

309

LABOCHÉ

TRAVAUX

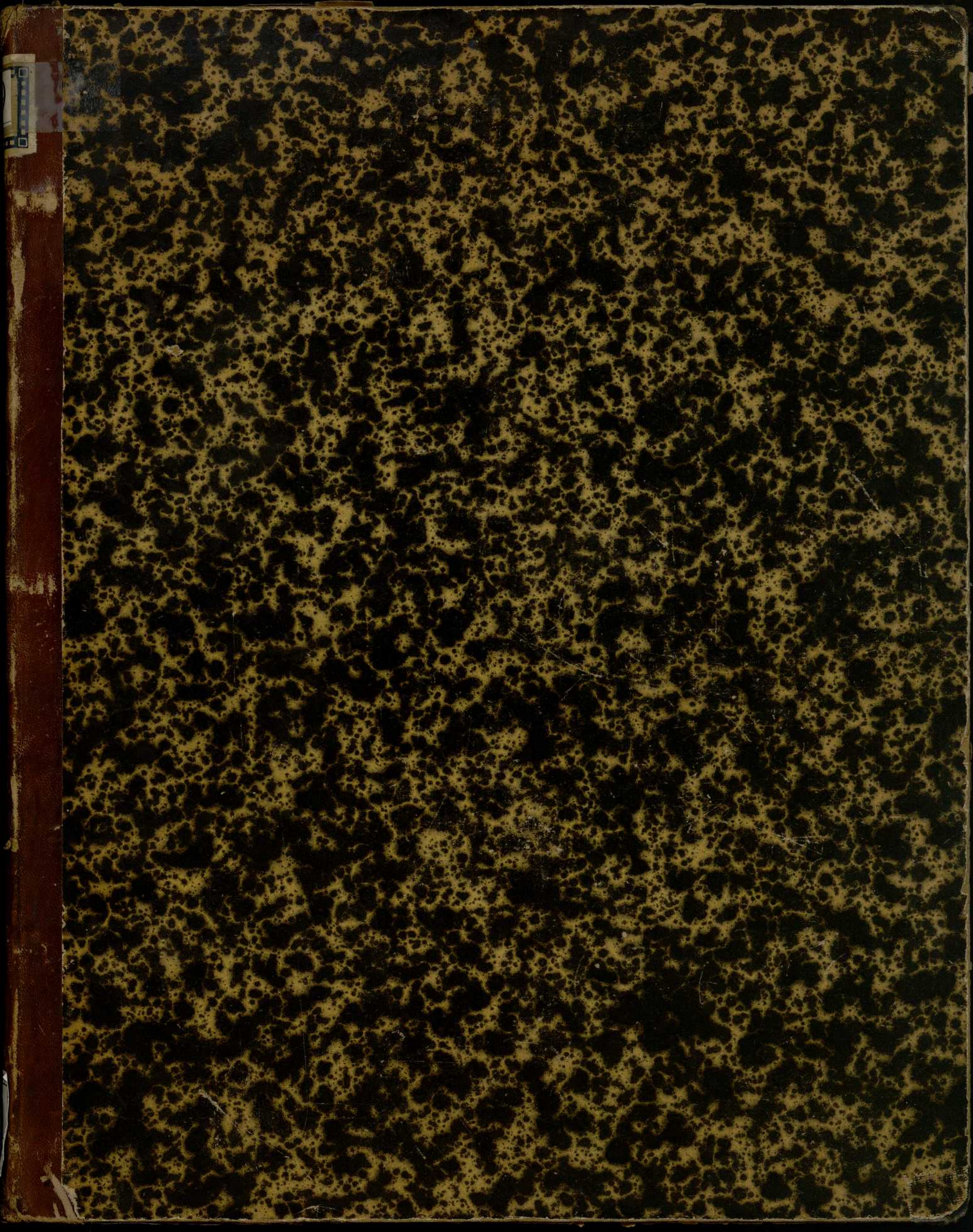
MARITIME

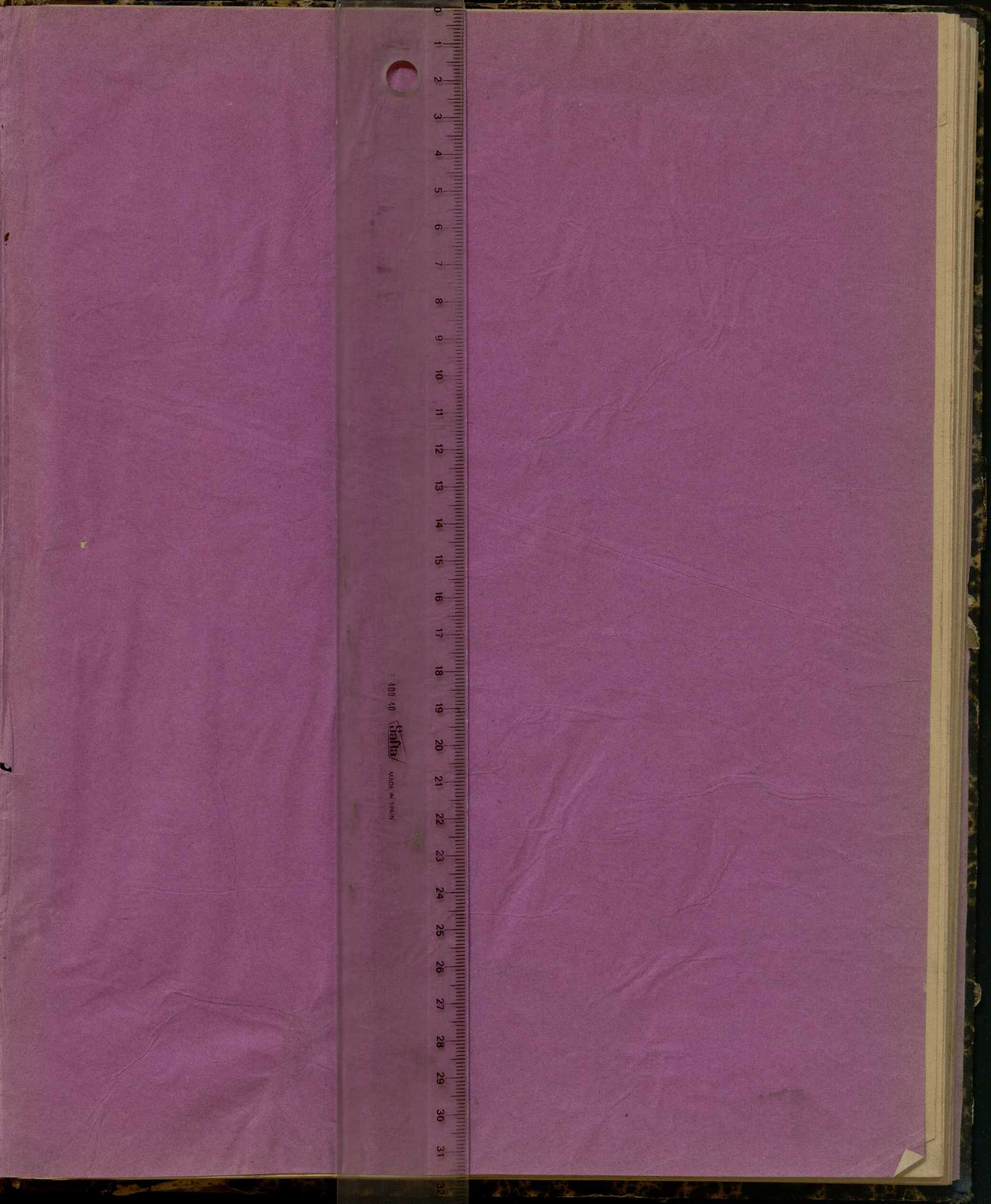
