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MUNN & CO., 361 Broadway, corner Franklin Street, New York.

NEW YORK, SATURDAY, JULY 13, 1901.

The Editor is always glad to receive for examination illustrated articles on subjects of timely interest. If the photographs are sharp, the articles short, and the facts authentic, the contributions will receive special attention. Accepted articles will be paid for at regular space rates.

## THERE IS ROOM AT THE TOP.

Not many months ago a man whose ambition it is to govern the affairs of this city—an ambition, unfortunately, in which he is only too successful—ventured to break the discreet silence that has contributed so largely to his political success, and give to the world his ideas on men and things in general. His words were not burdened with wisdom; indeed, they bordered so closely on the commonplace as to renew in our minds the wonder and humiliation of it all, that a political adventurer of such diminutive mentality should be so lording it over us, and growing fat upon the substance of the second greatest city in the world.

It was not surprising that the successful leader in a movement whose political methods have raised such a stench in the public nostrils should entirely misunderstand the lessons of the present remarkable developments in our industrial life; and he never made a more misleading statement than when he said that, owing to trusts and commercial combinations, the youth of the land no longer had a fair chance to earn a living. As a matter of fact one of the most striking features of our present industrial era is the remarkable prominence of the younger men; the splendid opportunities that are offered them, and the distinguished way in which they are carrying burdens of responsibilities, which in an earlier age were supposed to fall only upon much older shoulders.

The present is essentially—in America at least—the day of the young man. He is in demand. If he be mentally well-equipped, and have character and common sense to back his knowledge, he will find that there are opportunities open to him, often on the very threshold of his business career, such as the young man of an earlier day would dream of as the goal only of long years of waiting and working.

During a recent visit to that hive of industry which swarms around Pittsburg, and in the valleys of the Monongahela and Allegheny, we were impressed with the fact that in most of the great manufacturing establishments the highest positions of responsibility were filled by men who were yet several years on this side of the prime of life. That such young heads should so often be directing vast industrial concerns, is due in part to the amazing rapidity with which new industries have sprung up during the past decade, and in part to the fact that the keen competition of the age calls for the adaptiveness and energy which are the natural qualities of youth.

Time was when there was an overplus, especially in the technical trades and professions, of the supply of qualified young men; but to-day conditions are entirely reversed. Clear proof of this was shown at the recent annual commencement exercises of the Stevens Institute of Technology, Hoboken, when, out of forty graduates only a dozen were present to receive their diplomas. This unprecedented condition of things was explained by President Morton on the ground that the demand for graduates to fill business positions this year had been the most urgent in the history of the Institute, and that most of the absentees had been induced to leave the Institute a week or more before commencement, in order that they might begin their professional duties at once. President Morton further stated that the whole of the forty graduates could have secured positions at once if they had so desired. There is no gainsaying the significance of such facts as these; and as like conditions will produce like results, it is probable that, before many years have elapsed, these young graduates will have risen to positions which are both responsible and remunerative.

## THE LEADING NAVIES OF THE WORLD COMPARED.

Comparisons of the relative strength of the leading navies of the world are in a measure unsatisfactory for the reason that any basis on which the comparison is instituted is necessarily more or less arbitrary. This is particularly true of comparisons based on tables showing the number of fighting ships of each class possessed by the navies compared. Great Britain, for instance, is credited with a total of thirty-eight first-class battleships as against a combined total of twenty-seven possessed by France and Russia, and the question is at once suggested: by what standard do we determine whether a battleship is of the first or some other class? Again, we may state that Great Britain possesses a total of fifty-nine battleships of all classes as against a total of fifty-nine battleships of all classes possessed by France and Russia; but here again we are confronted by the fact that some of the leading admirals and other experts of the British Navy are contending that many of the vessels which are ranked as third-class battleships in this estimate, are from twenty-five to thirty years old and are, therefore, too obsolete to rank in the active list of a navy of the year 1901; while, on the other hand, the oldest of the French third-class battleships have not seen more than twenty-six years of service, and, unlike the British vessels referred to, have been reconstructed and rearmed with modern weapons.

However, since some basis of comparison is necessary, we will take, in the present case, the comparative tables of the leading navies of the world as published in Brassey's "Naval Annual." In looking them over, one is struck with the fact that a conscientious effort has been made to separate the fighting ships into such classes as agree with their ever-increasing age and ever-decreasing efficiency; and although one may consider that such old vessels as the "Sultan" and "Superb," which still carry muzzle-loading rifles as their main armament, might well be dropped from the list of active battleships in the British Navy, there is compensation in the fact that such powerful battleships as the "Nile" and the "Trafalgar," of 12,000 tons displacement and 16½ knots speed, carrying four 13½ inch breech-loading rifles as their main armament, should have been transferred from the first to the second-class in these tables. We notice that in pursuance of the same policy our own battleship "Texas" appears in this year's annual as a battleship, not of the second, but of the third-class.

Of effective fighting ships built and building, then, Great Britain has fifty-nine, France, thirty-four; Russia, twenty-five; Italy, sixteen; Germany, twenty-three; the United States, eighteen, and Japan seven. On this basis of comparison the United States stands fifth in the list. Although Germany possesses five battleships more than this country, when the battleships are segregated into classes, we find that the position of the United States is greatly improved, while Great Britain shows a very great preponderance over the navies of France and Russia combined. Of battleships of the first-class, Great Britain comes first with thirty-eight, and is followed by the United States with seventeen, Germany with sixteen, Russia with fourteen, and France and Italy with thirteen and nine, while Japan comes last with six. This is certainly a gratifying showing for the United States Navy—particularly so when we bear in mind that our battleships, and especially the eight vessels of the "Maine" and "New Jersey" classes, are the most powerfully armed, and among the largest battleships in the world.

