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PERMANENT INTERNATIONAL ASSOCIATION

OF

NAVIGATION CONGRESSES

APR 2 1925

XIIth International Congress of Navigation

PHILADELPHIA 1912

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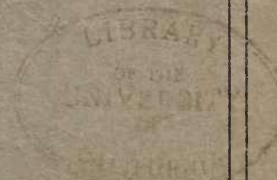
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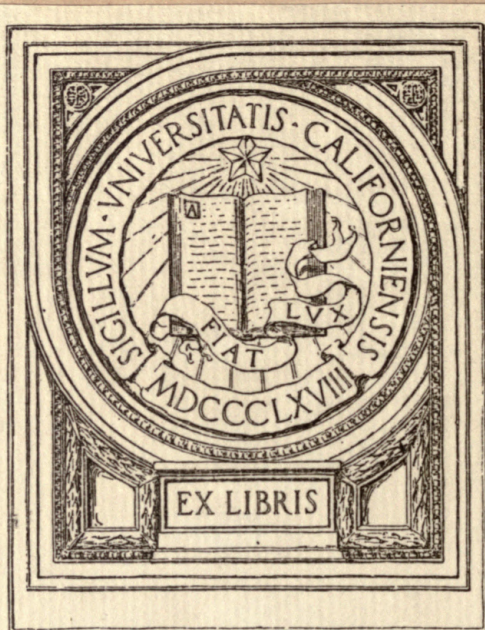
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Executive Committee — Office of the Secretary General :
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Cranes (continued) :

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Cranes (continued) :

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(continued) :

Cranes (continued) :

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Mechanical equipment of ports
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Mechanical equipment of ports
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Mechanical equipment of ports
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Mechanical equipment of ports
(continued) :

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Mechanical equipment of ports :
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Mechanical equipment of ports
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 - Ports on sandy shores : Establishment (of) : XII, 101; 14.
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- Sea ports* (continued) :
- Entrance channels have or are designed for : XII, 62; 5, 7 — 64; 22, 24.
 - Transshipment to river-going vessels : XII, 24; 2.
 - in *Argentina* :
 - Port of Bahia-Blanca : Dry Dock (of the) : 59; 3.
 - Entrance depth : XII, 64; 22, 24 — 68; 14.
 - Port of Buenos-Ayres : Acces to the : XII, 62; 12 — 65; 15 — 68; 14.
 - Entrance depth : XII, 62; 8 — 64; 22, 24.
 - Port of La Plata : Entrance depth : XII, 64; 22, 25.
 - Port of Rosario : Entrance depth : XII, 64; 23, 24.
 - in *Australia* :
 - Port of Adelaide : Entrance depth : XII, 62; 6 — 64; 22, 24.
 - Port of Melbourne : Entrance depth : XII, 62; 6 — 64; 22, 24.
 - Port of New Castle, N. S. W. : Entrance depth : XII, 62; 6, 8 — 64; 22, 24.
 - Port of River Yarra, Vict. : Entrance depth : XII, 62; 6, 8 — 64; 22, 24.
 - Port of Sidney : Entrance depth : XII, 64; 23, 25 — 68; 19.
 - Port of Williamstown : Entrance depth : XII, 62; 6 — 64; 22, 24.
 - in *Austria* and *Hungary* :
 - Port of Fiume : Costs of establishment : XII, 58; 2.
 - Floating docks (of the) : XII, 52; 16 — 58; 3, 6 — R. P. 314, 315.
 - Entrance Depth : XII, 64; 5, 23, 25.
 - Tide elevation : XII, 58; 11.
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- Sea ports* (continued) :
- Port of Trieste : Entrance depth : XII, 64; 5, 23, 25.
- in *Belgium* :
- Port of Antwerp :
- Average tonnage of vessels for 1905 and 1909 : XII, 69; 4.
- Communications between the Scheldt banks : Improvements: XII, 102; 13 — 104; 2, 5, 14.
- Depth of the channel : XII, 69, 4.
- Development of the roadstead and of the quays : XII, 104; 2.
- Entrance Depth : XII, 62; 6 — 64; 4, 23, 24 — 104; 2.
- Gauge of the vessels visiting the — : XII, R. P. 347.
- Improvement works : XII, R. P. 394.
- Movement of navigation : XII, 68; 4 — 102; 12 — 104; 2.
- Number of vessels which entered docks in 1910; sea gauge of these vessels : XII, 62; 9 — 64; 12.
- Royers Lock : Dimensions; Duration of construction; operations : XII, 64; 17—R.P.315.
- Tide elevation : XII, 102; 13 — 104; 3, 14.
- Port of Bruges : Communications with the Zeebrugge harbour: XII, 104; 1.
- Port of Brussels : Establishment of the maritime installations : XII, 38; 29.
- Port of Ghent : Communications with the Scheldt channel : XII, 104; 1, 15.
- Construction and repairings of dry docks : XII, 52; 5 — 54; 2, 7.
- Entrance depth : XII, 62; 6, 8 — 64; 22, 24.