ATLAS

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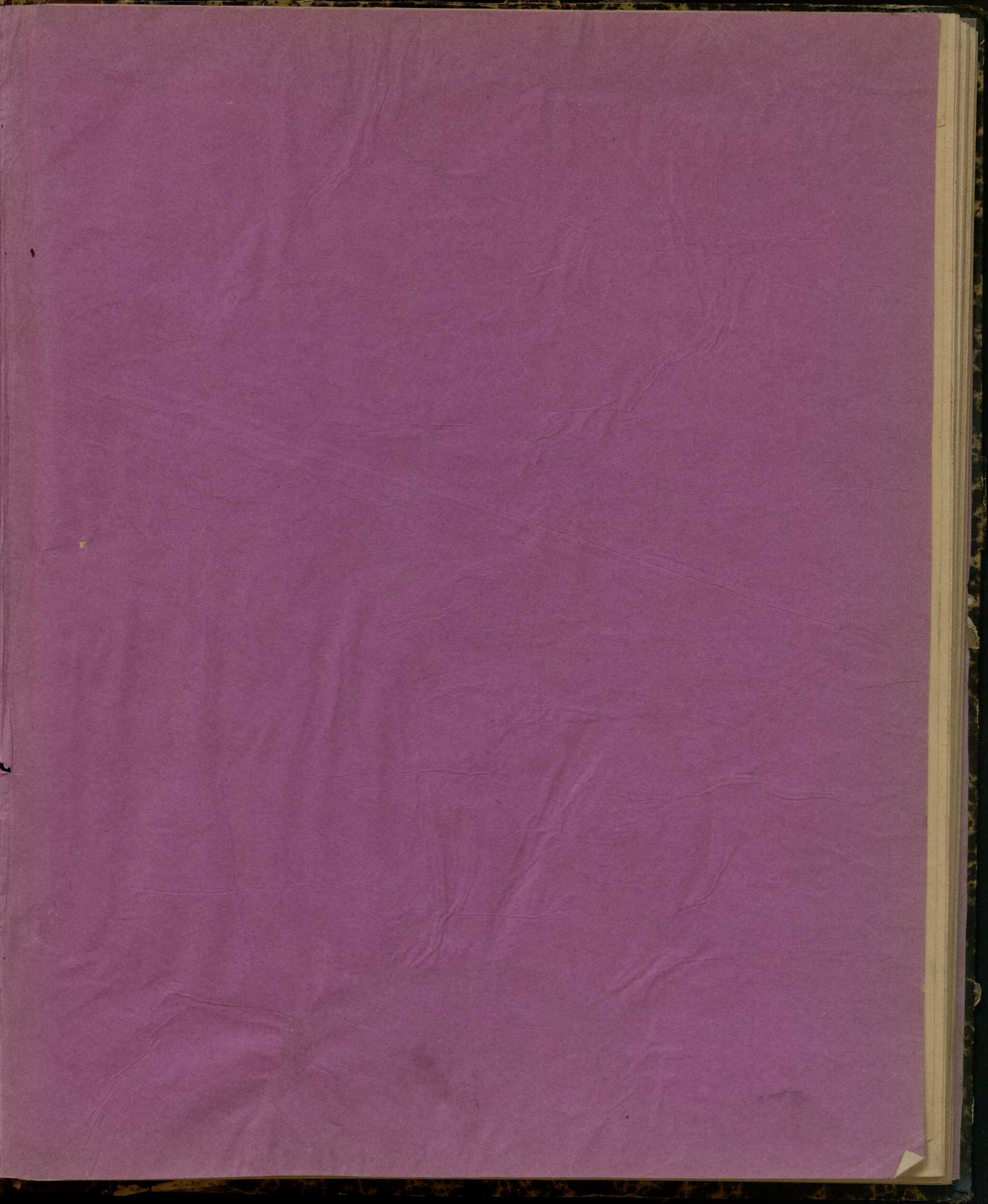




