State.	1902.	1903.	1904.	1905.	1906.
Arkansas.....	\$4,000	\$4,709	\$14,300	\$10,000	\$5,000
California.....	31,500	70,000	39,200	40,000	80,000
Georgia.....	4,000	.....	4,500	7,500	5,000
Maine.....	206,558	231,230	181,168	224,254	238,681
Maryland.....	118,084	137,631	133,972	151,215	130,969
New Jersey.....	32,000	33,403	.....	5,360	.....
New York.....	126,718	111,998	71,543	66,646	72,360
Pennsylvania.....	3,547,322	3,959,906	3,633,246	3,491,905	3,522,149
Tennessee.....	.....	.....	607	.....	.....
Utah.....	.....	.....	300	.....	.....
Vermont.....	1,464,918	1,592,652	1,408,151	1,352,541	1,441,330
Virginia.....	160,951	115,356	130,208	146,786	172,857
Total.....	5,696,051	6,256,885	5,617,195	5,496,207	5,668,346

IMPORTS.

There is practically no slate imported into this country. In 1905 slate valued at \$8,941 was imported in the form of chimney pieces, mantels, tables, etc., exclusive of roofing slate valued at \$913; in 1906 the importations were valued at \$9,471, of which \$9,243 was for mantels, chimney pieces, tables, etc., and \$228 for roofing slate.

EXPORTS.

The value of roofing slate exported from this country in 1906 was \$255,785; it was \$408,309 in 1905, and \$838,683 in 1903. These figures show a decrease in 1906 of \$142,524 as compared with 1905 and of \$582,898 as compared with 1903.

The chief slate export trade of this country is to the United Kingdom, Canada, and British Australasia. In the fiscal year ending June 30, 1906, the total exports were valued at \$355,950. Of this total about two-thirds went to the United Kingdom, about 12 per cent to Canada and British Australasia each, about 7 per cent to Denmark, and small quantities to the Netherlands, British West Indies, Mexico, Venezuela, Cuba, British South Africa, and British East Indies. Broadly speaking, for a number of years past the exports have gone to the countries named in about the same relative proportions. During the same period the chief ports whence the exports have been shipped have been New York, Baltimore, Philadelphia, Boston and Charlestown, Mass., and Buffalo Creek, N. Y., in the order named.

SLATE INDUSTRY BY STATES.

Arkansas.—Lack of transportation facilities still prevents the successful operation of the deposits of slate in Arkansas.

California.—There was no change in the operations in the California slate district other than an increased production—from 5,000 squares, valued at \$40,000, in 1905 to 10,000 squares, valued at \$80,000, in 1906.

Georgia.—The slate quarries in Georgia were worked only part of the time in 1906, much of the work done being development work.

Maine.—There was an increase of \$14,427 in the Maine slate production in 1906, the output in 1905 being valued at \$224,254 and in 1906 at \$238,681. The increase was in value of milled stock, which

increased from \$117,983 in 1905 to \$137,765 in 1906, or \$19,782. Roofing slate decreased slightly, both in quantity and in value—from 19,865 squares, valued at \$106,271, in 1905 to 18,498 squares, valued at \$100,916, in 1906, a decrease of 1,367 squares in quantity and of \$5,355 in value. There was an increase of 10 cents in average price per square—from \$5.35 in 1905 to \$5.45 in 1906.

The producing localities were Blanchard, Brownville, and Monson, Piscataquis County. Producers reported an excellent demand for slate but a scarcity of good labor.

Maryland.—There was a decrease of \$20,246 in the value of the slate output in Maryland in 1906. The roofing slate decreased from 25,845 squares, valued at \$149,315, in 1905 to 25,288 squares, valued at \$129,965, in 1906, a loss of 557 squares in quantity and of \$19,350 in value. The milled stock decreased from \$1,900 in 1905 to \$1,004 in 1906, or \$896. The Maryland slate was produced at Cardiff, Harford County, a continuation of the Peach bottom region at Delta, York County, Pa. The average price per square was \$5.77 in 1905 and \$5.14 in 1906, a decrease of 63 cents per square in 1906.

New Jersey.—The slate deposits near Newton, Sussex County, were not operated in 1906.

New York.—The slate output reported from New York in 1906 was valued at \$72,360; in 1905 the value reported was \$66,646—an increase in 1906 of \$5,714. The increase was in value of milled stock, which was \$12,360 in 1906 and \$1,595 in 1905, a gain of \$10,765. The number of squares increased from 10,354 in 1905 to 10,788 in 1906, or 424 squares, but the value decreased \$5,051, or from \$65,051 in 1905 to \$60,000 in 1906. The slate producers all reported a better demand, but it was for the smaller sizes of slate at less price per square.

