

Conducting Power of Materials used in the Construction of Houses.

As observed by Mr. Hutchinson.

Slate	100	Oak wood	33·66
Keene's cement...	19·01	Asphalt	45·19
Plaster and sand,	18·70	Chalk (soft)	56·38
Plaster of Paris...	20·26	Stock brick	60·14
Roman cement ...	20·80	Bathstone	61·68
Beech wood	22·44	Fire brick	61·70
Lath and plaster,	25·55	Lead	521·34
Fir wood	27·60		

Air and gases are very imperfect conductors. Heat appears to be propagated through them almost entirely by conveyance, the heated portions of air becoming lighter, and diffusing the heat through the mass in their ascent as in liquids. Hence, in heating a room with hot air, the hot air should be introduced at the lowest part. The advantage of double windows for warmth depends, in a great measure, on the sheet of air confined between them through which heat is very slowly transmitted.

Capacity of Bodies for Transmitting Heat.

The capacity which bodies possess of transmitting heat, does not depend upon their transparency; or bodies are not all transparent to heat in the same proportion that they are transparent to light. The following plates of an equal thickness of 1031 inches allowed very different proportions of heat to pass through them.

Of 100 rays transmitted from an Argand oil lamp they were:

Rock salt	92	Emerald	29
Mirror glass	62	Gypsum	20
Rock crystal	62	Fluor spar	15
Iceland spar	62	Citric acid	15
Rock crystal, smoky		Rochelle salt	12
and brown	57	Alum	12
Carbonate of lead ...	52	Sulphate of copper,	0
Sulphate of barytes,	33		

Statistical Information.

The Cunard Line.

Since the year 1824, the date of the constitution of the company, 134 steamers have been built or are now building for the line, of an aggregate burthen of 117,291 tons, and 33,132 horse power; of these, six vessels are not yet ready. The first vessel built was the *Fingal*, of 296 tons, constructed in 1824, just 40 years since. In 1840 the *Britannia* of 1,154 tons was built. In 1850 the *Asia* was built, of upwards of 2,000 tons; while the *Persia*, of upwards 3,000 tons was built in the year 1856. The vessels now building range from 670 tons to 2,700 tons.

Exports of Steam Engines and Machinery from England.

The value of the steam engines exported to September 30th this year, was \$5,651,705; and of other machinery \$11,163,560; total \$16,815,265. In the latter branch there has been a decided advance over the last and previous years.

RAILWAY ITEMS.

United Kingdom.

The total working expenses of the railways of England and Wales for 1863 was \$63,298,090; of the railways in Scotland \$8,036,020; and of the Irish railways \$3,752,060. The length of lines at the end of the year 1863 was 12,322 miles showing an increase since the close of 1862 of 771 miles.

The gross receipts of all these railways for the carriage of Coal, Coke, and minerals, amounted in 1863 to \$27,098,335; being for England and Wales \$22,522,170; Scotland \$4,425,400; Ireland \$150,765. There are now in the British Islands three hundred and seventy-five district railways companies, who own eleven thousand five hundred miles of road. They carry above eighty million passengers yearly, and above thirty million tons of merchandise and minerals. They give employment to probably not less than two hundred thousand persons.

LOCOMOTIVES.—The number of locomotives owned by the railway companies of the United Kingdom at the close of 1863 was 6,643. At the close of 1862, the corresponding number was 6,398.

India.

There are at present ten railways in India either opened for a portion of their whole distance or in process of construction, and some of these have branch lines. Two lines, the Scinde (114 miles) and the Eastern Bengal (115 miles), are finished their whole length. The total length of line now opened for traffic is 2,687½ miles, and 2,100 miles yet remain to be constructed before the system, as far as sanctioned, will be completed.

Italy.

The lines of the new South Italian Railway Company are fourteen in number, their combined length being 853½ miles.

Accidents.

According to the Board of Trade returns, the number of persons who lost their lives by railway travelling in the United Kingdom, during the year 1863, was 35.—21 of these were attributable to their own misconduct or want of caution, and 14 from causes beyond their own control. The 14 killed was one out of every 14,615,362 carried upon the railways, exclusive of 64,391 season ticket-holders. The injured from causes beyond their own control were one in 511,487—a large number of those being only slightly injured.

From the report of the Registrar-General, we ascertain the proportion accidental deaths from other causes bear to those on railways in the United Kingdom—

Drowning.....	122	in 1 million.
Suffocation	61	" 1 " "
Poison	13	" 1 " "

The number of persons killed on the streets of London, by vehicles alone, was, for 21 days ending October 1st, 25 persons, or at the rate of 433 per annum—a number several times larger than the whole number killed by railway accidents in the United Kingdom.

A writer in a recent number of the *Revue des*