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FONDÉE PAR

M.-C. LECHALAS

Inspecteur Général des Ponts et Chaussées

Médaille d'Or à l'Exposition Universelle de 1889

TRAVAUX MARITIMES

PHÉNOMÈNES MARINS. — ACCÈS DES PORTS

PAR

F. LAROCHE

INGÉNIEUR EN CHEF

PROFESSEUR DU COURS DE TRAVAUX MARITIMES A L'ÉCOLE NATIONALE DES PONTS ET CHAUSSEES

ATLAS

PARIS

LIBRAIRIE POLYTECHNIQUE, BAUDRY & C^{IE}

15, Rue des Saints-Pères, 15

MÊME MAISON A LIÈGE

1891

Tous droits réservés



TRAVAUX MARITIMES

PHÉNOMÈNES MARINS. ACCÈS DES PORTS

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Fig. 1. Courbes cotidiales du Globe, d'après Lubbock. — 1839.

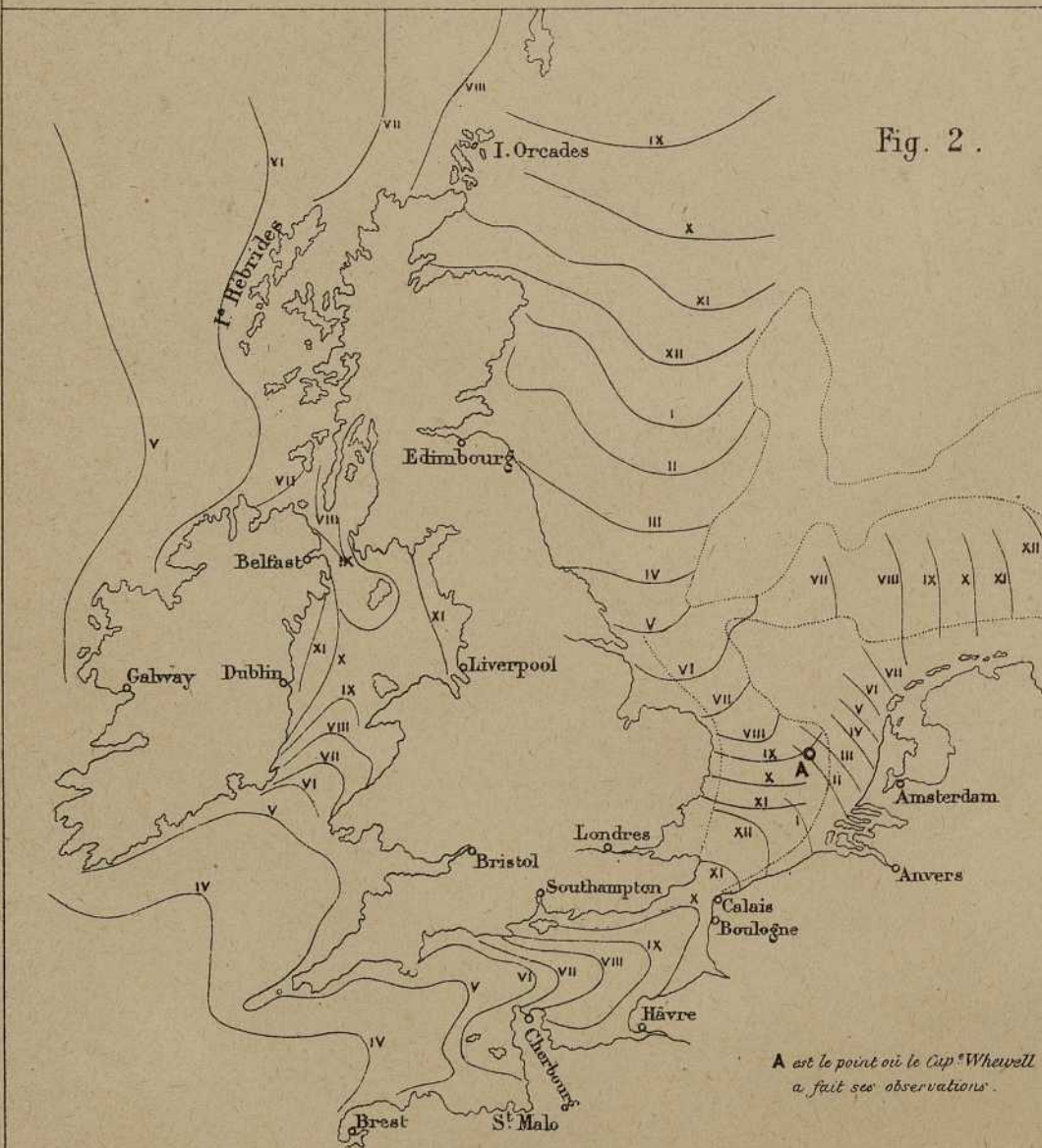
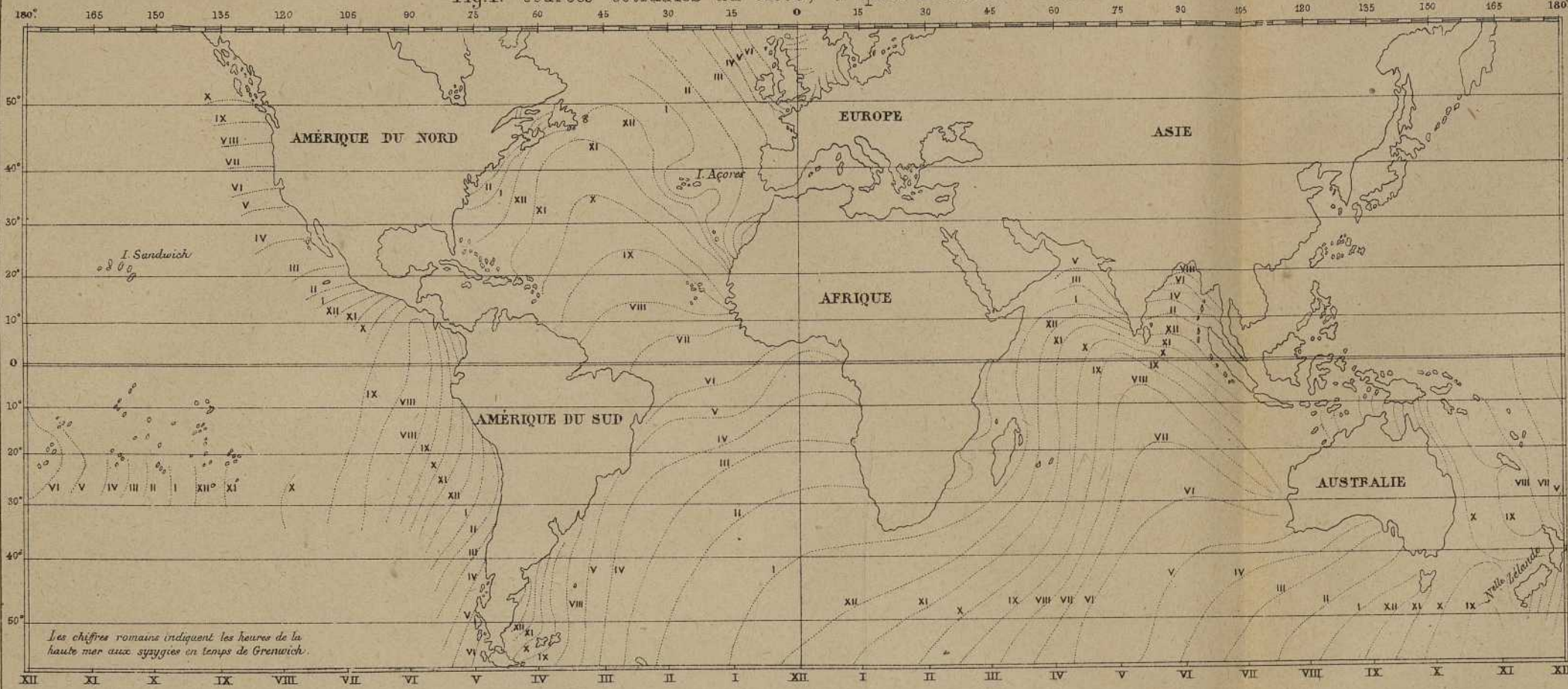
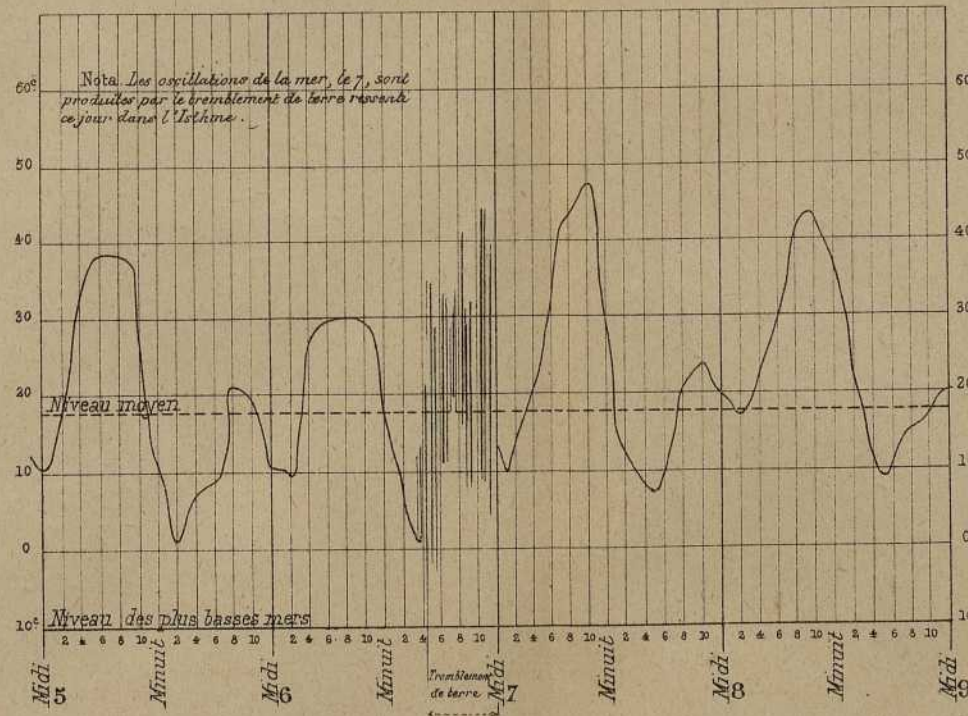
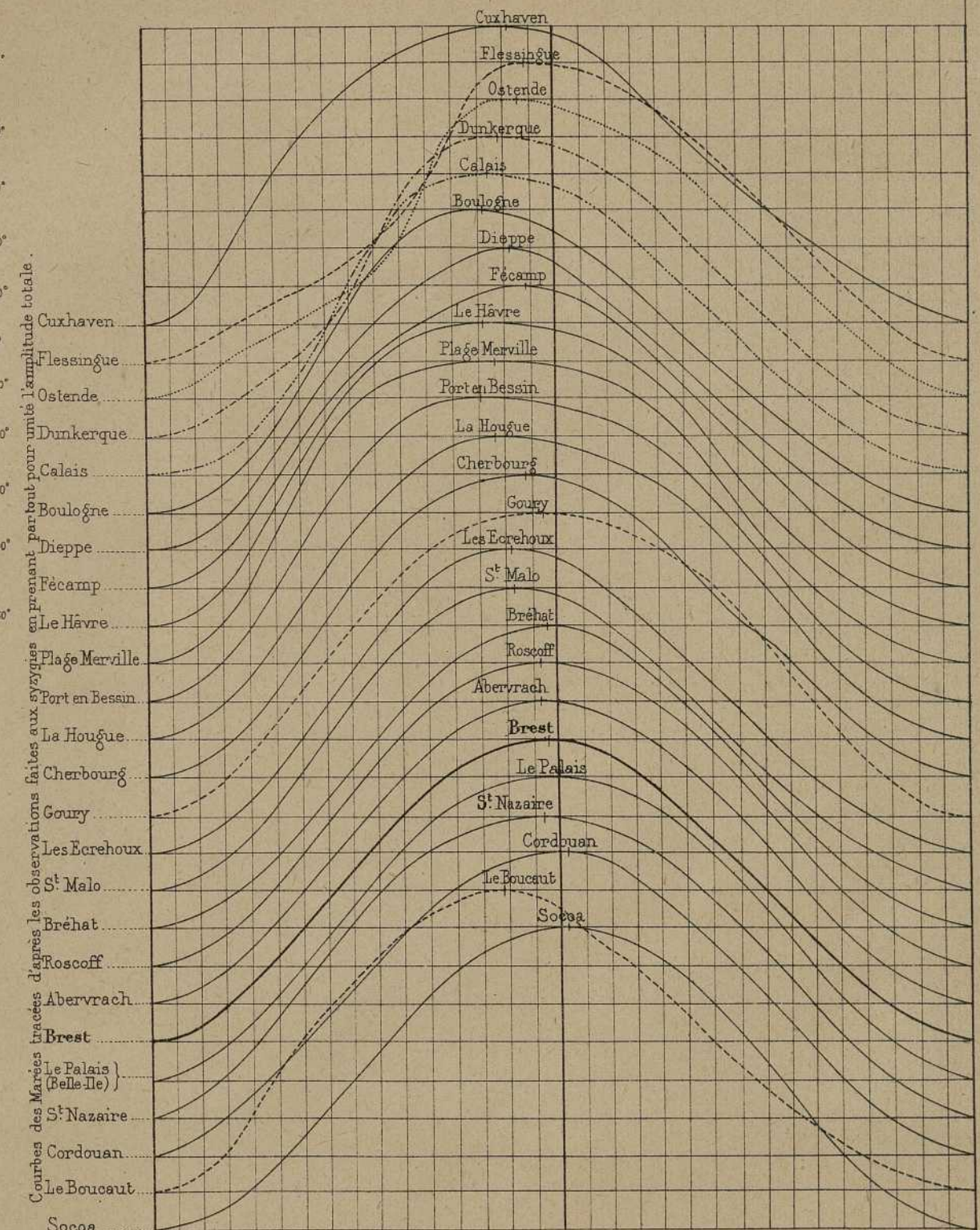
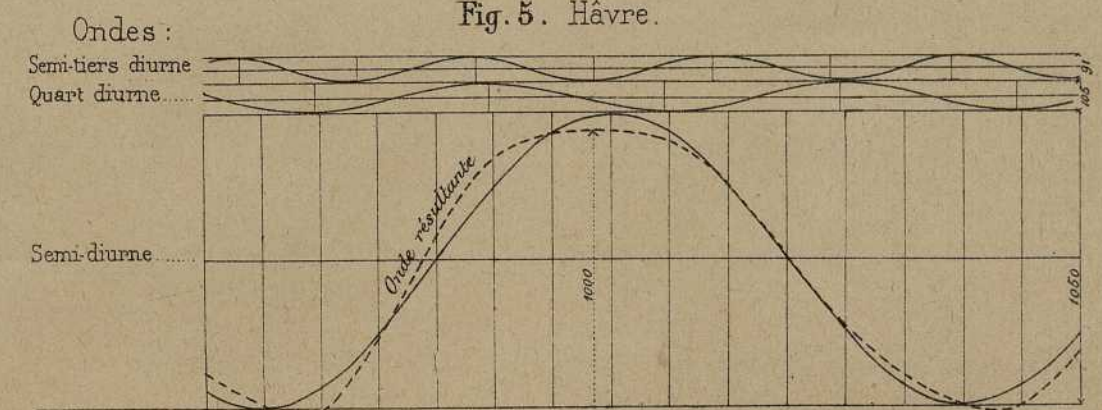
Fig. 3. Panama.
Courbes du marégraphe de Colon. — Septembre 1882.Fig. 4. Tableau dressé par M^r Chazallon en Novembre et Décembre 1839.

