COAL SURPLUS OF GREAT BRITAIN.

The following, from Iron (London) of February 11, on the much discussed question of Great Britain's coal supply, possesses unusual interest:

"A few years since there was a great outcry respecting the probable duration of our coal fields, the exhaustion of which, it was predicted, would be accomplished at no very distant date. The estimates were mainly based upon the annually increasing consumption caused by the rapid increase in the population, whilst insufficient allowance was made for probable new discoveries of coal, and which have in fact since been made. Witness the marked progress that has taken place during the past five years in the development of new workings in the South Yorkshire district. There is, however, another item on the credit side of the balance sheet, which it probably never entered the heads of any of our coal prophets to place there, but which has a very practical bearing upon the present subject. This is the economy resulting from improved conditions of working in the arts and manufactures, and from improved methods of consuming fuel. In one direction alone—namely, in the manufacture of iron and steel, an enormous saving has been effected of late years by improved methods of working and by the utilization of waste gases. So far from this matter having been taken into consideration by those who assisted in the coal scare, they appeared to think that the iron manufacture would eat itself out of coal, as it did once out of timber, and would become extinct. A leading writer upon the question in 1865, Mr. Stanley Jevons, in one of his jeremiades observes that, 'As our iron furnaces are a chief source of power in the present, their voracious consumption of coal is most threatening for the future,' and that our iron trade is 'essentially a suicidal trade in a national point of view. The question of economy in fuel in the manufacture of iron and steel was specially referred to by the president of the Society of Engineers, Mr. Charles Horsley, in the inaugural address which he delivered on Monday last. Mr. Horsley observed that the cost of pig iron has been greatly reduced by the adoption of the close-topped blast-furnaces, the gases being taken from them for raising steam, and for other heating purposes. Referring to Mr. Hunt's returns, he pointed out that the average quantity of coal consumed per ton of pig iron made in the United Kingdom had declined since 1871 to the extent of 16 cwt. per ton. Applying this figure to 6,000,000 tons of pig iron, the total economy reaches 4,800,000 tons of coal per annum. With regard to wrought iron, we are not aware that any statistics of the consumption of coal in the manufacture have ever been collected, nor is it possible to arrive at the quantity of such iron annually produced. The nearest approximate estimate shows that at the present time about 1,750,000 tons of wrought iron are annually made in the United Kingdom, and that this is a decrease of about half a million tons on the quantity made seven or eight years ago. No economy of fuel worth speaking of has, we believe, taken place for many years in this department of the iron trade. In ninety-five cases out of a hundred, the same puddling furnace that was used twenty years ago is still employed; and the best authorities are pretty well agreed that three tons of coal per ton of finished iron is not too high an average. This on a production of 1,750,000 tons, gives a total consumption of 6,650,000 tons on the present output. As, however, that output is about half a million less than it was some years ago, we have a reduced consumption of coal equivalent to 1,500,000 tons in respect of this branch of manufacture. Turning to the manufacture of steel, we may observe that, so far as the Bessemer steel trade is concerned, it is pretty generally admitted, and has, indeed, been proved by the results of a large experience, that the quantity of coal required to produce a ton of steel rails is 65 per cent under that used in producing the same quantity of iron rails. If, therefore, the manufacture of wrought iron were to give place entirely to that of Bessemer steel, an economy of 4,322,500 tons of coal would be likely to result. As it is, the quantity of steel rails now annually produced is between 600,000 and 700,000 tons. Assuming the figures to be 650,000 per annum, we have a reduced consumption of fuel, when compared with iron rails, to the extent of about 1,166,500 tons. It is not possible, nor is it necessary, for us to enter upon a consideration of the exact or even the approximate economy of fuel represented by every individual process and appliance. Of puddling furnaces alone, there are a vast number professing to secure great economy of fuel, in comparison with the ordinary reverberatory furnace, although the latter still continue to hold their own in practice. There are also many other directions, as we have already intimated, in which a great saving of fuel is effected. We have, however, sufficiently shown, in further elucidation of the suggestive question touched upon by Mr. Horsley in his address, that, if the demand has increased in one direction, it has materially diminished in another, and this, with additional sources of supply, has given us a surplus instead of a dearth of coal.

