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Philadelphia International Exhibition

1876.

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BRAZILIAN SECTION

MACHINERY HALL.

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NOTICE.

On the Models of Ships

EXHIBITED BY THE

RIO DE JANEIRO NAVY YARD.

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PHILADELPHIA:

R. MAGEE & SON, PRINTERS & STATIONERS,

No. 808 Chestnut Street.

1876.

Philadelphia International Exhibition

1876

BRASILIAN SECTION

WEIGHT 100

NOTICE

Go the Mails of Ships

REGISTERED IN THE

RIO DE JANEIRO



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# NOTICE.

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*On the Models of Ships exhibited by the Navy Yard  
of "Rio de Janeiro."*

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## No. 1.

(SCALE,  $\frac{1}{4}$  OF 1 INCH—1 FOOT.)

Model of Casemate Iron-clads, specially built in 1865 for  
Paraguayan war.

The Names of Ships built according to this  
Class, are:

"BARROSO," "RIO DE JANEIRO," "TAMANDARE."

### Dimensions and General Notice.

Length between perpendiculars.....	186 feet 0 inch.
Moulded breadth.....	34 " 0 "
Extreme breadth.....	36 " 4 "
Depth in Hold (from the Deck).....	10 " 2 "
Draught.....	8 " 6 "
Thickness of the armour-plates.....	0 " 4 "
Displacement.....	965 tons.
Nominal Horse-power.....	130 horses.
Speed.....	9 knots.
Ordnance—4 Guns, {	2 Whitworth's rifled Guns, 150 pounds.
	2 smooth-bore Guns, 68 pounds.

## No. 2.

(SCALE,  $\frac{1}{4}$  OF 1 INCH—1 FOOT.)

Model of single-turret Iron-clads, specially built in 1867 for Paraguayan war.

The Names of Monitors built according to this Class, are:

“PARA,” “CEARA,” “ALAGOAS,” “PIAUIHY,” “SANCTA CATHARINA,” “RIO GRANDE.”

### Dimensions and Particularities.

Length between perpendiculars.....	120 feet 0 inch.
Moulded breadth.....	26 “ 0 “
Extreme breadth.....	28 “ 0 “
Depth in hold.....	5 “ 6 “
Draught.....	5 “ 0 “
Displacement in Tons.....	337 “ 0 “
Thickness of the plates { over the turret.....	0 “ 6 “
{ over the hull.....	0 “ 4 “
Elevation of the Deck above water.....	1 “ 6 “
Wooden hull,	
Double engine with <i>twin-screws</i> ,	
Nominal horse-power.....	30 horses, high pressure.
Speed.....	8 knots
Ordnance .....	1 Whitworth 150 pounder rifled gun.

## No. 3.

(SCALE,  $\frac{1}{4}$  OF 1 INCH—1 FOOT.)

Model of “Mortar-ships,” specially built in 1866 for Paraguayan war, namely:

“PEDRO AFFONSO” and “FORTE DE COIMBRA.”

Dimensions and Particularities.

Length between perpendiculars.....	120 feet 0 inch.
Moulded breadth.....	22 " 0 "
Extreme breadth.....	23 " 0 "
Depth in hold.....	9 " 2 "
Draught.....	7 " 0 "
Displacement in tons.....	333 " 0 "
Nominal horse-power.....	60 horses.
Single propeller,	
Speed.....	6 knots.
Wooden hull.	
Ordnance,—1 Mortar of 13 inches caliber, and 2 Whitworth 30 pounder rifled Guns.	

No. 4.

(SCALE OF  $\frac{1}{4}$  OF 1 INCH—1 FOOT.)

Model of the Corvette "Guanabara," in construction according to the new lines of the Brazilian Constructor "TRAJANO DE CARVALHO."

Dimensions and Particularities.

Length between perpendiculars.....	200 feet 0 inch.				
Moulded breadth.....	40 " 0 "				
Extreme breadth.....	41 " 2 "				
Depth in hold from the main deck.....	24 " 0 "				
Draught.....	16 " 3 "				
Displacement in tons.....	1881 " 0 "				
Wooden hull.					
Power of engine.....	500 nominal horses.				
Single propeller.					
Speed.....	13 to 14 knots.				
Ordnance,	<table> <tr> <td rowspan="3" style="font-size: 3em; vertical-align: middle;">{</td> <td>2 Whitworth 150 pounder Rifled Guns, mounted on Pivot Carriages.</td> </tr> <tr> <td>1 Whitworth 70 pounder, mounted also on Pivot Carriage, on the Bow.</td> </tr> <tr> <td>8 Whitworth 70 pound's, mounted on Side-carriages</td> </tr> </table>	{	2 Whitworth 150 pounder Rifled Guns, mounted on Pivot Carriages.	1 Whitworth 70 pounder, mounted also on Pivot Carriage, on the Bow.	8 Whitworth 70 pound's, mounted on Side-carriages
{	2 Whitworth 150 pounder Rifled Guns, mounted on Pivot Carriages.				
	1 Whitworth 70 pounder, mounted also on Pivot Carriage, on the Bow.				
	8 Whitworth 70 pound's, mounted on Side-carriages				

## No. 5.

(SCALE,  $\frac{1}{4}$  OF 1 INCH—1 FOOT.)