The entire production is the red slate from Granville and Middle Granville, Washington County.

Pennsylvania.—Pennsylvania from the three producing counties—Northampton, Lehigh, and York—produced 62.13 per cent of the slate output of the United States. This slate was valued at \$3,522,149, an increase of \$30,244, compared with the output of \$3,491,905 in 1905. There was, however, a loss in quantity and value of roofing slate, which decreased from 802,170 squares, valued at \$2,879,671, in 1905 to 755,966 squares, valued at \$2,710,249, in 1906—a decrease in quantity of 46,204 squares and in value of \$169,422. The average price per square for the two years, however, was the same, \$3.59.

This loss in production was due somewhat to a labor strike of two months in the Bangor region during the spring of 1906. Wages were reported as higher and cost of supplies greater than in 1905, but the general demand was good and steadier than in that year, squares of small slate being more called for than the larger slate. Milled slate increased in value from \$612,234 in 1905 to \$811,900 in 1906, a gain of \$199,666. The demand for this kind of slate for use as electrical supplies, blackboards, table tops, mantels, sanitary ware, vaults, school slates, pencils, etc., has increased each year, with every prospect for future increase. Of the roofing slate the number of squares produced in Pennsylvania represents 62.23 per cent of the quantity of roofing slate produced in the United States. Northampton County produced 71.16 per cent of the Pennsylvania output and 44.28 per cent of the total for the United States, Lehigh County 27.32 per cent of the Pennsylvania output and 17 per cent of the total, and York County

1.52 per cent of the Pennsylvania output and 0.94 per cent of the total. In milling slate Pennsylvania produced 66.57 per cent of the total value of this output for the United States, Northampton County producing 75.68 per cent of the Pennsylvania output and 50.37 per cent of the total, and Lehigh County 24.32 per cent of the Pennsylvania output and 16.19 per cent of the total. York County produced none of this class of slate.

The following table shows the output of slate in Pennsylvania, by counties, in 1905 and 1906:

Slate production in Pennsylvania in 1905 and 1906, by counties.

1905.

County.	Number of squares.	Value.	Milled slate.	Total value.
York.....	16,636	\$93,957	\$250	\$94,207
Lehigh.....	231,194	826,808	120,130	946,938
Northampton.....	554,340	1,958,906	491,854	2,450,760
Total.....	802,170	2,879,671	612,234	3,491,905

1906.

York.....	11,468	\$59,833	.....	\$59,833
Lehigh.....	206,505	741,933	\$197,487	939,420
Northampton.....	537,993	1,908,483	614,413	2,522,896
Total.....	755,966	2,710,249	811,900	3,522,149

Vermont.—Vermont ranks next to Pennsylvania in slate production both in quantity and value of roofing slate and in value of milled stock, producing 29.15 per cent of the quantity of roofing slate and 20.62 per cent of the total value of milled stock and 25.43 per cent of the total value of the output. The production increased in 1906 from \$1,352,541 in 1905 to \$1,441,330 in 1906, an increase of \$88,789. The increase was both in the quantity and value of roofing slate and in the value of milled stock. The roofing slate increased from 339,001 squares, valued at \$1,174,246, in 1905 to 354,134 squares, valued at \$1,189,799, in 1906, an increase in quantity of 15,133 squares and in value of \$15,553, and the milled stock increased from \$178,295 in 1905 to \$251,531 in 1906, a gain of \$73,236.

Almost the entire output is from Rutland County, in the vicinity of Castleton and West Castleton, Poultney, Fair Haven, North and South Poultney, Hydeville, Wells, Pawlet, and West Pawlet, with a small output from Northfield, Washington County.

The average price per square of roofing slate was \$3.36 in 1906 and \$3.46 in 1905, a decrease of 10 cents per square. However, both demand and trade conditions were reported as better than in 1905, but labor was high and hard to obtain.

Virginia.—The slate in Virginia is, commercially, entirely confined to roofing slate, and the output was 39,068 squares, valued at \$172,857, in 1906, as compared with 36,102 squares, valued at \$146,786, in 1905, an increase for 1906 of 2,966 squares in quantity and of \$26,071 in value. The average price per square in 1906 was \$4.42 and in 1905 \$4.07, an increase of 35 cents. The producers reported the demand excellent, prices somewhat irregular, and labor scarce and high. The slate was quarried commercially in 1906 at Arvon, Ore Bank, and Penlan, Buckingham County.

The first of the two principal objects of the present work is to give a full and accurate account of the life and character of the late Sir Isaac Newton, as far as it can be ascertained from the most authentic sources. The second object is to give a full and accurate account of the life and character of the late Sir Isaac Newton, as far as it can be ascertained from the most authentic sources.

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