Fig. 5. Havre.



[illegible]

Fig. 6

A diagram illustrating the flow of water around a central island labeled "Ile d'Aurigny". The flow is represented by a series of curved lines (streamlines) that curve around the island. Arrows on these lines indicate the direction of flow, which is generally from the upper left towards the lower right. The flow is more concentrated and faster (indicated by longer arrows) in the narrow passages between the island and the surrounding landmasses. The island itself is depicted with a detailed, irregular shoreline.

Fig. 3.

Cap de la Hague

Anse St. Martin

A diagram of a three-armed pendulum. It features a curved base with three arms extending upwards to a common point. A vertical line descends from this point. The left arm is labeled $\theta = 20^\circ$. The base is labeled *Vert au plomb*.

Fig. 9 .

[illegible]

Observations de 1871 à 1876.

Fig1. Position des postes d'observation

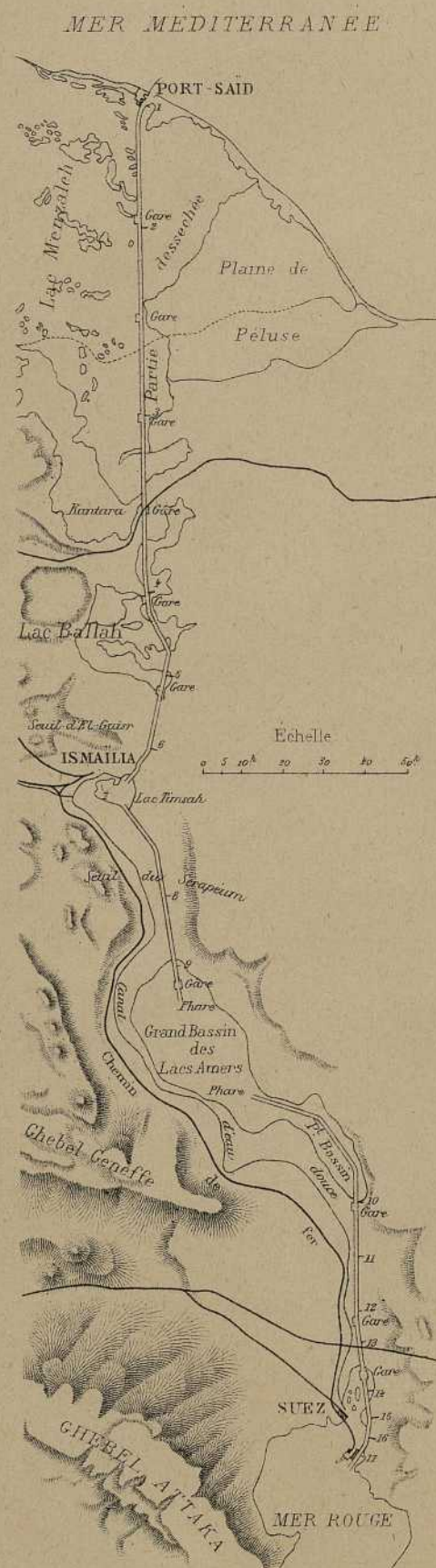
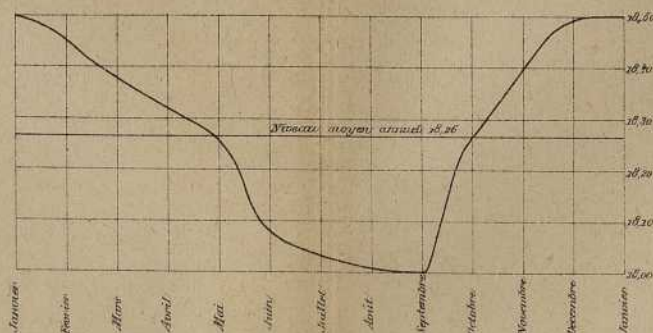


Fig2. Courbe des niveaux moyens mensuels de la Méditerranée à Port-Saïd



Fig3. Courbe des niveaux moyens mensuels de la mer Rouge à Suez



PORT DE PORT SAÏD

Fig4. Courbe moyenne des vitesses des courants l'entrée du Canal Maritime pendant les syzygies

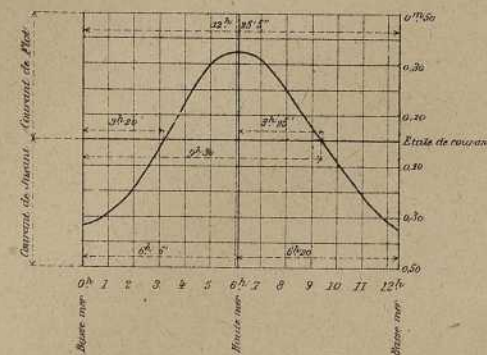
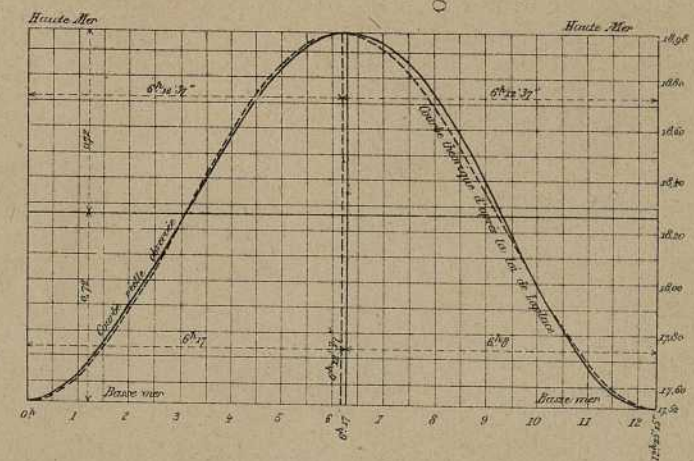


