Persons employed in coal mining in 1908 were as follows: United Kingdom, 966,300; United States, 690,400; Germany, 591,000; France, 191,000, and Belgium, 145,300.

Both the gross and net export of the United Kingdom and of Germany in 1909 were the greatest recorded. The total quantity exported from the United Kingdom during 1909 was 63,677,000 tons, as compared with 62,547,000 tons and 63,601,000 tons during 1908 and 1907, respectively.

The imports of coal into Germany in 1909 amounted to 13,294,000 tons, about two-thirds of which were obtained from the United Kingdom. The imports of British coal into Germany during the year 1907 to 1909 have been on a scale more than twice as large as ten years earlier.

The consumption of coal in the United Kingdom last year was 177,745,000 tons, and in Germany 129,738,000 tons; whilst the provisional figures for the United States are 379,059,000 tons.

Returns have been obtained showing the total quantity of coal brought to London by railway, canal and sea (coastwise). The total qunatity brought into the area within a radius of fifteen miles from Charing Cross in 1909 was 16,737,741 tons, as compared with 16,240,829 tons in 1908, and 16,572,857 tons in 1907.

IN A HURRY.

The Department of State, under President Taft's direction, has made all preparations to act as soon as word is received from Ottawa, indicating the intentions of the Dominion Government concerning the proposed reciprocity negatiations. With the reeurn of Sir Wilfrid Laurier and the various cabinet ministers to the Canadian Capital, and with the recent arbitration at The Hague, eliminating the Newfoundland fisheries dispute from all controversy, the ways have been cleared for negotiations for commercial agreements between Canada and Newfoundland respectively on one side and the United States on the other. Mr. Knox, the United States Secretary of State, four months ago advised the Ottawa Government, through the British embassy, of the readiness of the United States to negotiate in accord with the understanding reached when Canada was granted minimum tariff rates, and in turn conceded to the United States intermediate tariff rates.

AMERICAN UNREST.

Closely allied to the financial unrest of America are the labour troubles and the frequent strikes, with all that they involve in bitterness of spirit and danger to life and property. Labour is restless and resentful —and I cannot pretend to regret it, for in the circumstances anything is better than dull lethargy and careless decadence. The American railways are congratulating themselves that last year they killed fewer passengers than usual—only one in every 3,523,606 carried. But the fact remains that the total of employees maimed and slaughtered is disgraceful. Last year 8,722 people were killed and 95,626 injured on the American railways and most of them were employees. How long will labor stand this wicked and unnecessary massacre? The strike in the steel works at Bethlehem six months ago has been the subject of a long and careful inquiry, and the result shows that before the strike a large proportion of the men worked twelve hours a day, and at least 28 per per cent. of all employees worked regularly seven days a week It was found that 71 per cent. of the 9,184 men employed earned less than 9d. an hour and 31 per cent. earned less than 7. an hour. In one year there were 927 cases of injuries amongst the men, and twenty-one lost their lives.

RAILWAY PROBLEMS.

As President of the Engineering Section of the British Associations, Professor W. E. Dolby dealt with British railway problems. Among the most serious problems is that of the construction of a locomotive that will not lose time in getting up starting velocity.

The tractive pull of the engine may be analysed into two parts—one the pull exerted to increase the speed of the train, the other the pull required to maintain the speed when once it has been reached. For an express train the number of seconds required to attain the journey speed is so small a fraction of the total time interval between the stops that the question of accleration is not one of much importance. But for a local service where stops are frequent the time required to attain the journey speed from rest is so large a fraction of the time between stops that this consideration dominates the design of the locomotive, and, in fact, makes it desirable to substitute the electric motor for the locomotive in many cases. The problem is to provide an engine which will get into its stride in the least time consistent with the comfort of the passengers. The average speed of a locomotive on local service is low. The greater part of the time is occupied in reaching the journey speed, and the brake must then often be applied for a stop a few moments after the speed has been attained. In some cases the stations are so close together that there is no period between acceleration and retardation.

The utmost possible in the way of engines worked by steam was practically reached in the Great Eastern 'decapod' with ten coupled wheels.

The equivalent of the boiler power of a dozen locomotives can be instantaneously applied to the wheels of the electric train, and every axle in the train may become a driving axle. Thus the whole weight of the stock including the paying load may be utilized for tractive purposes If, for instance, the train weighed 200 tons, then a tractive force equal to one-fifth of this, namely, forty tons, could be exerted on the train, but uniformly distributed between the several wheels, before slipping took place. The problem of quick acceleration is therefore completely solved by the electricmotor.

Professor Dalton shows how 'power signalling', which is taking the place of the old-fashioned method of manipulation of cabin-box mechanism, is vastly reducing the physical labour of the signalman, and at the same time accelerating and increasing the precision of the signalling. He described the method of power signalling by the 'all-electric,' the 'low-pressure pneumatic' and the 'electro-pneumatic' systems.

The speed at which traffic can be operated by this system of power signalling is remarkable. At Earl's Court junction box forty trains an hour can be passed each way—that is, eighty per hour—handled by the one signalman in the box. As the train approaches the box both its approach to the section and its destination must be notified to the signalman. When it is remembered that with ordinary signalling, to take an express train, for example, a signalman hears some twenty-four beats on the gongs in his box, and sends signals to the front and rear box which give altogether some twenty-four beats on the gongs in these two boxes, forty-eight definite signals in all, for every expresstrain he passes into the section which his signals protect, it will be understood that the system must be profoundly modified to admit such a speed of operations as eighty trains per hour per man. The modification is radical. No gong signals are used at all. There is a small cast-iron box standing opposite the signalman with fifteen small windows in it, each about 1½ inch square. Normally each window frames a white background. A click in the box announces the approach of a train, and a tablet appears in one of the empty windows showing by code the destination of