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- Sea ports* (continued) :
- Port of Ostend : Entrance depth : XII, 64; 22, 24.
- Port of Zeebrugge : Communications with the port of Bruges : XII, 104; 1.
- Entrance depth : XII, 64; 22, 24.
- in *Brazil* :
- Port of Para : Building of a wall with concrete blocks of sand and cement : XII, R. P. 376.
- Entrance depth : XII, 64; 23, 25
- Port of Pernambuco : Entrance depth : XII, 62; 8 — 64; 23, 25.
- Port of Rio de Janeiro : Entrance depth : XII, 64; 23, 25.
- Depth of the roadstead : XII, 68; 15.
- Port of San-Francisco (State of Santa Catherina) : Construction of a pier on supporting piles : XII, R. P. 376.
- in *Canada* :
- Port of Esquimalt : Entrance depth : XII, 64; 22, 25.
- Port of Halifax : Construction of a pier on concrete piles : XII, R. P. 377.
- Depth (of the) : XII, 64; 23, 25 — 68; 13.
- Port of Montreal : Administration : XII, 21; 14 — 23bis; 17 —R.P. 324.
- Construction : XII, R. P. 324.
- Dredgings : XII, R. P. 358.
- Entrance depth : XII, 64; 23, 25.
- Equipment : XII, R. P. 324.
- Handling of goods: XII, R.P.324.
- Port of Quebec : Entrance depth : XII, 64; 23, 25.
- (Port of Sault-Ste-Marie : Entrance depth : XII, 64; 22, 24.
- Port of St-John N. B. : Entrance depth : XII, 64; 23, 25.
- Port of Vancouver : Entrance depth : XII, 64; 23, 25.

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- Sea ports (continued) :*
 Port of Victoria B. C. : Entrance depth : XII, 64; 22, 24.
 — in *Central America* (Panama) :
 Port of Colon : West-Breakwater : XII, 94; 6.
 — Entrance depth : XII, 64; 23, 25.
 Port of Panama : Entrance depth : XII, 64; 23, 25.
 — in *Chili* :
 Port of Valparaiso : Floating dock : XII, R. P. 312.
 — Entrance depth : XII, 64; 23, 25.
 — in *China* :
 Port of Hongkong : Entrance depth : XII, 64; 23, 25 — 68; 19.
 Port of Shanghai : Entrance depth : XII, 64; 22, 24.
 — in *Cuba* :
 Port of Havana : Construction of a concrete jetty : R. P. 377.
 — Entrance depth : XII, 64; 23, 25.
 Port of Santiago de Cuba : Entrance depth : XII, 64; 22, 25.
 — in *Denmark* :
 Port of Copenhagen : Construction of quay walls and wooden bridges : XII, 93; 1, 11.
 — Entrance depth : XII, 64; 4, 22, 25.
 Port of Elsinore : construction of a quay wall and a jetty-head : XII, 93; 2.
 Port of Hanstholm : Construction of a pier : XII, 89; 8 — 92; 2, 3.
 Port of Nørre Sandby : Construction of a quay wall composed of reinforced concrete caissons filled with sand : XII, 89; 9 — 93; 2, 7.
 — Entrance depth : XII, 93; 7.
 — Establishment (of the) : XII, 93; 7.
 Port of St Thomas : Entrance depth : XII, 64; 23, 25.

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- Sea ports (continued) :*
 Port of Vorupør : Construction of a pier : XII, 89; 8 — 93; 2, 3.
 — in *Dutch Indies* (see *Holland*).
 — in *Egypt* (Suez-Canal) :
 Port of Ismailia : Extension of the installations : XII, 63; 19.
 Port of Thewfik : Extension of the installations : XII, 63; 19.
 Port-Saïd : Dredging in the passes of the roadstead : XII, 83; 18, 21 — R. P. 346, 353.
 — Extensions of the west jetty : XII, R. P. 346.
 — Extension of the installations : XII, 63; 19.
 — Works which are undertaken (at the) : XII. 63; 9.
 — in *France and Colonies* :
 — in *Algeria* :
 Most recent works at the principal sea ports : XII, 89; 3 — 90; 1.
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 — Buoys (at the) : XII, 113; 4.
 — Entrance depth : XII, 64; 23, 25.
 — North Quay of the Al Djefna pier : XII, 90; 9, 18.
 — Settlements and yieldings of the part of the Agha jetty built with a reduced cross-section : XII, 90; 4.
 — Sewers of reinforced cement under the wharves of the port of Agha : XII, 90; 18.
 Port of Arzew : Protection of the Main quay : XII. 90; 16,
 — Lion jetty : XII, 90; 1.
 Port of Bona : North-East protection of the made ground of La Seybouse : XII, 90; 1, 3.

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Sea ports (continued) :

Port of Dellys : Extension of the landing (reinforced concrete caissons) : XII, 89; 8 — 90; 19.

Port of Djidjelli : Establishment of a reinforced concrete platform : XII, 90; 18.

— New Jetty : XII, 90; 4.

Port of Mostaganem : Repairs to the outer breakwater: XII, 90; 14.

— Wharf with metallic supports : XII, 90; 18.

Port of Oran : outer breakwater : XII, 90; 17, 18.

Port of Ténès : Construction of jetties and breakwaters : XII, 89; 3 — 90; 11.

— Jetty with basins : XII 90; 12.

— Reinforced cement : XII, 90; 18.

— in *Corsica* :

Port of Ajaccio : Construction of jetties and quays; dredgings. Costs of works : XII, 95; 19, 24, 25.

Port of Bastia : Extension of a jetty, quay building works for removing rocks Dredgings. Costs of the works : XII, 95; 20, 24.

Port of Propriano : Construction of a jetty : XII, 95; 25.

Port of Sagone : Construction of a landing : XII, 95; 26.

— in *France* :

Entrance depth of the principal ports : XII, 62; 6, 8 — 64; 4, 5, 22, 23, 24, 25 — 83; 6.