Fig5. Courbe moyenne d'ascension et de descente des marées de vives eaux de la mer Rouge à Suez



PORT DE SUEZ

Fig6. Courbe moyenne des vitesses des courants devant le Terre-plein pendant les syzygies

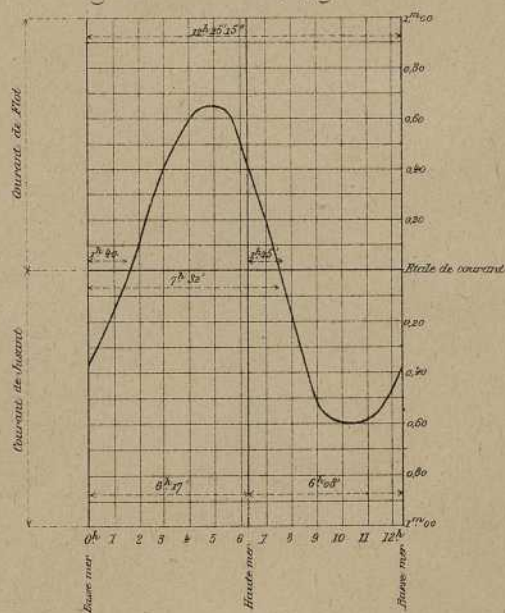


Fig7. Courbe moyenne des vitesses des courants pendant les quadratures

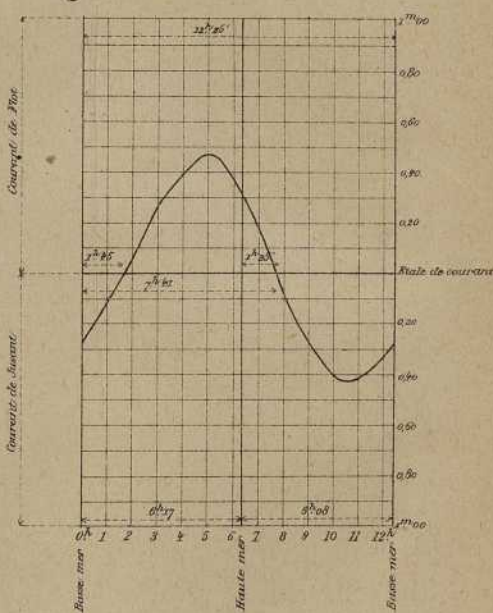


Fig8. Courbe moyenne des vitesses des courants à l'entrée du Canal Maritime pendant les syzygies

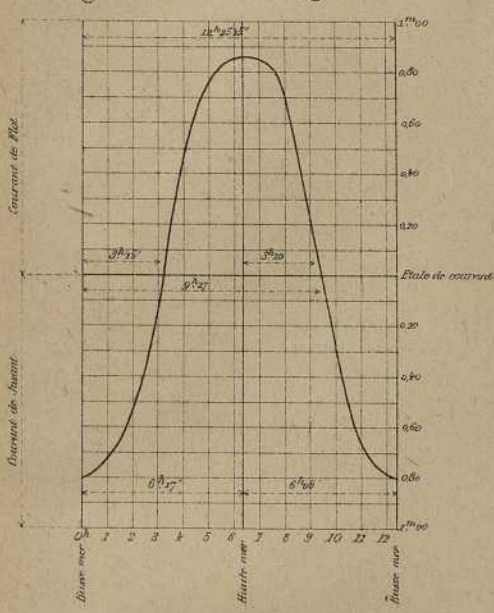
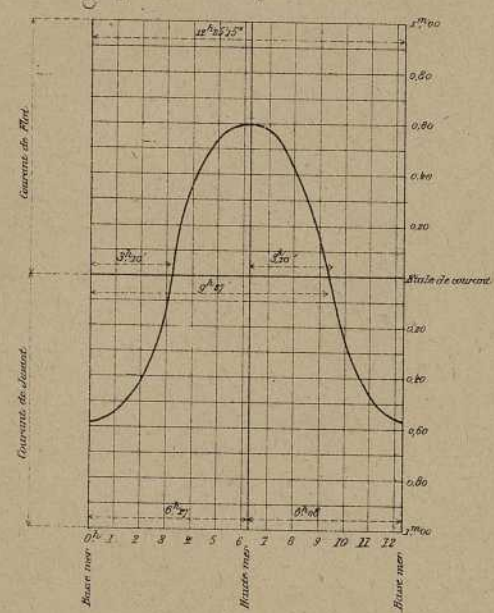


