and are allowed to construct their own standard types, can so successfully compete with the world in locomotive manufacture."

With regard to the consumption of coal by the various types of engines, Lord Cromer reports as follows: "It is, however, in respect to the relative consumption of coal that the recent trials are of special value. The most scrupulous care was taken to render the trials fair. On this point Mr. Trevithick says: 'These comparisons have been carried out under exceptionally favorable circumstances, inasmuch as the locomotives employed were typical of their respective countries in design and manufacture, and the results conjointly signed by a representative sent out by the American builders, and a locomotive inspector of the Egyptian Railway Administration.'"

Trials were made with both goods and passenger engines. It was found that, in the case of goods engines, the American consumed 25.4 per cent more coal than the British engine, while the latter was drawing 14.2 per cent more load. In the case of the passenger engines, the American was 50 per cent more than the British consumption, with the same average load. This latter difference, represented at 34s. 2d. per ton, (the average price paid last year by the Railway Board) an additional cost of 400 pounds sterling per engine. Major Johnstone, in reviewing these figures, says, speaking more especially of the passenger engines: "The contrast between about 20 lbs. of coal per mile in the best runs of the British engine, and over 60 lbs. in the hardest runs of the American, is quite extraordinary. On the whole, the superiority of the British type is fully established; but it is clear that the passenger engine is a bad example of American practice." Lord Cromer concludes his memorandum as follows: "The general conclusion to be drawn from these trials is, I think, that in respect to price, British manufactures can well hold their own where special designs have to be executed; that in respect to quality they turn out work equal to, or superior, to that of American or Belgian competitors; that in consumption of coal they have a decided superiority over American, and that the British weak point is the time required for executing orders."

CLEVELAND AND ROOSEVELT.

It is little more than five years since Grover Cleveland retired from the Presidency. Yet so swift is the course of events in this country that we are fast reaching a remove from that period which allows us to anticipate the verdict of history upon the man's record. Indeed, we already find his political opponents paying tributes to his statesmanship and courage as unreserved as are rendered to Abraham Lincoln by those who were once his earnest antagonists. In reporting from the House Committee on Banking and Currency the bill to maintain the gold standard and improve the currency system, its Republican Chairman and spokesman for the majority, Representative Fowler of New Jersey, discussed the great services rendered to its country by the Bank of France during and after the war with Germany; contrasted with this record "the stupendous waste due to Government operations and a consequent depreciated currency suffered by our own country during the civil war, and the humiliating spectacle in later years of the United States Government hiring for a stipulated sum a syndicate of bankers to come to its rescue and save its credit from utter and everlasting dishonor;" and then added these striking words:

"But Grover Cleveland was a patriot, and did his duty, and that act alone should make his name immortal. The shame was in the ignorance, or political cowardice, or both, that rendered such a condition possible."

Theodore Roosevelt has been a keen student of American history. He knows the records of our Presidents. He has the capacity to rise above considerations of partisanship in estimating the careers of those who were his contemporaries. One hazards nothing in saying that Mr. Roosevelt will endorse this judgment of Mr. Fowler upon Mr. Cleveland—that when a great emergency confronted him he "was a patriot, and did his duty," and that the action "should make his name immortal."—New York Evening Post.

WHAT THE MICROSCOPE HAS DONE.

I remember that in the year 1860, says Prof. John Trowbridge in the May Atlantic, a man who occupied himself with a microscope was smiled at as a blear-eyed, narrow specialist, who had little interest in the large affairs of humanity,—in the important questions of the time, such as the anti-slavery cause, the question of the Turk, the problems of free trade and the tariff. It was supposed that the microscope was a perfected instrument, and that little more could be done with it than in studying lower forms of life, which were interesting to the naturalist, but had little to do with humanity. At that time the death rate from diphtheria was over sixty per cent, and more than five per cent of women died in childbirth. Today, owing to improvements in the microscope, the death rate in diphtheria has been reduced to less than ten per cent, and the mortality in lying-in cases to one twentieth of one per cent.

CONCERNING THE GULF STREAM.

Ever since discovery of the gulf stream by Ponce de Leon in 1513 it has been the subject of scientific investigation and the latest theory of the American hydrographic office is that it is merely the overflow of the water heaped up by the trade wind drift in the Caribbean sea and the Gulf of Mexican. This most celebrated of all ocean currents starts between the northern coast of Cuba and the Florida reefs and even at the surface is throughout a considerable portion of its extent either independent of the wind or only slightly affected thereby.

It is at the point of emergence from the Bemini straits between the coast of Florida on the west and the Bahama bank on the east that the stream reaches its maximum strength. Between Fowey rocks and Gun Cay light it attains a breadth of thirty-eight miles, an average depth of 239 fathoms and a daily velocity of fifty miles. On occasion, however, the velocity approximates 100 miles a day. In its journey north there is a notable increase in breadth and a diminution of velocity. While in its northward course along the United States coast the western edge of the stream follows closely the 100-fathom curve the line of greatest velocity varies with the declination of the moon, being eight miles nearer shore at high moon than at low. In color, the gulf stream is a deeper blue than that of the neighboring sea, the greater depth of color being attributable to the stream's higher percentage of salt.

The almost tropical temperature of the gulf stream is due to the rapidity with which it passes from tropical to northern latitudes. Frequently it reveals a temperature from ten to fifteen degrees higher than that of the neighboring water. In the latter years of the eighteenth century the chronometer, the invention of Harrison, was still an experiment and the determination of longitude largely guess-work. We are told that nautical people hailed with delight the suggestion of Benjamin Franklin, that observance of the temperature of the surface water would enable the master of a vessel to determine the moment of his entrance into the gulf stream and his approximate position. At Hatteras the stream veers from the coast in a east-northeast direction and shortly after crossing the 40th parallel ceases to be a current running independently of the winds. It then becomes part and parcel of the general easterly drift characteristic of the waters of the ocean north of the 35th degree.—The Californian.