Model of the Gun-vessel "PARNAHYBA," still in construction according to new lines invented by the Brazilian constructor Mr. Trajano de Carvalho.

### Dimensions and Particularities.

Length between perpendiculars.....	169 feet 0 inch.
Moulded breadth.....	28 " 0 "
Extreme breadth.....	28 " 8 "
Depth in Hold.....	14 " 6 "
Draught.....	10 " 0 "
Total displacement.....	732 tons.
Wooden Hull,	
Engine, {	Nominal Power.....150 horses.
	Single Propeller,
	Speed expected.....13 to 14 knots.
Ordnance, {	2 Whitworth 70 pounder Rifled Guns, (breech loaders,) mounted on Pivot Carriages.
	6 Whitworth 30 pounder Rifled Guns, (breech loaders,) mounted on Side-carriages.

## No. 6.

(SCALE,  $\frac{1}{4}$  OF 1 INCH—1 FOOT.)

Model of the Frigate "NICTHEROY," launched in 1862.

### Dimensions and Particularities.

Length between perpendiculars.....	192 feet 0 inch,
Moulded breadth.....	40 " 0 "
Extreme breadth.....	41 " 2 "
Depth in Hold, from Gun Deck.....	20 " 0 "
Draught.....	18 " 0 "



Total Displacement.....	1791 tons.
Wooden Hull,	
Engine, {	Nominal Power.....200 horses,
	Single Propeller,
	Speed.....9 knots.
Ordnance, {	2 Whitworth 70 pounder (muzzle loaders) Rifled
	Guns on the spar deck,
	12 Whitworth 70 pounders (muzzle loaders) on the
	Deck.

## No. 7.

(SCALE,  $\frac{1}{4}$  OF 1 INCH—1 FOOT.)

Model of the Corvette "VITAL D'OLIOEIRA," launched in 1867.

### Dimensions and Particularities.

Length between perpendiculars.....	202 feet 6 inch.
Moulded breadth.....	33 " 2 "
Extreme breadth.....	34 " 4 "
Depth in Hold.....	20 " 0 "
Draught.....	15 " 0 "
Displacement.....	1402 tons.
Wooden Hull,	
Engine, {	Nominal Power.....200 horses.
	Single Propeller,
	Speed.....10 knots.
Ordnance, {	2 Whitworth 70 pounder Rifled Guns, (muzzle
	loaders) on Pivot Carriages,
	4 Whitworth 70 pounder Rifled Guns and 8 68
	pounder smooth bores on side-carriages.

## No. 7 and 8.

(SCALE,  $\frac{3}{4}$  OF 1 INCH=1 FOOT.)

Models of two Steam Launches, built specially for competition. Launch No. 7 representing the common lines of bottom of ships now generally used; Launch No. 8 the new lines proposed by the Brazilian constructor, Mr. TRAJANO DE CARVALHO.

### Dimensions of both Launches.

Length between perpendiculars.....	40 feet 0 inch.
Breadth.....	7 " 6 "
Depth in hold.....	4 " 5 "
Steam horse-power.....	8 nominal horses.

### Results and Comparison.

LAUNCH No. 7.	LAUNCH No. 8, (TRAJANO.)
Displacement..... $8\frac{1}{2}$ tons.	Displacement..... $8\frac{1}{2}$ tons.
Area of the im-merged section, { 1462 square feet.	Area of the im-merged section, { 1191 square feet.
Draught.....3 feet 3 inch.	Draught.....2 feet 9 inch.
Speed.....9 knots.	Speed.....11 knots.

N. B.—Those results show eloquently all the advantages of Trajano's new lines for bottom of ships.

## No. 9.

(SCALE,  $\frac{1}{2}$  OF 1 INCH=1 FOOT.)

Model of a Steam Launch for the service of the Navy Yard.

### Dimensions and Particularities.

Length between perpendiculars.....	52 feet 0 inch.
Breadth.....	10 " 0 "
Depth in hold.....	6 " 3 "
Draught.....	4 " 6 "
Area of the immersed section.....	25.21 square feet.
Total displacement.....	21 tons.
Power of the Engine.....	12 nominal horses.
Speed.....	9 to 10 knots.

## No. 10.

(SCALE, ¼ OF 1 INCH—1 FOOT.)

Model of the Iron Clad

“SETE DE SETEMBRO,”

[Casemate-ship.]

Launched in 1874.