Improvements and maintenance of the ports : XII, 83; 1.

Mechanical equipment (of the) : XII, 73; 1.

Most recent works executed or designed at the principal sea ports . XII, 83, 5, 9 — 95, 1.

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Sea ports (continued) :

New graving docks at the ports (of) : XII, 52; 10 — 56; 1.

Port of Bayonne : Cost of dredgings : tonnage : XII, 83; 6, 23.

— Entrance depth : XII, 62; 6, 8 — 64; 22, 24 — 83; 6.

— Improvement works : Consolidation of the jetties; construction of wharves and dredging works : XII, 95; 16.

Port of Bordeaux : completion of the wet basin n^o 2 : XII, 95; 14.

— Costs of dredging works; tonnage : XII, 83; 6.

— Entrance depth : XII, 62; 6, 8 — 64; 22, 24 — 83, 6.

— Extension (of the) : Establishment of new wet-docks; construction of a canal. Establishment of a calling-port; costs of works : XII, 95; 2, 14.

— Improvement of the entrance : XII, 6; 1 — 11; 19 — 95; 15.

— Installations for the handling of bulk freight : XII 73; 30.

— Lighting of the night-entrance : XII, 113; 17.

— Staging of Lestonnat : XII, 95; 31.

— Transporting-bridge: XII, 102; 35 — 106; 20.

— Wharves of Queyries; extension : XII, 95; 34.

Port of Boulogne : Cost of dredging works : tonnage : XII, 83; 6.

— Deepening works : XII, 83; 4 — 95; 4.

— Entrance depth : XII, 62; 6 — 64; 4, 23, 24 — 83; 6.

— Establishment of the Loubet basin : XII, 83; 4 — 95; 4.

— Extension and improvement of the harbour railway station . XII, 95; 5.

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- Sea ports (continued) :*
- Extension of the Carnot dyke : XII, 95; 1, 2, 5.
 - New junction with the main line Paris-Boulogne : XII, 95; 5.
 - Reconstruction of the East jetty : XII, 95; 1 5.
 - Wharves (Center-Holland-West Quays and Loubet Basin North side) : XII. 95; 32, 35.
- Port of Brest : Construction of graving docks : XII, 52; 11 — 56; 7.
- Deepening works (at the) : XII, 83; 27.
 - Entrance depth : XII, 64; 5, 25, 25.
 - Transporting-bridge : XII, 102; 35 — 104; 9 — 106; 17.
- Port of Calais : Construction of a floating barrage for the Petroleum Basin : XII, 89; 9 — 95; 35.
- Costs of dredging works : tonnage : XII, 83; 6.
 - Entrance depth : XII 64; 4, 22, 24 — 83; 6.
 - Improvement works of the western part (of the) : Removal of the ancient dyke — demolition of an old lock — construction of a barrage and a break-water; costs : XII, 95; 4.
 - Reconstruction of the west jetty, South Quay of the Western basin and improvement of the channel; costs of works : XII, 95; 1, 4.
- Port of Cette : Costs of dredging works; tonnage : XII, 83; 6.
- Entrance depth : XII, 64; 5, 22, 25 — 83; 6.
- Port of Cherbourg : Construction of a graving dock : XII, 52; 10 — 56; 2.
- Port of Dieppe : Construction of a

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- Sea ports (continued) :*
- quay wall on reinforced concrete caissons : XII, 95; 5, 6.
 - Costs of dredging works ; tonnage : XII. 83; 6.
 - Entrance depth : XII, 62; 6 — 64; 4, 23, 24 — 83; 6.
 - Establishment of fishing-quays; construction of jetties : XII, 95; 5, 6.
- Port of Dunkirk : Completion of the tide quay; improvements of the communications between the harbour basins; construction of a canal; erection of a new station; prolongation of Dock n° 3 : XII, 95; 3.
- Construction of a fifth wet-dock; costs of works : XII, 95; 1, 3.
 - Costs of dredging works; tonnage : XII, 68; 4 — 83; 6.
 - Entrance depth : XII, 64; 4, 22, 24 — 83; 6.
 - Lighting of night entrance : XI^r, 113; 17.
 - Pier at the tide quay : XII, 95; 27, 29.
 - Staging of « Risban » : XII, 95; 27, 29.
- Port of Havre : Construction of a new graving dock : XII, 52; 10 — 56; 14 — 95; 7 — R. P. 309, 313.
- Dredging works : XII, 83; 6 — R. P. 348.
 - Entrance depth : XII, 62; 6 — 64; 4, 22, 24 — 69; — 65; 6 — R. P. 342, 348.
 - Equipment for the handling of cotton : XII, 73; 32 — R. P. 330.
 - Establishment of a new harbour : construction of sea dykes, piers, quay, a graving dock and wharves; costs of works : XII, 95; 5, 6, 7, 33.

