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Table listing contents of the supplement by subject, including I. ARCHAEOLOGY, II. ASTRONOMY, III. CHEMISTRY, IV. ENGINEERING AND MECHANICS, V. MECHANICAL DRAWING, VI. MEDICINE AND HYGIENE, VII. METALLURGY, VIII. METROLOGY, IX. MINING ENGINEERING, X. MISCELLANY, XI. NATURAL HISTORY, XII. PHYSICS, XIII. TECHNOLOGY.

PRODUCTION OF IRON AND STEEL IN AMERICA.

The semi-annual statistical statement of the American Iron and Steel Association is of particular interest, as it shows an unprecedented activity in both of these industries. During the first six months of the year, the product of pig iron amounted to 2,954,209 tons of 2,000 pounds. In a similar period of time, the country has never before produced such a large amount of pig iron. Prior to 1879, indeed, the output for the whole year never reached these figures.

The most noticeable feature of this half year's increase in Pennsylvania is the lead taken by the Lehigh Valley district. For some time this has been second only to Allegheny County in its pig iron production, but this year it has exceeded it, having produced 320,568 net tons in six months, against 301,014 tons in Allegheny County. The output of pig iron in either of these districts is greater than in any State in the Union except Ohio.

On the 30th of June, 1886, there were 470,421 net tons of iron remaining unsold in the hands of the iron masters or their agents, a slight increase over the stock in hand at the first of the year.

The statistics of steel production show a similar activity. During the six months just past, the production of Bessemer ingots reached 1,073,663 net tons, against 938,418 tons in the second half of 1885 and 763,344 tons in the first half of that year.

The report concludes with the very gratifying statement that this country will produce more Bessemer steel, more Bessemer steel rails, and more open hearth steel in 1886 than in any previous year of our history.

HEAVY ORDNANCE FOR COAST DEFENSE.

The Senate Committee on Appropriations has given much consideration during the present session of Congress to the question of our coast defense and the proper method of securing the requisite armament. The report of the board appointed to examine the national resources in the matter of the production of steel guns made it very plain that the fortification of even two or three of the more important seaports could not be accomplished in less than from one and a half to three years' time.

An appreciation of the difficulties of obtaining suitable arms has aroused the Committee on Coast Defenses to the necessity of prompt action. They have now secured, if not all possible, at least all requisite information, and are in a position to act advisedly in urging Congress to appropriate an adequate amount, and provide for its judicious expenditure. The propositions and amendments offered for the consideration of the Committee and the Senate have been very numerous. Many of these have naturally been ill advised. The fault in most cases has been a failure to recognize the importance of the subject and a disposition to put it off with very inadequate legislation.

determined to contract with private firms for the manufacture of the rough steel, and provide for the assembling and finishing of the parts at the Frankford Arsenal, Philadelphia, and at the Washington Navy Yard.

It is now provided that the Secretary of War and the Secretary of the Navy are to be authorized jointly to make contracts with responsible steel manufacturers, after suitable advertising, for the supply of rough bored, rough turned, and tempered steel in forms suitable for heavy ordnance for army and navy purposes. Its quantity is not to exceed 10,000 gross tons. In quality and dimensions, it must conform to specifications, and be subject to inspections and tests at each stage of manufacture. It is provided that no money shall be expended, except for steel accepted and delivered, and that each bidder shall contract to erect a suitable plant in the United States. Such establishments must be equipped with the best modern appliances, and capable of making all the steel required, and of finishing it in accordance with the contract.

Four hundred thousand has been apportioned for the thorough equipment of the Frankford Arsenal, and two hundred thousand for additional tools and machinery for the Washington Navy Yard. Minor sums were also appropriated for the construction of cast iron mortars and other purposes.

The full discussion which this question received in Congress has shown that under the most favorable conditions it will take several years to provide for the adequate protection of our seaport cities. In the interval, they are left at the mercy of circumstances. It is true that we are now so fortunate as to be at peace with all the world, but it is impossible to have any guarantee that this condition of affairs will continue for any length of time. It is at such a period that defensive preparations should be made, and not when war is actually at hand.

DISEASE GERMS IN MILK.

It is a well recognized fact that the mother who is nursing her child is obliged to be very careful about her diet, for whatever she eats or drinks has its effect upon her milk, and consequently upon the health of her child. The most acute symptoms, and even death, may be produced by dietary indiscretion. But it is less appreciated that similarly alarming results may be produced in both children and adults by the use of milk taken from improperly fed cattle.

In other places the case is even worse, for the cattle have been observed to feed with evident relish upon unadulterated animal excreta and other highly pernicious food. Aside from the disgust which the practice excites, it is a source of actual and grave danger. When it is remembered that the fatal plague at Plymouth, Pa., was directly traceable to the careless disposal of the excreta of a single typhoid fever patient, it can readily be seen that milk may become in this manner a vehicle for the distribution of the most malignant disease germs.

So large are the possibilities for evil which may result