### Dimensions and Particularities:

Length between perpendiculars.....	220 feet 0 inch
Moulded breadth.....	44 “ 3 “
Extreme breadth.....	46 “ 6 “
Depth in hold from the Main Deck.....	15 “ 6 “
Draught.....	12 “ 3 “
Displacement.....	2145 tons
Engine, {	Nominal horse-power.....400 horses
{	Two separate Engines, (both duplex).
{	Twin Screws.
Hull, {	Thickness of the wooden hull in all length of the ship.....2 feet 0 inch.
{	Thickness of the armour.....0 “ 45 “
Ordnance, 4 Whitworth 300 pounder Rifled Guns (muzzle loaders.)	

## No. 11.

[SCALE, ¼ OF 1 INCH—1 FOOT.]

Model of side paddle-wheel Steamer, class “CHUY,” launched in 1858.

### Dimensions and Particularities,

Length between perpendiculars.....	100 feet 0 inch.
Breadth.....	14 “ 8 “
Depth in hold.....	15 “ 1 “
Draught.....	7 “ 0 “
Displacement.....	83 tons.
Speed.....	10 knots.
Engine power.....	50 nominal horses.
Ordnance, 2 32 pounder smooth bore Guns on Pivot Carriages.	

## No. 12.

[SCALE,  $\frac{1}{4}$  OF 1 INCH=1 FOOT.]

Model of the "IMPERIAL YACHT," still in the stocks, but building according to the Trajano's system.

### Dimensions and Particularities

Length between perpendiculars.....	150 feet 0 inch.
Moulded breadth.....	18 " 0 "
Extreme breadth.....	18 " 6 "
Depth in hold.....	8 " 6 "
Draught.....	4 " 6 "
Displacement.....	154 tons.
Wooden hull.	
Engine, {	Power .....50 nominal horses.
	Side Paddle Wheels.
	Speed .....13 to 14 knots.

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## No. 13.

[SCALE,  $\frac{1}{4}$  OF 1 INCH=1 FOOT.]

Model of Gun-vessels built for Rivers and Sea Coast services.

Class "YPIRANGA."

### Dimensions and Particularities.

Length between perpendiculars.....	132 feet 0 inch.
Moulded breadth.....	24 " 0 "
Extreme breadth.....	24 " 8 "
Depth in hold.....	12 " 0 "
Draught.....	9 " 9 "
Displacement.....	320 tons.
Engine, {	Nominal power.....70 horses.
	Single propeller.
	Speed.....9 knots.

Ordnance, { 2 Whitworth's 70 pounder rifled Guns, (muzzle loaders,) on Pivot Carriages.  
 { 4 Whitworth's 30 pounder rifled Guns, (breach loaders,) on Side Carriages.

N. B.—All ships of that class served in the Paraguayan war,

## No. 14.

[SCALE, ¼ OF 1 INCH=1 FOOT.]

Model of Side-paddle-wheel Gun-vessels, built specially for Paraguayan war and river service. Class "TAQUARY."

### Dimensions and Particularities.

Length between perpendiculars.....127 feet 9 inch  
 Breadth..... 18 " 5 "  
 Depth in hold..... 7 " 5 "  
 Draught..... 4 " 6 "  
 Displacement.....168 tons  
 Wooden hull.  
 Engine horse-power.....40 nominal horses.  
 Speed.....00 knots  
 Ordnance, } 2 Whitworth's 30 pounder Rifled Guns (muzzle loaders) on Pivot Carriages.

## No. 15.

[SCALE, ¼ OF 1 INCH=1 FOOT.]

Model of Side-paddle-wheel Gun-vessels, specially built for Paraguayan war.

Class, "HENRIQUE MARTINS."

### Dimensions and Particularities.

Length between perpendiculars.....124 feet 10 inch.  
 Breadth..... 22 " 5 "  
 Depth in hold..... 7 " 0 "  
 Draught..... 3 " 3 "

Displacement.....161 tons.  
Wooden Hull.  
Engine horse-power.....40 nominal horses.  
Speed .....10 knots.  
Ordnance,.....2 32 pounder smooth bore Guns on Pivot Carriages.

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## No. 16.

[SCALE,  $\frac{1}{4}$  OF 1 INCH—1 FOOT.]

Model of Side-paddle-wheel Gun-vessel, built for river service.

Class, "A.P.A."

### Dimensions and Particularities.

Length between perpendiculars.....100 feet.  
Breadth ..... 18 "  
Depth in hold..... 7 "  
Draught..... 3 "  
Displacement.....108 tons  
Engine horse-power.....40 nominal horses.  
Speed.....10 knots  
Iron Hull.  
Ordnance,.....1 32 pounder smooth bore Gun on Pivot Carriage.

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*Philadelphia, May 10th, 1876.*

Commander LUIZ DE SALDANHA,

Delegate for Brazilian Navy.