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- Sea ports (continued) :*
- Improvement of the channel : XII, 6; 1.
 - Lighting of the night entrance and fog-signals : XII, 113; 17, 18, 20.
 - Roller lock-gate above the Bellot Tancarville : XII, 106; 17.
 - Statement of conditions required for the employment of a floating dock at the Havre harbour and deductions : XII, 56; 2.
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 - Wharf (project of a) : XII, 95; 32.
- Port of La Rochelle-Pallice : Construction of a new dock and improvement of the outer harbour (Plan for the) : XII, 95; 2.
- Entrance depth : XII, 62; 6 — 64; 5, 22, 24.
- Port of Marseilles : Block for anchorage of a mooring : XII, 95; 34.
- Construction of a new graving dock : XII, 52; 11 — 56; 11 — 95; 17.
 - Construction of the Madrague basin; costs of the works : XII, 95; 2, 18.
 - Costs of dredging works : XII, 83; 6.
 - Deepening of basins : XII, 95; 18.
 - Entrance depth : XII, 64; 5, 23, 25 — 83; 6 — C. R. 342.
 - Equipment for the handling of goods : XII, 73; 30.
 - Tonnage : XII, 68; 4 — 69; 4 — 83; 6.
 - Transporting bridge : XII, 104; 9 — 106; 17.
 - Works at the La Pinède basin : Completion equipment of the quays : XII, 95; 17.

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- Sea ports (continued) :*
- Port of Nantes : Construction of a graving dock : XII, 95; 1.
- Construction of piers and quays (reinforced concrete) : XII, 95; 13.
 - Costs of dredging works : XII, 83; 6.
 - Entrance depth : XII, 62; 6, 8 — 64; 5, 22, 24 — 83; 6.
 - Improvement and extension (of the) : Reconstruction of bridges, dredging works, improvement of the tidal flow, regulation of the ordinary and mean beds quay accessory works : XII, 95; 13, 14.
 - Improvement of the channel : XII, 6; 1 — 95; 13.
 - Tonnage : XII, 83; 6.
 - Transporting bridge : XII, 103; 5 — 104; 9 — 106.
- Port of Nice : Extension of the outer jetty; construction of quays; dredging works; equipment. Costs of the works : XII, 95; 19, 24.
- Port of Paris : Design for a sea port : XII, 16; 16.
- Port of Rochefort : Entrance depth : XII, 62; 8 — 64; 22, 24.
- Transporting bridge at Martrou (near Rochefort) : XII, 102; 34 — 104; 9 — 106; 17.
- Port of Rouen : Construction of quays, dredging works; improvement works of the petroleum basin : XII, 95; 10.
- Costs of dredgings for maintenance of depth : XII, 83; 6.
 - Depth : XII, 62; 8 — 64; 22, 24 — 83; 6.
 - Extension (of the) — costs of works : XII, 95; 2, 10.
 - Improvement of the entrance channel : XII, 6; 1.

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- Sea ports* (continued) :
- Lighting for night entrance : XII, 113; 19.
 - Tonnage : XII, 83; 6.
 - Transporting bridge : XII, 102; 34 — 103; 8 — 104; 9 — 105; 3 — 106; 9, 17.
 - Port of St-Louis on the Rhône : Construction of a staging : XII, 95; 28, 31.
 - Port of St-Malo : Roller ferry bridge : XII, 106; 6.
 - Port of St-Nazaire : Construction of secondary works : deepening of the channel « des Charpentiers »; installation of a pumping plant on the site of a new lock; alteration of the chamber lock « de Penhoët ». Estimate of works cost : XII, 95; 12.
 - Depth : XII, 62; 6 — 64; 5, 22, 24 — 83; 6.
 - Dredgings for maintenance of depth : costs : XII, 83; 6, 23.
 - Extension of the dry dock n^o 1 : XII, 95; 12.
 - Improvement of the entrance channel : XII, 6; 1.
 - Lighting for night entrance : XII, 113; 19.
 - Tonnage : XII, 83; 6.
 - Port of Toulon : Depth : XII, 64; 5, 22, 24.
 - Design of staging at Toulon : XII, 95; 32.
 - Establishment of new graving docks : XII, 52; 11 — 56; 10.
 - in *Tunis* :
 - Work carried out at the principal sea ports of Tunis : XII, 101; 1.
 - Port of Bizerta : Depth : XII, 64; 22, 25.
 - Establishment (of the) : XII, 101; 1.
 - Transporting bridge : XII, 106; 19 — 107; 4.

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- Sea ports* (continued) :
- Port of Sfax : Depth : XII, 101; 14.
 - Establishment and extension works : enlargement; construction of basins, quay wall and sheds. Project of extension : cost of works : XII, 101; 1, 14, 15.
 - Traffic (at the) : XII, 101; 2, 16.
 - Port of Sousse : Depth : XII, 101; 11.
 - Establishment (of the) : construction of a sheltering môle, quay walls and sheds; installations to load phosphates. Cost of works : XII, 101; 1, 12.
 - Traffic (at the) : XII, 101; 2.
 - Port of Tunis : Construction of the port : Establishment of an outer harbour, an entrance-channel and outer docks. Cost of works : XII, 101; 1, 3, 5, 6.
 - Construction of stagings and sheds : XII, 101; 4, 6, 10.
 - Construction of quay walls and jetties : XII, 101; 4, 7.
 - Depth : XII, 62; 7.
 - Establishment of pitched slopes : XII, 101; 6, 9.
 - Traffic (at the) : XII, 101; 2.
 - in *Germany* :
 - Port of Breme : Equipment (of the); Extension works; cost of equipment : XII, 91; 5.
 - Entrance depth : XII, 64; 22, 24 — 91; 5.
 - New lock (at the) : XII, 91; 5.
 - Traffic (at the) : XII, 68; 4.
 - Port of Bremerhaven : Dry docks (at the) ; construction and dimensions : XII, 52; 2 — 53; 4, 18.