AN INDIAN FISHERY.

Our illustration shows the style of fishing practiced some years ago by the Piute Indians in Nevada. A tourist of a score of years ago gives the following account: As we rounded a little knoll we discovered the entire rancheria of Indians in a bend of the river making preparations to catch fish, and we at once rode down to witness the sport, which proved to be a novel scene. Stretching nearly across the stream was

INDIANS FISHING ON WALKER RIVER.

a rocky bar, over which a very little of the water rippled, while the main body of it made a sudden bend around, keeping close to the opposite bank. Just above the bar was a deep eddy, and above this the stream was broad, shallow and rapid, and skirted on each side with a thick growth of low, withy willow. Here of this willow the Indians made a drag about two ft. in diameter and in length sufficient to reach across the stream. On the bar they had built a slight wall of the small rock in the form of a half circle, at the lower side of which was a willow fish-trap, the water being only a few inches or a foot deep inside the circle. When all was ready they swung the drag out across the stream and let it sweep down to the eddy when they all gathered in above it and keeping it near the bottom swept it through to the shallow bar, bringing the two ends to join the wall, when they had all the fish "corraled" within the circle, then pressing their knees upon the drag to keep it firmly to the bottom, they commenced the exciting sport of pulling out the fish, which as a matter of course tried to find a place of egress at the upper side. The suckers, which constituted a greater portion of the fish, were easily taken in this way; but the trout, more wily, flipped lightly over the drag and away up stream again. The scene they presented as they knelt over the drag, men and squaws, old and young mixed up indiscriminately, and carried the fish to their mouths as they caught them to bite their heads, frequently holding them in their teeth for some minutes, the poor suckers twisting themselves spasmodically in their death agonies, was truly ludicrous and amusing. A few of the fish entered the trap, and at the last, one big fellow, seemed to have got an idea of the danger that awaited him on either hand, and flipped about in the center of the pool, foiling for a long time all their efforts to catch him, they in the meantime getting highly excited, but finally a squaw pounced upon him and held him up in triumph.

Improvements in Dyeing.—Mr. Theodore Daux is the inventor of a process for fixing rapidly and uniformly mordants on cachemeres, merinos and such kinds of woolen goods, as also for the chemical curing of wool. The goods are treated in the ordinary way until they are ready for the mordants. These are prepared cold, and are composed according to the color required, acidulated or not, or even consisting of one acid only, according to the new chemicals to be employed. The goods are immersed and worked till well impregnated, when they are lifted out and pressed, and afterwards passed on cylinders heated by steam to a high degree, in order to fix the mordant in a rapid and uniform manner. The fabrics thus mordanted are taken at once into the dye-bath at the boil, and the rest of the dyeing and finishing done in the usual way. Heated stoves can be used instead of cylinders. Mr. Daniel Fanquet fixes colors by steam. He replaces the dye-baths which, as is not the rule, are generally heated up to a certain temperature in order to fix the color on the fiber, by completely cold baths, and he afterwards steams to fix the color. It is said that great economy is effected by this method.

Interesting Experiments.—A very important and valuable series of experiments on the strength of wrought iron columns has been made by Mr. G. Bouscaren. It includes a large number of columns made by the Union Iron Mills, Pittsburg, by the Cleveland Rolling Mill, Cleveland; the Phœnix Iron Co., Phœnixville; the Pencoyd Iron Works, Philadelphia, and the Ohio Falls Iron Works, New Albany, Ind. The paper was read before the American Society of Civil Engineers, and is published in the last December number of the transactions of that body.

Sulphur in Lubrication.—It has long been known that sulphur cools a hot bearing, but the reason why is doubtful. Von Heeron states that the fine metal dust formed when a journal runs hot, and which strongly acts upon both journal and bearing, forms a sulphide with the sulphur. This compound, which grows soft and greasy, does not cause any appreciable amount of friction. Sulphur and grease in combination are in regular use on board the steamers of the North German Lloyds.