the industries in McKeesport, Penn.; the pottery industry, 87 per cent in East Liverpool, Ohio; the fur hat industry, 86 per cent in Bethel, Conn.; the glass industry, 81 per cent in Tarentum, Penn.; the cotton goods industry, 80 per cent in Fall River, Mass.; the boot and shoe indusry, 77 per cent in Brockton, Mass.; the silk manufacture, 76 per cent in West Hoboken, N. J.; glove manufacture, 75 per cent in Gloversville, N. Y.; jewelry manufacture, 72 per cent in North Attleboro, Mass., and the collar and cuff industry, 69 per cent in Troy, N. Y.

"ALL THE WORLD'S FIGHTING SHIPS."*

Although the English correspondents of American daily journals have argued that while popular enthusiasm over the various postponed functions connected with the late coronation was not aroused to any great extent, they have noted that there was one feature—the great review at Spithead—which awakened the most widespread and enthusiastic interest. British enthusiasm over the navy is natural; but although naval matters may less vitally affect their integrity and mean less to some other nations, there is no question that throughout the world there is evidence of an increasing desire to obtain something more than a superficial knowledge of ships, guns and armor. In this age of encyclopedias and text books, it is surprising, perhaps, that there are not more works devoted to the illustration and description of naval matters in general; on the other hand, if such works are few, those that exist are of high character and are generally marked by more or less official recognition.

Unquestionably the best work on the subject is F. T. Jane's "All the World's Fighting Ships," a book which has grown steadily in quality and reputation, and is to-day the best-known work of the kind among the navies of the world. In the latest edition of this work, just to hand, the best features of the previous editions have been retained and amplified, while the editor has not hesitated to use the pruning knife freely where experience has shown that certain features might with advantage be eliminated. It is not often that there is crowded within the limits of 380 pages such a vast amount of detailed information as is found in this book; although if we consider the ambitious nature of the work, the wide extent of the ground covered, it is a matter for surprise that the book is not even more bulky than it is. Thus the author undertakes to give a photograph, an outboard profile, and a deck plan, with the armored portion shown in shading, of one vessel of every class of warship in the world. On the plans are marked the size and position of every gun carried by the vessel, and the thickness and distribution of the armor. In addition to this, around each cut is a tabulated description of the armament, which gives the mark, the caliber and length of each gun, the thickness of armor on every armored portion of the vessel, a description of the style, size, and horse power of the engine and boilers; the dimensions, displacement, speed and coal supply of the vessel, and her complement. Moreover, if occasion calls for it, there is a foot-note below each cut giving particulars as to the performance, sea-speed, maneuvering qualities, etc., of each class that is illustrated.

A feature peculiar of this work which has met with great favor among naval men, is the placing beside the cut and diagram of each ship, of a silhouette of the vessel. Although in the case of any particular class of battleships or cruisers, there will be no important differences in the main features, such as the guns, smokestacks and masts, there may yet be differences of detail which will be sufficient to distinguish one vessel from another. These slight differences, such as in the height of the smokestacks, or the arrangement of steam pipes and ventilating cowls, are clearly shown in the silhouette, and since a warship that is distant more than three or four miles presents nothing more than a silhouette appearance, it can be seen how great is the value of this system of identification as provided in the work under review.

An important and welcome feature in the present edition is the elimination from it of all vessels that have no practical fighting value, such as vessels used for police duties only, training ships and obsolete battleships and cruisers. With this material cleared out of the way, it becomes possible to make a positive estimate of the fighting value of individual ships, of fleets, and of navies as a whole. This Mr. Jane has done in "All the World's Fighting Ships." He adopts a system of notation under which he gives certain values to the different offensive and defensive qualities, and by a summation of these he is able to classify every ship according to its fighting value. The qualities which are regarded in computing these values are gun power and armor protection, bulk and age (which affect endurance under fire), speed and handiness, seaworthiness and coal endurance. In making the classification it was realized by the author that the time had come for dropping once and for all the old hard-and-fast lines of demarkation between cruiser and battleship—an arbitrary distinction, which might give to an old or poorly-designed battleship a fictitious value, and might depreciate the relative fighting efficiency of another and better ship, merely because she bore the name of cruiser. Classes I. and II. contain the ships, whether battleships or cruisers, which, in active warfare will "lie in the line." Class III. contains the remaining ships of serious utility, while the other classes contain ships of only limited and restricted uses, from big, modern protected and belted cruisers and old battleships with unprotected guns, down to the miscellaneous smaller vessels. Another modifying factor in determining values is the present practice of estimating ships by displacement and age on the basis that 10 years of age knocks off from one-quarter to one-fifth of the value of displacement, 14,000 tons of 1892 being worth about 11,000 tons of to-day.