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Sea ports (continued) :

- Development of the quays :
and water-surface : XII, 91;
5.
- Dimensions of the locks :
XII, 68; 29.
- Entrance depth : XII, 62; 5
— 64; 4, 23, 24.
- Equipment of the port; ex-
tensions; costs of equipment,
administration and mainte-
nance : XII, 91; 3, 4.
- Tonnage (at the) : XII, 91;
4.
- Port of Cuxhaven : Entrance
depth : XII, 64; 4, 23, 25.
- Port of Dantzig : Entrance depth :
XII, 62; 7 — 64; 4, 22, 24.
- Reinforced concrete quay wall
(of the) : XII, R. P. 275.
- Port of Emden : XII, 68; 29.
- Construction of a new dock and
a new entrance lock : XII, 91;
1.
- Costs of extension works : XII.
91; 2.
- Entrance depth : XII, 64; 4, 22,
24 — 91; 1.
- Port of Geestemunde : XII, 53; 8.
Slipway.
- Entrance depth : XII, 62; 7 —
64; 22, 24.
- Port of Hamburg : Installations (of
the) : XII, 91; 8, 10.
- Average tonnage of vessels
docks during 1905 and 1909 :
XII, 69; 4.
- Entrance depth and channel
depth : XII; 62; 5, 16 — 64;
4, 22, 24 — 69; 4.
- Mechanical equipment (of the) :
Machinery for handling gene-
ral cargo : number and capa-
city : XII, 70; 1 — 71; 1, 26.
27 — R. P. 322.

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Sea ports (continued) :

- Traffic; extension of the traffic;
development of harbour di-
mensions : XII, 68; 3 — 91:
- Traffic with the Baltic ports :
XII, 63; 15.
- Tunnel under the Elbe : XII,
R. P. 380.
- Port of Harburg : Entrance depth :
XII, 62; 5 — 64; 4, 22, 24.
- Port of Heligoland :
- Construction of a pier : XII, 89;
8.
- Establishment of a harbour :
XII, 91; 7.
- Port of Husum :
- Reinforced concrete river wall :
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- Port of Kiel : Accident at the dry
docks; repairs : XII, 52; 1 — 53;
1.
- Dimensions of the dry docks :
XII, 53; 1, 20.
- Entrance depth : XII, 62; 7 —
64; 4, 22, 24.
- Floating dock of 40,000 t. : de-
scription; costs of mainten-
ce; pumping operations : XII,
52; 1 — 53; 3, 23 — R. P. 314.
- Port of Königsberg : Entrance
depth : XII, 62; 5, 7 — 64; 22, 24.
- Port of Lubeck : Installations (at
the), extensions, costs of esta-
blishment : XII, 91; 13, 14.
- Entrance depth : XII, 62; 5,
7 — 64; 4, 22, 24.
- Tonnage : XII, 91; 13.
- Port of Pillau : Entrance depth :
XII, 62; 7 — 64; 22, 24.
- Port of Rostock : Entrance depth :
XII, 64; 22, 24.
- Port of Sassnitz : Ferry-boat com-
munications with the port of
Trelleborg (Sweden) : XII, 91; 15.

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- Sea ports* (continued) :
- Extension works; costs of establishment : XII, 91; 15.
 - Port of Stettin : Entrance depth : XII, 62; 5, 7 — 64; 22, 24.
 - Reinforced concrete quay-walls : XII, R. P. 275.
 - Port of Swinemunde : Entrance depth : XII, 62; 7 — 64; 4, 22, 24.
 - Port of Travemunde : Entrance depth : XII, 64; 22, 25 — 91; 14.
 - Port of Warnemunde : Entrance depth : XII, 62; 5 — 64; 22, 24.
 - Port of Wilhelmshaven : Communications with the North sea : XII, 68; 29.
 - Construction of new dry docks : dimensions : XII, 52; 2 — 53; 3, 20.
 - in *Great Britain* :
 - Most recent works at important sea ports and reinforced concrete as applied to : XII, 96; 1.
 - Tonnage of the important ports of Great Britain : XII, 96; 1.
 - Port of Aberdeen : Depth : XII, 62; 6 — 64; 22, 24.
 - Port of Barrow-in-Furness : Depth : XII, 64; 22, 24.
 - Port of Barry Docks : Depth : XII, 62; 5 — 64; 23, 24.
 - Port of Belfast : Depth : XII, 64; 22, 24.
 - Port of Blyth : Depth : XII, 62; 5 — 64; 22, 24.
 - Port of Bristol : Depth : XII, 64; 23, 25.
 - Development of the installations : XII, 96; 10.
 - New connections (with the) : XII, 41; 2.
 - Traffic : XII, 96; 10.

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- Sea ports* (continued) :
- (Avonmouth) : Works; new docks; inner dock; entrance piers; dry dock; lock; sheds and granary of reinforced concrete XII, 96; 10, 11.
 - Port of Cardiff : Channel depth : XII, 69; 4.
 - Depth (of the) : XII 64; 22, 24.
 - Tonnage (of the) : XII, 68; 4.
 - Port of Cork : Depth : XII, 64; 22, 24.
 - Port of Dover : Completion of the works (at the) : XII, 96; 13.
 - Depth : XII, 62; 15 — 64; 23, 25 — 68; 29.
 - Port of Dublin : Depth : XII, 62; 6 — 64; 22, 24.
 - Port of Dundee : Depth : XII, 62; 6 — 64; 22, 24.
 - Extension works (at the) : XII, 96; 15.
 - Port of Ellesmere : Mooring alongside the wharves : XII, 42; 38.
 - Port of Falmouth : depth : XII, 64; 23, 25.
 - Port of Folkestone : Reconstruction and extension of the pier : XII, 96; 13.
 - Port of Glasgow : Connections (with the) : XII, 41; 2.
 - Depth : XII, 62; 5 — 64; 22, 24.
 - Tonnage : XII, 68; 4 — 96; 1.
 - Port of Goole : Connections (with the) : XII, 41; 1.
 - Port of Greenock : Depth : XII, 62; 5 — 64; 22, 24.
 - Port of Hartlepool : Depth : XII, 64; 22, 24.
 - Extension works : XII, 96; 15.
 - Port of Hull : Depth : XII, 62; 5 — 64; 23, 24.
 - New connections (with the) : XII, 41; 2.
 - Tonnage (of the) : XII, 68; 4 — 96; 1.