The most recent battleship designs vary considerably in displacement, the smallest being the seven vessels of the "Wittelsbach" class, of the German Navy, which are of 11,800 tons displacement and 19 knots speed, while the largest are the 15,000 ton vessels of the "London" and "Queen" type, of the British Navy, and of the "New Jersey" and "Rhode Island" type, in our own navy. The most original of all the new battleship designs is the "Regina Elena," of the Italian Navy, a 12,624-ton vessel which is to carry two 12-inch, twelve 8-inch, and twelve 3-inch guns, and is to have a sea speed of 22 knots an hour. With her belt of 9¼-inch steel and a stowage capacity of 2,000 tons of fuel, this vessel is certainly the ideal representative of that battleship-cruiser type, to which we are inclined to think all future naval construction is tending.

Under the head of cruisers Great Britain is credited with 149 and France with fifty-five; while the United States comes third with thirty-four and is followed by Germany with thirty-one, Russian twenty-five, Japan twenty-two, and Italy with twenty-one cruisers. Considering only the first-class cruisers, Great Britain is seen again to have a long lead, with a total of forty-three vessels, ranging in displacement from 7,350 tons and 20 knots speed to 14,000 tons and 23 knots speed, while the United States is bracketed with Russia in the third position, each having thirteen first-class cruisers, France coming second with nineteen of this class. Cruisers of the first-class, particularly those which have lately been authorized, are all armored vessels, and, in fact, the unarmored cruiser

seems to have passed almost entirely out of favor. Great Britain has now under construction fourteen armored vessels of 9,800 to 14,100 tons displacement, all of 23 knots sea speed, while our armored cruisers of the "California" type are about the same size as the 14,100 ton cruisers, but have one knot less speed. Against this, however, is to be offset the fact that the armament of our cruisers is somewhat heavier.

Under the head of coast-defense ships, we find that Germany heads the list with nineteen vessels, followed by Great Britain with seventeen, Russia, sixteen; France, fourteen; the United States, ten; Italy, three, and Japan, one vessel. Here again mere enumeration of units fails to give the United States its adequate position, since in some of the foreign countries the coast-defense vessels are a nondescript lot of old battleships and cruisers of somewhat doubtful utility, whereas our ten vessels include the new 4,000-ton monitors of the "Arkansas" class, which will be armed with a pair of the most powerful 12-inch guns in the world, and also the "Monterey," which may be called a thoroughly modern vessel. The United States do not figure in the comparison of the strength of the world's navies in what is known as torpedo gunboat class, our smaller vessels being of too large a displacement to be included under this head. Great Britain has thirty-four gunboats built and building; France, twenty-one; Italy, seventeen; Russia, nine; Germany, four, and Japan, two.

Summing up, it must be confessed that the comparison is a pleasing one judged from the standpoint of the United States; especially when we remember that it was not so very many years ago that our navy, in the modern sense of the term, did not exist. As matters now stand the United States and Germany appear to be of equal strength, considered numerically; but when we consider the offensive and defensive power of the battleships which we now have under construction, it must be admitted that, in spite of the large building programme which Germany now has in hand, the fighting strength of our navy to-day is, perhaps, on paper, a little stronger than that of Germany.

## REPORT OF ROYAL BRITISH OBSERVATORY FOR 1900.

The report for 1900 of the Royal British Observatory at Greenwich has been issued. This observatory was founded in 1675 during the reign of Charles II., owing to the increase in the British maritime trade rendering the determination of longitude at sea absolutely necessary. The hill which the buildings now occupy was formerly the site of a castle owned by Humphrey, Duke of Gloucester, and the alterations were carried out by Sir Christopher Wren. When the Duke died the property reverted to the Crown, and the castle was then successively utilized as a royal residence, a prison, and a place of defense.

The director of the Observatory is officially known as the Astronomer Royal. He receives his appointment from the Prime Minister, although the Observatory is under the control of the Lords of the Admiralty. The present Astronomer Royal is Mr. Christie, who succeeded Sir George Airy twenty years ago.

During recent years the buildings have been considerably extended, and several new instruments have been added. The most important is the telescope designed by the Astronomer Royal and erected by Sir Howard Grubb. It is a most powerful telescope, as the tube is 28 feet in length, the objective 28 inches in diameter. Although a large instrument, it is so delicately adjusted that it can be moved by the hand to any part of the heavens. Another important instrument is the photographic telescope, presented by Sir Henry Thompson, and which is accommodated in a specially constructed building. In addition to the general daily and nightly observations of the heavens, exhaustive records are kept relating to the changes of the temperature, velocity of the wind, humidity of the atmosphere, the earth's magnetism, etc. All the chronometers used in the Royal Navy are examined and tested at the Observatory. Hourly and daily signals are sent to the various post offices throughout the United Kingdom, giving Greenwich time, while on the eastern turret an apparatus is placed by means of which captains of vessels passing up and down the Thames can ascertain the actual time.

Apprehension is being entertained that now that electricity is being so widely utilized throughout London for street transit purposes the magnetic instruments of the Observatory will be disturbed and incorrect records obtained. The London County Council have adopted a perfectly satisfactory insulated return, so that the magnetic registers will not be deranged, and it is hoped that the other companies will adopt similar measures. The French Magnetic Observatory at St. Maur is encountering similar difficulties, owing to the near approach of electric tramways to the Observatory, but M. Moureaux has discovered that copper dampers reduce the intensity of the vibrations by about one-tenth. According to the annual report, the planet Eros has been photographed with the Thompson refractor for the determination of the solar par-