

leave nothing undone to accelerate the production of munitions. The following resolution was passed.

"That every resource of these allied metal trades is again pledged to the government not only in the production of materials for the conduct of the war, but for the accelerated manufacture of these materials to enable the government to greatly intensify its prosecution of the war, and to bring about a speedy and crushing defeat of the enemy that will lead to his abject and unconditional surrender."

While the Congress was in session a message was received from Chairman Hurley of the United States shipping board who urged manufacturers to increase their export trade. He said that the U. S. Government was turning out many ships that would be of little use after the war unless manufacturers took advantage of the favorable opportunity for increased export of goods. Chairman Hurley asked for committees to investigate the situation.

One of the notable features of the Congress was the session devoted to manufacture of semi-steel. The opinion was expressed on all sides that semi-steel shells will soon be manufactured in very large quantities in the United States, as they have been in France. In view of this fact the manufacturers who have facilities for undertaking the work took a very keen interest in whatever information was obtainable at the sessions.

The chairman, Mr. John A. Penton opened the session by a short address in which he pointed out that it was expected that many of those present would be called upon to make semi-steel shells. He asked them to follow carefully what was said concerning the manufacture, and to consider whether they could undertake such work. He believed that many plants would be found suitable for the manufacture of such shells. The chairman then introduced three French Army officers, members of the Commission now in Washington.

The experience of the French manufacturers of semi-steel was outlined by Lieut. Laurent. He stated that some semi-steel shells had been made before the war and the invasion of Northern France had made it imperative that a substitute for steel be found. The French Ordnance Department found this substitute in cast iron of the variety known as semi-steel.

The ordinary cast iron shell had not sufficient strength and gave on explosion a comparatively small number of effective fragments. When steel scrap is added to the iron, however, a low carbon iron is obtained. It was found that about 30 per cent. steel gave a very suitable mixture.

The advantages of semi-steel over steel are many. In the first place there is not sufficient steel available to meet the requirements and the use of semi-steel would effect a great saving as it did in France. Then, instead of a few steel working plants it is possible to utilize almost any well equipped foundry to make shells. As foundries are scattered over the country the labor problem is also simplified. The materials used are not only more abundant, but less expensive. Scrap steel and rejected semi-steel will supply a large part of the steel needing in the mixture.

The physical requirements and chemical characteristics were detailed by Lieut. Laurent. He indicated how test bars were taken in French practice and gave the figures for tensile strength, elastic limit, crushing strength. The iron contains 2.75 to 3.25 per cent. carbon. It seems essential that the amount of combined carbon should not be over 20 per cent. of the total carbon. To keep combined carbon low, silica may be used, but the amount must not be large. A good rule is that total carbon plus silicon shall be less than 4.5 per cent. For instance, if total carbon is 2.75 per cent. then silicon should be less than 1.75 per cent.

The effect of manganese, phosphorus, and sulphur were pointed out. In general the action of manganese

is opposed to that of silicon. The amount of manganese that may be used is small. It has been found that difficulties arise in machining the castings if the manganese content is over 1.1 per cent.

In France it is considered good practice to avoid having more than 0.30 per cent. of phosphorus in the iron. From 0.15 to 0.30 per cent. phosphorus is permissible. Capt. Guillemin remarked, however, that in England and in the United States good results seem to have been obtained with iron containing more phosphorus or manganese than is considered good practice in France.

Sulphur seems to have no very harmful effects when present in moderate amounts. It is, however, desirable to eliminate the sulphur because it makes the molten metal less fluid. From 0.12 to 0.15 per cent. sulphur may be present in good castings.

According to Lieut. Laurent about 25,000 semi-steel shells are being manufactured every day in France. They are not as good as the steel shells; but they can be obtained in larger quantities and ordinary foundries can be utilized to great advantage.

G. E. WATSON AND G. O. RANDOLPH LOST AT SEA.

News has just been received of the loss of Chas. E. Watson and George O. Randolph of Cobalt on the "Princess Sophia," shipwrecked on the Alaska coast. Mr. Watson was manager of the Mining Corporation of Canada. Mr. Randolph was assisting him in examining western properties for the Corporation.

IRON ORE IN CRANBROOK DISTRICT, B.C.

Increased interest is noticeable in the iron ore properties of British Columbia, Mr. W. S. Bell announces he is negotiating for the sale of the two red hematite bodies in the Cranbrook District, one of them being on Sand Creek, and the other on Bull River.

Mr. Bell claims these two bodies of ore to be the only known deposits of red hematite west of the Great Lakes, and states the work already done has disclosed a tonnage of almost one million.

One orebody is within four miles of the Crow's N st branch of the C.P.R., and the second, within nine miles of the same railroad, and therefore within a very short distance of an ample coal supply, with the consequent advantage for locating a smelter in the vicinity.

SHIPPING BOG IRON ORE FROM MONS, B.C.

Shipments of bog iron ore (brown hematite), from the properties owned and operated by Dr. J. G. Davidson and Mr. J. H. Thompson, situated two miles from Mons, B.C., on the P.G.E. Railway, started October 7th. The smelter at Irondale, Wash., has contracted for five thousand tons of this ore, one hundred and sixty tons leaving the mine daily.

Mr. Thompson has been responsible for most of the development on the properties, which were originally staked by Mr. W. J. McClure in April, 1910, and include eight claims, i.e., Iron King, Iron King Fraction, Vulcan number one and two, Summit, Morning Star, Cougar and Empress. Test holes made over the entire property indicate an average depth of from five to six feet, with occasional extreme of eight feet. Several engineers who have examined the property estimate over one million tons of ore in sight.

Typical assays made by the smelting company are appended:

Iron.....	49.47	53.37	58.49
Silica.....	4.15	2.75	2.29
Phos.....	0.068	0.184	.072
Sulphur.....	Nil	0.086	.093
Moisture.....	2.27	1.82	1.63
Ignition Loss.....	25.59	20.80	12.48