TABLE II.—Corrosion of Cast Iron in Tap Water (17 Weeks' Exposure).

Cas	ti No.	ro	n		I	Silicon. Per cent.	Original weight. Grammes.	Loss in weight. Grammes.	Corrosion factor.
	I					I.24	57.0494	0.4040	100
	2					I.20	57.3176	0.3276	81
	3					1.45	57.6096	0.4098	IOI
	4					1.55	54.5786	0.4028	100
	5			-	1	1.72	56.0500	0.3980	99
	6					2.04	50.4522	0.3846	95
	7	•				2.28	57.6416	0.3554	88

II.—Salt Water Tests.—These experiments were carried out in a precisely similar manner to the preceding ones, save that the liquid corrosive medium was 3 per cent. salt solution (see Table III.).

TABLE III.—Corrosion of Cast Iron in 3 per cent. Sodium Chloride Solution (13 Weeks' Exposure).

Cast in No.	on			I	Silicon. Per cent.	Original weight. Grammes.	Loss in weight. Grammes.	Corrosion factor.
Ι.					1.24	57.0036	0.3134	100
2.			•		1.29	57.3356	0.2882	92
3.					1.45	57.6354	0.2974	93
4.	•				1.55	54.9200	0.3112	101
5.	•	•			1.72	57.2766	0.3182	IOI
0.		•			2.04	58.5736	0.3172	88
7.					2.28	58.5102	0.2750	

III.—Alternate Wet and Dry Tests.—These experiments were carried out in a precisely similar manner to those detailed in connection with nickel and chromium steels.* The results were as in Table IV.

TABLE IV.—Corrosion of Cast Iron exposed to Alternate Wet and Dry (15 Weeks' Exposure).

Cast iron No.	Silicon.	Original weight.	Loss in weight. Grammes.	Corrosion factor.
I	rer cent.	Grammoer	1.0442	100
	· 1.24	50.0920	T 2116	IIO
····	. I.29	56.6978	1.2780	103
3	. I.45	58.2680	1.0/00	100
4	· 1.55	55.4664	1.0424	99
5	· 1.72	57.2854	1.0370	103
	. 2.04	58.5464	1.0/30	105
· · · · .	. 2.28	57.5996	1.0990	

IV.—Sulphuric Acid Tests (0.05 per cent.).—These experiments were carried out in a precisely similar manner to those with tap water, the corroding liquid in this case being 0.05 per cent. sulphuric acid—that is, 0.5 gramme of acid in 1,000 grammes of solution with water. The acid was renewed every fourteen days. The results were as in Table V.

TABLE V. Corrosion of Cast Iron in 0.05 per cent. Sulphuric

Cont			Acid (13	Original	Loss in	Corrosion	
No.			Silicon.	weight.	weight.	factor.	
T.			Per cent.	Grammes.	Gramme 0 5062	100	
2	•		· 1.24	56.6814	0.590	105	Ĩ
2	•	•	. I.29	56.3498	0.5038	100	
4.	•		. I.45	57.8794	0.595	98	
· · · ·	•	•	· 1.55	55.9416	0.6192	104	
6	•		· 1.72	56.9324	0 6182	104	
7 .	•	•	. 2.04	58.4756	0.6000	IOI	
· · ·			. 2.28	56.8700	0.00		

^{*}Journal of the Iron and Steel Institute, 1912, No. I., ²⁴⁹ (See Iron and Coal Trades Review, May 10, 1912). V.—Sulphuric Acid Tests (0.5 per cent.).—These experiments were similar to the preceding, save that stronger acid was employed, which was renewed every fourteen days (see Table VI.).

FABLE	VICorrosion of	Cast Iron in 0.5 per cent.	Sulphuric
	Acid (13	Weeks' Exposure).	Carlo Martin

Cast iron No.	Silicon. Per cent.	Original weight. Grammes.	Loss in weight. Grammes.	Corrosion factor.
1	. I.24	56.9196	5.4512	100
2	. I.29	56.6360	5.4486	100
3	. 1.45	57.9528	5.3868	99
4	. I.55	55.4094	5.4218	99
5	. I.72	56.7000	5.5454	102
6	. 2.04	58.6396	5.7658	106
7	. 2.28	57.6414	5.7614	106

Discussion of the Results.—For the sake of facilitating the discussion of these results, Table VII. has been drawn up, in which the corrosion factors of the cast irons as obtained in the present research are grouped together.

TABLE VII.

								.C.	orrosion
				Co	rrosion	n factor	in		factor
Cas	t		Silicon.		Wet		0.05 pe	r	in 0.5
iron	1		Per	Tap	and	Salt	cent.	Mean p	er cent.
No			cent.	water.	dry.	water.	acid.	factor.	acid.
I			1.24	100	100	100	100	100	100
2			1.29	81	116	92	105	98	100
3			I.45	IOI	103	95	100	100	99
4		•	1.55	100	100	99	98	100	99
5			I.72	99	99	IOI	104	IOI	102
6		2	2.04	95	103	IOI	104	IOI	106
7			2.28	88	105	88	IOI	96	106

A study of Table VII. reveals the following interesting facts :- (1) The corrosion factors for the irons in acids and neutral media are almost identical. This is very remarkable in view of the divergence usually observed between the two in the case of steels. (2) All the irons corrode at a uniform rate, although No. 7 shows a slight tendency to corrode less rapidly in neutral solution. Possibly this indicates that if the percentage of silicon were raised still higher, without affecting the proportions of graphitic and combined carbon, a gradual increase in resistance to corrosion would be observed. We may safely conclude, however, that a variation in the percentage of silicon between the limits of 1.2 and 2.3 per cent. has no appreciable influence per se upon the corrodibility of the cast iron. If the relative proportions of graphitic and combined carbon are simultaneously varied with the silicon, a considerable difference in the corrodibility may be expected, and this is a point upon which the authors hope to throw further light at a future date.

PROSPERITY OF THE BRITISH SHIPBUILDING TRADE.

During the early part of this year British shipbuilding firms had in hand the construction of 563 vessels with an aggregate of 2,063,694 tons. This exceeded by 377,000 tons the vessels on hand last year, and makes the highest record in the history of the British shipbuilding trade.

The tonnage of vessels at present under construction in British shipbuilding yards is equal to two-thirds the entire mercantile marine of Germany, and is about double the entire mercantile marine of France.