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- Sea ports* (continued) :
- Port of Immingham : Construction of a new port; depth of the dock and of the entrance channel : XII, 96; 14.
- Port of Leith : Depth : XII, 64; 22, 24.
- Port of Liverpool : Depth : XII, 64; 23, 25.
- Depth of the entrance channel : XII, 69; 5.
- Lighting of the entrance channel : XII, 74; 17.
- New connections (with the) : XII, 41; 2.
- Reinforced concrete works: docking and shedding; floors of wharves jetty decks : XII, 96; 5.
- Tonnage : XII, 68; 4 — 69; 4 — 96; 1.
- Port of London : Construction of a deep-water haven (Thames Haven) : XII, 96; 2.
- Construction of a concrete jetty at Thames Haven : XII, 96; 4.
- Construction of quay walls (deep water q. w.) : XII, 96; 3.
- Costs of improvement works (of the) : XII, 65; 20 — 96; 4.
- Depth : XII, 64; 23, 25.
- Depth of the entrance channel : XII, 69; 4 — 96; 3.
- Dimensions of the Albert and Victoria locks : XII, 65; 20.
- Dimensions of the entrance locks (South Albert dock; North Albert dock; Tilbury docks) : XII, 62; 10 — 65; 2, 20.
- Government (of the) : XII, 96; 2.
- Improvements and enlargements (of the) : construction of the South and North Albert docks; new dock at the West India

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- Sea ports* (continued) :
- docks; improvement works at the London, Wapping and Albert, Victoria, East India and Milwall docks : XII, 96; 4.
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- Port of Newcastle-on-Tyne : Depth : XII, 64; 23, 25.
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- Sea ports* (continued) :
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- Port of Weston : Docks : XII, 41; 38.
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- Port of Corinth : Depth : XII, 62; 8 — 64; 5.
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- in *Dutch Indies* :
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Sea ports (continued) :

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 - Port of Calcutta : Depth : XII, 62; 6 — 64; 22, 24.
 - Port of Colombo (Ceylon) : Depth : XII, 64; 23, 25 — 68; 19.
 - Port of Rangoon : Depth : XII, 64; 22, 24.
 - Port of Singapore : Depth : XII, 64; 23, 25 — 68; 19.
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 - Port of Catania : Depth : XII, 64; 23, 25.
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- Sea ports* (continued) :
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- Sea ports* (continued) :
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 - Port of Touruya : Improvement : XII, R. P. 404.
 - Port of Yokohama : Depth : XII, 64; 20, 25 — 68; 19.
 - Improvement: XII, R. P. 404.
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 - Port of Mazatan : Depth: XII, 64; 22, 25.
 - Port of Tampico : Depth : XII, 62; 6 — 64; 22, 24.
 - Port of Veracruz : Depth : XII, 64; 22, 24.
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 - Port of Bergen : Depth : XII, 64; 4, 23, 25.
 - Port of Christiana : Depth : XII, 64; 4, 23, 25.
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 - Port of Daresalam : XII, 62; 7 — 64; 22, 24.
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 - Port of Manilla : Depth : XII, 64; 22, 21.

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- Sea ports* (continued) :
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 - Port of Lisbonne : Depth : XII, 64; 22, 24.
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- Sea ports* (continued) :
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 - Port of Petrograd : Average tonnage of vessels for 1905 and 1909 : XII, 69; 4.
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 - Port of Riga: Average tonnage of vessels for 1905 and 1909: XII, 69; 4.
 - Depth and entrance depth : XII, 62; 7 — 64; 22, 24 — 69; 3.
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 - Port of Vladivostock : Depth : XII, 64; 22, 25.
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 - Port of Honolulu : Depth : XII, 64; 22, 25.
 - Port of Pearl Harbour (H. I.): XII, 64; 22, 25.
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 - Port of Capetown : Entrance depth : XII, 64; 22, 24 — 68; 16.
 - Port of Durban (Fort Natal) . Entrance depth : XII, 62; 7 — 64; 22, 24.
 - in *Spain* :
 - Port of Avilès : Works for removing rocks : XII, 81; 3.

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Sea ports (continued) :

- Port of Barcelona : Entrance depth : XII, **64**; 5, 23, 25.
- Port of Bilbao : Average tonnage of vessels which came in the — in 1905 and 1909 : XII, **69**; 4.
- Entrance depth : XII, **64**; 5, 23, 25.
- Port of Cadiz : Entrance depth : XII, **64**; 23, 25.
- Port of Cantabrique Sea : Works for removing rocks : XII, **81**; 2, 7, 13.
- Port of Carthage : Entrance depth : XII, **64**; 5, 23, 25.
- Port of Malaga : Entrance depth : XII, **64**; 5, 23, 25.
- Port of San Estaban de Pravia : Works for removing rocks : XII, **81**; 7.
- Port of Valentin : Entrance depth. XII, **64**; 5, 23, 25.
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 - Traffic at the sea ports (of) : XII, **20**; 12.
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 - Port of Gothenburg : Communications with (the) : XII, **20**; 12 — **45**; 18.
 - Communications between the river sides : XII, **102**; 50 — **109**; 13, 17.
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 - Construction of quay walls at the bulk goods' harbour : XII, **100**; 25.
 - Deepening : XII, **45**; 6.