Naturally the description and illustration of practically every one of the world's fighting ships occupies the greater portion (some three hundred pages) of this book. Part II. contains a series of articles, by leading naval authorities of the world, on some of the burning questions of naval construction, material, and personnel. Among these writers are included such authorities as Col. Cuniberti, Chief Constructor of the Italian Navy, and Admiral Hopkins, Lord of the Admiralty of England. For many readers, the most interesting pages will be those containing comparative tables showing the relative strength of the navies of the world. The comparison of classes I., II. and III., in which the fighting values of the ships are determined by points, includes the best types of battleships and armored cruisers, and places England first with 45.6 points; France second with 16.2 points; Russia third with 14.4 points; Japan fourth with 10.4 points; Germany fifth with 8.8 points; and the United States sixth with 8.2 points. The above comparison takes account only of ships that are actually completed. The comparison, by points, of battleships and armored cruisers now under construction shows the United States to be first with 14.6 points; France second with 11.2 points; England third with 8.2 points; Germany fourth with 7.2 points; Russia fifth with 6.2 points, and Japan last with no ships of this class under construction. When these vessels that are building have been all completed, or say in 1905, the relative strength of the navies will show up very differently. The United States will have moved up from sixth to third position; England coming first with 53.8 points; France second with 27.4 points; United States third with 22.8 points, Russia fourth with 20.4 points; Germany fifth with 16 points, and Japan sixth with 10.4 points. We should here add that this very flattering estimate of the growing strength of our navy is based upon the expectation that the construction of our ships will proceed much faster than it has hitherto done.

It is impossible in concluding our review of this most valuable book, to do more than mention the many subjects which are treated in the second part. Of the various articles the one of most interest is that on Battleship Design by Col. Cuniberti, whose battleship "Victorio Emanuele" is regarded in many quarters as the permanent type of the future battleship. This vessel, by the way, which has the unprecedented battleship sea speed of 22 knots, carries two 12-inch guns, twelve 8-inch guns and twelve 4-inch guns, on the moderate displacement of 12,625 tons. Following Cuniberti's article are lengthy chapters on the Progress of Reconstruction, on the Advantage of Intermediates. (that is, battleships midway in size and power between the 18,000-ton battleship and the 10,000-ton cruiser) by Admiral Hopkins, who evidently considers the "Victorio Emanuele" to be the ideal intermediate craft. The Naval Maneuvers are treated exhaustively by contributors of various nationalities. There is a chapter on Trials and Experiments, in which the latest achievements in guns and armor are chronicled with elaborate diagrams and half-tone engravings; while under the head of Marine Engineering the question of the proper naval boiler is discussed at length by the aid of diagrams and half-tone plates.

Altogether the present edition of "All the World's Fighting Ships" may be taken as the best work of its kind offered to the public, an opinion which is indorsed by the fact that the book has received official recognition in the leading navies of the world.

*"All the World's Fighting Ships." By Fred T. Jane. New York. 1902. Published by Munn & Co.

INTERNATIONAL MINING CONGRESS—BUTTE MEETING.

The meeting of the International Mining Congress at Butte, Mont., September 5, is conceded to have been the largest and most important gathering of the kind ever held in America, or perhaps anywhere else. It was, moreover, strictly an American gathering, the single Mexican present not warranting the title "international," which has now, after a heated contest, been dropped, and the name of the association changed to "American Mining Congress."

A notable feature of the meeting was the magnificent exhibition of minerals at Columbia Gardens in Butte under the direction of Mr. J. R. Wharton.

