

workman generally sits in front on a moveable seat—a kind of swing formed by a board suspended by iron rods from the ceiling. In this posture he can, with a very slight motion of his feet, advance or recede with great rapidity, and place himself at pleasure in front or on either side of the anvil, and guide the bar or other object under the hammer so as to distribute the blows evenly over the whole surface. The effect of the process of tilting is to restore the original fibrous character of the metal, and to close up the loose parts and seams. Tilted steel, or, as it is more commonly called, shear steel, is close, hard and elastic, and retains the property of welding; it is also capable of receiving a certain degree of polish. It is more especially made use of for the manufacture of tools composed jointly of steel and iron.

“In former times shear steel was almost exclusively employed for the better class of goods; but since the introduction of cast steel the latter article has to a very large extent displaced its use for superior edge-tools. The reason for this is, that shear steel always labors under inequality of texture and hardness, the outer parts being unavoidably more strongly carbonized than the inner or central layers; whereas cast steel is of uniform texture and hardness throughout. Cast steel is more especially suited for the manufacture of cutting tools made entirely of steel. It is also largely used for tools made jointly of iron and steel. Some sorts, however, will not stand welding; they are therefore, of course, altogether unfit for the latter purpose.”—*Scientific American*.

THE MINERAL WEALTH OF THE UNITED KINGDOM.

The number of collieries at work in Great Britain has increased from 2,397 in 1853, to 3,088 in 1862. In these collieries there were employed in 1861, no less than 235,590 colliers. The quantity of coals produced in and sold in 1861 amounted to 83,635,214 tons, this being the largest quantity produced in any one year. Owing to the interruptions which several of our manufactures experienced in 1862, the amount of coals which passed into the market, or were consumed at the place of production, fell to 81,638,338 tons. Very large stocks have been stored in Lancashire and other districts; the actual drain, therefore, upon our coal beds was probably as large as it was in the previous year.

In 1861 it is stated in these returns that nearly two millions and a half tons of coal were burnt or wasted at the pits in Durham and Northumberland alone. In the publication for 1862, Mr. Hunt says, “the amount of the coals burnt or wasted at pits has been so differently represented, and appears such an uncertain, although very large quantity, that it is for the present omitted.” Since attention has been directed to the rate at which the exhaustion of our coal mines is going on, it becomes a really important element to determine with all possible accuracy the extent to which this system of waste prevails on the surface, and it is no less important to determine the waste which takes place in the mine. In Derbyshire about one-sixth of the quantity of coal raised, which amounted last year to 4,534,800 tons, is left in the colliery, and this is not much in excess of the quantity of coals lost in

the working of coal in other districts. In estimating, therefore, the rate at which we are draining our coal mines of their fossil fuel, we cannot take less than 90,000,000 tons as representing the annual rate of exhaustion.

The exportation of coals in 1862 amounted to 7,671,670 tons, which was an increase of 448,952 tons on the exportation of 1861.

The quantity of iron ore raised in 1862 in these islands amounted to 7,562,240 tons, and we imported 36,270 tons. This was used to feed 561 blast furnaces, which were distributed as follows: in England, 306; in Wales, 130; in Scotland, 125; the quantity of pig iron smelted being 3,943,569 tons, which is an increase upon the two previous years. In 1860 we made 3,826,752, and in 1861 3,712,390 tons. The value of pig iron at the place of production last year is estimated at £9,858,672.

The number of copper mines worked in these islands in 1862, was 230; of these 201 are in Cornwall and Devonshire. For several years there has been a steady decline in the rate at which copper has been produced from our mines; the produce of the last three years has been in the aggregate 4,614 tons.

Our imports, which were 74,163 tons of ore, and 20,317 tons of regulus in 1861, increased to 82,054 tons of ore and 35,388 tons of regulus in 1862.

The returns of dues paid to the Stannary Court, which are made up to the 29th of September in each year, give the production of the tin mines of Cornwall and Devonshire at 11,841 tons of ore, producing of white or metallic tin, 7,478 tons, valued at £879,048. The Keeper of Mining Records gives the production of the whole year 1862, as 14,127 tons of tin ore, producing 8,476 tons of metallic tin, valued at £983,216. This is the largest quantity of this metalliferous ore which has ever been produced in any one year, the probability being that this will be exceeded by the yield of the Cornish tin mines in the present year.

For certainly more than 2,000 years tin has been obtained from Cornwall and Devonshire, and yet we find the granite and clay slate rock of these counties yielding a larger quantity than ever to the industry of man; and there does not appear any reason for supposing that we are exhausting any of the stanniferous districts. A fear has been expressed by many that the copper mines of Cornwall are nearly worked out. That there has been a falling off in the quantities of ore mined for some years past, is certain; but if ever mining is permitted to be carried on again with honesty and zeal, so that the full amount of the subscribed capital shall be expended in subterranean explorations judiciously directed by experienced miners, we believe it will be found that ample stores of copper are yet to be discovered.

The produce of lead has shown a steady increase. In 1862 the returns were 69,013 tons. The silver produced from this lead in 1862 amounted to 686,123 ounces.

From time to time, after long intervals, there have been small quantities of gold produced in various parts of these islands, and consequently on the discovery there has been much excitement. The discovery of gold in the Lead-hills, Lanarkshire; at Wicklow, in Ireland; and more recently in the