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Sea ports (continued) :

- Deepening of the entrance channel : XII, **100**; 28.
- Depth : XII, **100**; 24, 29.
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- Development of the equipment : XII, **100**; 21.
- Dredgings in the entrance channel : XII, **100**; 28.
- Dredging equipment : XII, **100**; 28.
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- Works for removing rocks and dredgings : XII, **100**; 23, 28.
- Port of Hammarby: Communications between the river sides : XII, **102**; 48 — **109**; 9.
- Port of Helsingborg : Importance of the traffic : XII, **100**; 1.
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- Importance of the traffic: XII, **100**; 1.

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- Sea ports* (continued) :
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 - Port of Stockholm : Bascule bridges: XII, 102; 47 — 109; 6, 7, 12.
 - Construction of goods sheds : XII, 100; 15, 16.
 - Construction of quay walls : XII, 88; 2 — 100; 7, 16, 19.
 - Depth : XII, 62; 6 — 64; 22, 24 — 100; 1, A, 5, 14, 19.
 - Description of the equipment: XII, 100; 1, 2, 13.
 - Development of the equipment: XII, 100; 2, 13, 14.
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 - Lighting of the entrance: XII, 118; 9.
 - Locks: XII, 102; 47 — 109; 6 12.
 - Swing bridges : XII, 102; 47 — 109; 6, 7, 11.
 - Traffic : XII, 100; 1, 2, 14.
 - Works for removing rock : 4, 6, 14, 17, 18.
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 - Port of Constantinople : Depth : XII, 64; 5, 23, 25.
 - Port of Salonica : Depth : XII, 64; 5, 23, 25.
 - Port of Smyrna : Depth : XII, 64; 23, 25.
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- Sea ports* (continued) :
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 - Port Arthur Tex. : Entrance depth : XII, 62; 7, 8 — 64; 22, 24.
 - Port of Astoria (Wash.) : Entrance depth : XII, 62; 7 — 64; 22, 24.
 - Port of Atlantic City :
 - Reinforced concrete : XII, 28; 19 — 30; 21.
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 - Port of Baltimore : Entrance depth : XII, 64; 23, 25.
 - Piers : XII, 30; 10.
 - Quay walls : XII, 28; 16, — 30; 10.
 - Railroad junction : XII, 21; 10 — 23bis; 14.
 - Port of Bangor : Entrance depth : XII, 62; 8 — 64; 22, 24.
 - Port of Bath, Me : Entrance depth : XII, 64; 23, 25.
 - Port of Beaufort : Entrance depth : XII, 64; 22, 24.
 - Port of Black Rock : Naval lock (at the) : XII, 30; 6.

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Sea ports (continued) :

- Port of Boston: Average tonnage of vessels which came in the -- during 1905 and 1909 : XII. 69; 4.
- Channel depth : XII, 69; 4.
- Construction of concrete pier n° 1 : XII, 30.
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- Experiments with concrete piles of various composition: XII, 30; 21.
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- Port of Brunswick, Ga. : Entrance depth : XII, 62; 7, 8 — 64; 22, 24.
- Port of Calumet : Entrance depth : XII, 64; 22, 24.
- Port of Charlestown S. C. : Entrance depth : XII, 62; 6 — 64; 22, 24.
- Port of Columbia River (Mouth) : Entrance depth : XII, 64; 23, 25.
- Port of Galveston : Entrance depth : XII, 64; 22, 25.
- Port of Mobile : Entrance depth : 62; 7, 8 — 64; 22, 24.
- Port of New Bedford : Entrance depth : XII, 64; 22, 24.
- Port of New Haven, Conn. : Entrance depth : XII, 62; 7, 8 — 64; 22, 24.

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Sea ports (continued) :

- Port of Newport R. I. : Entrance depth : XII, 64; 22, 24.
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- Bridges : XII, 102; 26 — 105; 12, 13, 17.
- Bush Terminal C^o Plant : R. P. 322.
- Communications between the river sides : XII, 102; 24, 25, 26, 27 — 105; 3, 4, 8, 9, 12, 17 — 106; 22. R. P. 323.
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- Construction (of the) : XII, 23; 14.
- Costs of the quay walls : XII, 30; 9.
- Deepening (of the) : XII, 82; 3, 8, 18.
- Depth of the Ambrose channel : XII, 62; 15 — 68; 28 — 69; 4 — C. R. 342, 344.
- Development (of the) : XII, 21; 6, 8 — 23; 2, 5, 14.
- Dredges of the Denver system (at the) : XII, R. P. 352.
- Dredgings in the Ambrose channel : XII, 4; 2 — 82; 8 — R. P. 167.
- Entrance depth : XII, 62; 14, 19 — 64; 23, 25 — 68; 28.
- Examples of disaggregation of concrete (at the) : XII, 30; 21, 22.