The Kearns bill, which would limit the number of mining claims to a single one for every locator, and would also limit mining to the region underlying the superficial area, thus cutting off extra-lateral mining, was condemned by an almost unanimous vote.

Resolutions were adopted favoring the creation of a new cabinet office, that of Secretary of Mining, and strenuous efforts will be made to secure legislation of Congress to this effect.

Mr. E. L. Shafner, of Cleveland, O., presided. The opening day was taken up with addresses of welcome from Gov. Toole and ex-Gov. Richards, of Montana; Gov. Hunt, of Idaho; Mayor Davey, of Butte, and others, and the response and address of President Shafner, the burden of whose remarks was a plea for the creation of the proposed cabinet office of Secretary of Mining.

Several interesting and instructive papers were presented on the subsequent days of the meeting, of which that of Waldemar Lindgren, of the United States Geological Survey, on "The Gold Production of North America; Its Geological Derivation and Probable Future," seems exceptionally valuable.

Prof. Lindgren said that practically the whole of the gold output is derived from fissure veins or from deposits which are closely related to fissure veins. Gold-bearing fissure veins are in most cases accompanied by placers which are only the result of nature's crushing, concentrating and refining; and these placers may be of different ages according to the date of formation of the vein. Fissure veins are formed chiefly by ascending hot water; from which we conclude that gold has been brought up from lower levels of the earth's crust.

The conditions for the formation of auriferous fissure veins seem to be most favorable when extensive eruption of surface lavas and intrusive granites and porphyries have taken place.

As a last chapter in the eruptive activity the hot springs bring up their load of precious metals and deposit them in the fissures in the earth's crust which they follow as the easiest paths.

The gold product of North America, most of which is from the Cordilleran range, is divided among primary veins of pre-Cambrian, Cretaceous and post-Miocene age. In fact from the beginning of the Trias down to the present time great eruptions have followed each other on the Pacific coast, each of which was probably accompanied by gold deposition. In the Rocky Mountain region the igneous rocks began to break out at the close of the Cretaceous, and continued till recently. Even now gold veins are forming in Montana and Nevada.

The oldest gold deposition is, however, the pre-Cambrian of the Appalachian chain, extending from Georgia up to Canada. These are placers and gold-quartz veins with free gold and auriferous sulphides, and much of the gold can usually be extracted by amalgamation. The most important deposits of this age are in the Black Hills of South Dakota.

The Mesozoic age was remarkable for the great eruptions in the Pacific region, the great gold belt of North America. From Lower California to Nome the veins are accompanied by great development of placers.

The deposits of the Cordilleran region are also Mesozoic, and are of gold quartz, sulphides, etc., but not placers.

The tertiary gold veins are usually of post-Miocene age and are found cutting heavy andesite flows, more rarely rhyolite and basalt in regions of intense volcanic activity.

These are called prophylitic veins because of the peculiar alteration of adjoining rocks.

They are often very rich, the word *bonanza* having been coined to express this idea. The gold is so finely distributed as rarely to form rich placers.

These differ from the older formations in having been formed near the surface.

They are most extensively developed in Mexico; but are found in Arizona, New Mexico, California, Nevada, Idaho, Colorado, Utah, and sporadically in some other States, and in southeastern Alaska, but none have been found in British Columbia or Northwest Territory.

The estimates of output from these several formations are:

	Total up to 1900.	1900.
Pre-Cambrian	$144,000,000	$41,000,000
Cretaceous (Pacific)...	1,400,000,000	50,000,000
Cretaceous (Central)...	310,000,000	18,000,000
Tertiary, prophylitic...	537,000,000	18,000,000
	$2,391,000,000	$127,000,000

I. H. Richards, formerly Mayor of Boise, Idaho, and Judge of the Circuit Court, was elected president, and Deadwood, So. Dak., was selected as the place of the next meeting, to be held in September, 1903, the exact date to be hereafter fixed.

A collection of precious stones shown at the Pan-American Exposition by George F. Kunz and purchased by J. Pierpont Morgan has been presented by the latter to the Jardin des Plantes at Paris.