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Sea ports (continued) :

- Goods transfer : costs : XII, 105; 7.
- Jetties (at the) : XII, C. R. 156 — see also *Piers*
- Lighting of Gedney channel : XII, 114; 2.
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- Piers (at the) : XII, 21; 8 — 23, 6.
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- Quay walls (at the) : XII, 28; 16 — 30; 9, 20.
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- Statistics of passenger traffic : XII, 68; 19.
- Storage battery trucks employed at the Erié Pier : XII, R. P. 328.
- Tide elevation : XII R. P. 2.
- Tonnage of boats crossing North River : XII, 105; 6.
- Traffic (at the) : XII, 46; 5 — 48; 1, 13 — 68; 19 — 105; 6.
- Traffic on ferry-boats and car floats (at the) : 102; 24, 29 — 105; 3, 4, 8, 12, 17. R. P. 323.
- Tunnels (at the) : XII, 102; 25 — 105; 8 — 106; 22.
- West Bank Lighthouse : XII, 28.

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Sea ports (continued) :

- Port of New Orleans : XII, 21; 2.
- Entrance depth : XII, 64; 23, 25.
- Equipment for the handling of cotton (project) : XII, R. P. 326.
- Equipment for goods transshipment; railroad junctions : XII, 21; 14 — 23bis; 9, 17. R. P. 261, 267.
- Government (of the) : XII, 21; 14 — 23bis; 9, 17.
- Tide elevation : XII, R. P. 262.
- Wharves (at the) : XII R. P. 326.
- Port of Norfolk (Va.) : Entrance depth : XII, 62; 6 — 64; 22, 24.
- Port of Oswego : Entrance depth : XII, 64; 22, 25.
- Port of Pensacola : Entrance depth : XII, 64; 22, 25.
- Port of Philadelphia : Car tipples for handling cargocoal : XII, R. P. 325.
- Entrance depth : XII, 64; 22, 24.
- Importance (of the) : XII, R. P. 154.
- Junction with tracks of various railroad companies : XII, 21; 10 — 23bis; 14.
- Ferries crossing the Delaware : XII, 105; 1.
- Quay walls (at the) : XII, 28; 16 — 30; 9.
- Port of Point Judith, R. I. : Breakwater (at the) : XII, 94; 6.
- Port of Portland Me. : Entrance depth : XII, 64; 23, 25.
- Special cranes (with bu-

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Sea ports (continued) :

- ckets), for discharging coal : XII, R. P. 325.
- Port of Portland, Me. : Entrance depth : XII, 64; 23, 25.
- Special cranes (with buckets) for discharging coal : XII, R. P. 325.
- Port of Portland, Ore : Entrance depth : XII, 64; 22, 24.
- Port of Portsmouth, N. Y. : Entrance depth : XII, 64; 23, 25.
- Port of Providence, R. I. : Entrance depth : XII, 62; 6 — 64; 22, 24.
- Port of San Diego : Entrance depth : XII, 62; 6 — 64; 23, 24.
- Port of San Francisco : Administration (of the) : XII, 21; 14 — 23bis; 17.
- concrete sea dyke at Fort Mason : XII, 28; 15 — 30; 10.
- concrete pier (in construction) : XII, 28; 17 — 30; 13.
- Entrance depth : XII, 64; 23, 25.
- Ferry - boats employed (at the) : XII, 105; 1.
- Port of San Pedro, Cal. : Breakwater : XII, 94; 6.
- Entrance depth. : XII, 62; 6, 8 — 64; 22, 24.
- Port of Santa Monica, Cal. : Entrance depth : XII, 64; 23, 25.
- Port of Savannah Ga. : Entrance depth : XII, 62; 6, 8 — 64; 22, 24.
- Port of Seattle, Wash. : Entrance depth : XII, 64; 23, 25.
- Port of South Amboy, N. Y. : Car tipple for cargo coal (at the) : XII, R. P. 325.

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Sea ports (continued) :

- Port of Tacoma, Wash. : Entrance depth : XII, 64; 23, 25.
 - Port of Velasco : Entrance depth : XII, 64; 23, 24.
 - Port of Washington D. C. : Entrance depth : XII, 62; 8 — 64; 22, 24.
 - Port of Wilmington, Del. : Entrance depth : XII, 62; 6, 8 — 64; 22, 24.
 - Port of Wilmington, N. C. : Entrance depth : XII, 64; 23, 24.
 - in *Uruguay* :
 - Port of Montevideo : Depth : XII, 64; 22, 25 — 68; 14.
 - in *Venezuela* :
 - Port of Macaraibo : Depth : XII, 64; 22, 24.
- Terminal ports* :
- Administration (of the) : XII, 21; 16 — R. P. 195, 272, 319, 323, 326, 329. See also : Disposition (of the).
 - Advantages and disadvantages of the ownership and maintenance by the harbour authorities of the railway tracks within the harbour terminal area : XII, 21; 3, 14.
 - Area of hinterlands (of the) : XII, 22; 4.
 - Connection of the railway network with the harbour : XII, 22; 6 — 23; 7 — 23bis; 5, 6, 9, 14, 16 — 24; 4, 9. See also *Railroads*.
 - Disposition (of the) : XII, 21; 1, 3, 5, 9, 13, 17, 18 — 22; 1, 6, 18, 22 — 23; 3, 5, 16 — 23bis; 1, 3, 5, 9, 14, 16, 17, 29 — 24; 1, 8, 13 — 27; 2 — 46; 5, 6 — 48; 12, 14 — R. P. 257, 258, 261, 264, 267, 389. See also : Administration (of the).

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- Reinforced concrete* : Application to maritime works (continued) :
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