Fig9. Courbe moyenne des vitesses des courants pendant les quadratures



CHALOUF

Fig10. Courbe moyenne des vitesses des courants pendant l'été

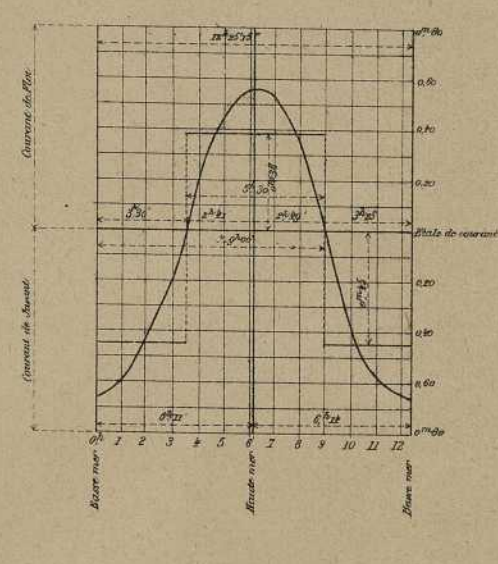


Fig11. Amplitudes moyennes des marées de vives eaux dans le Canal Maritime

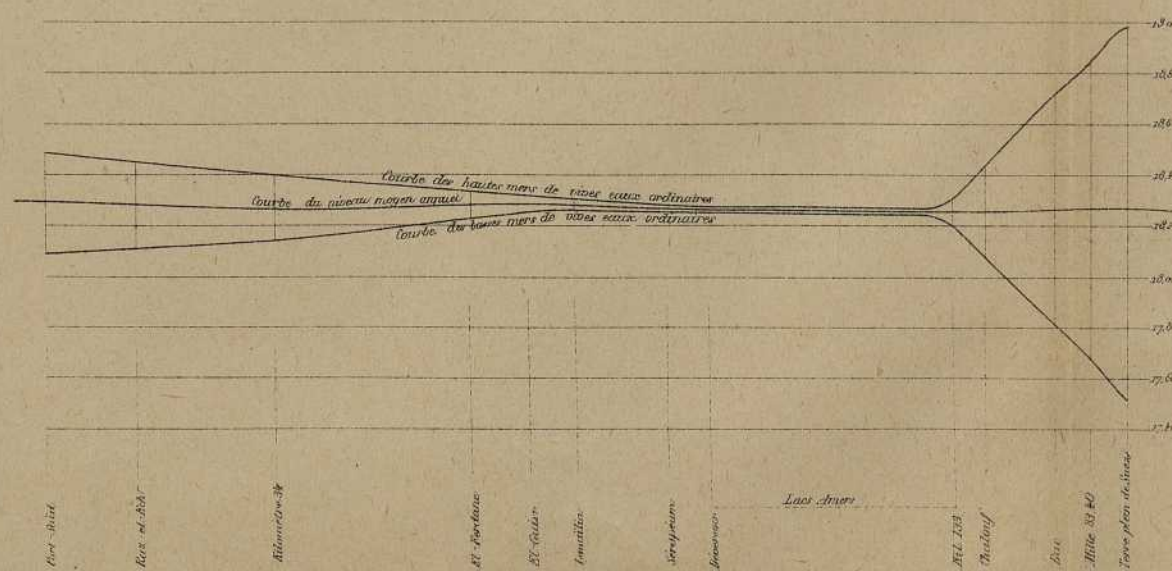


Fig12. Niveaux moyens des eaux dans le Canal Maritime pendant les mois de Janvier et de Septembre

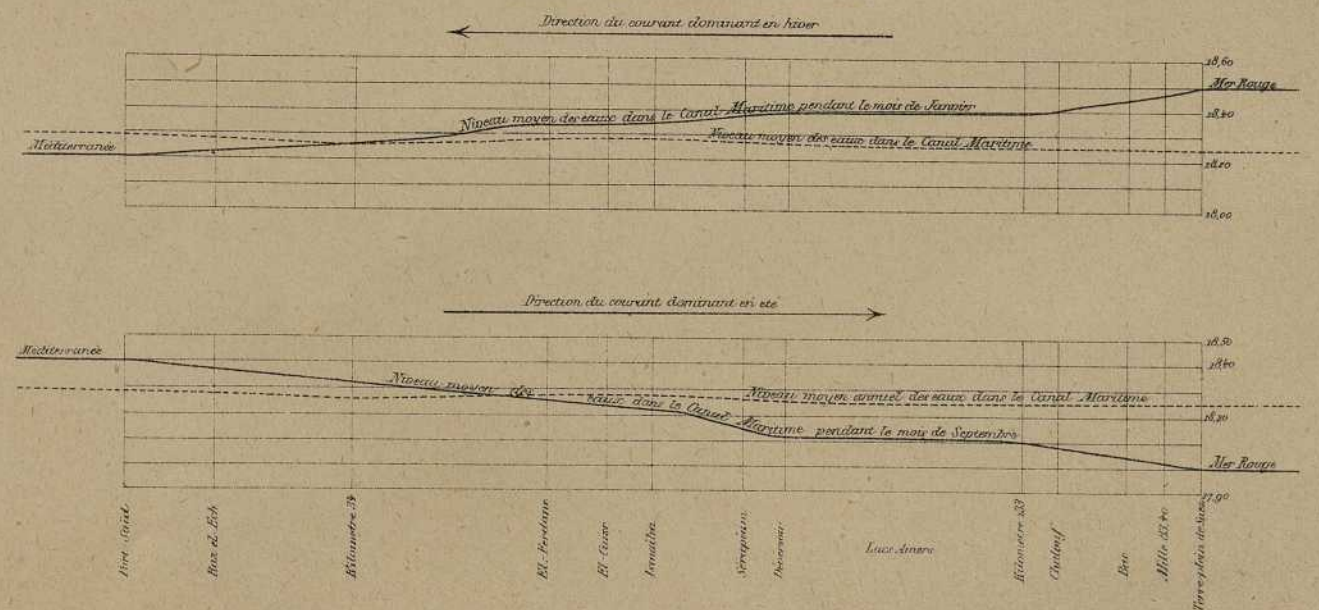


Fig.2. Lieux géométriques des pleines mers et des basses mers observées sur la Seine en temps d'étiages

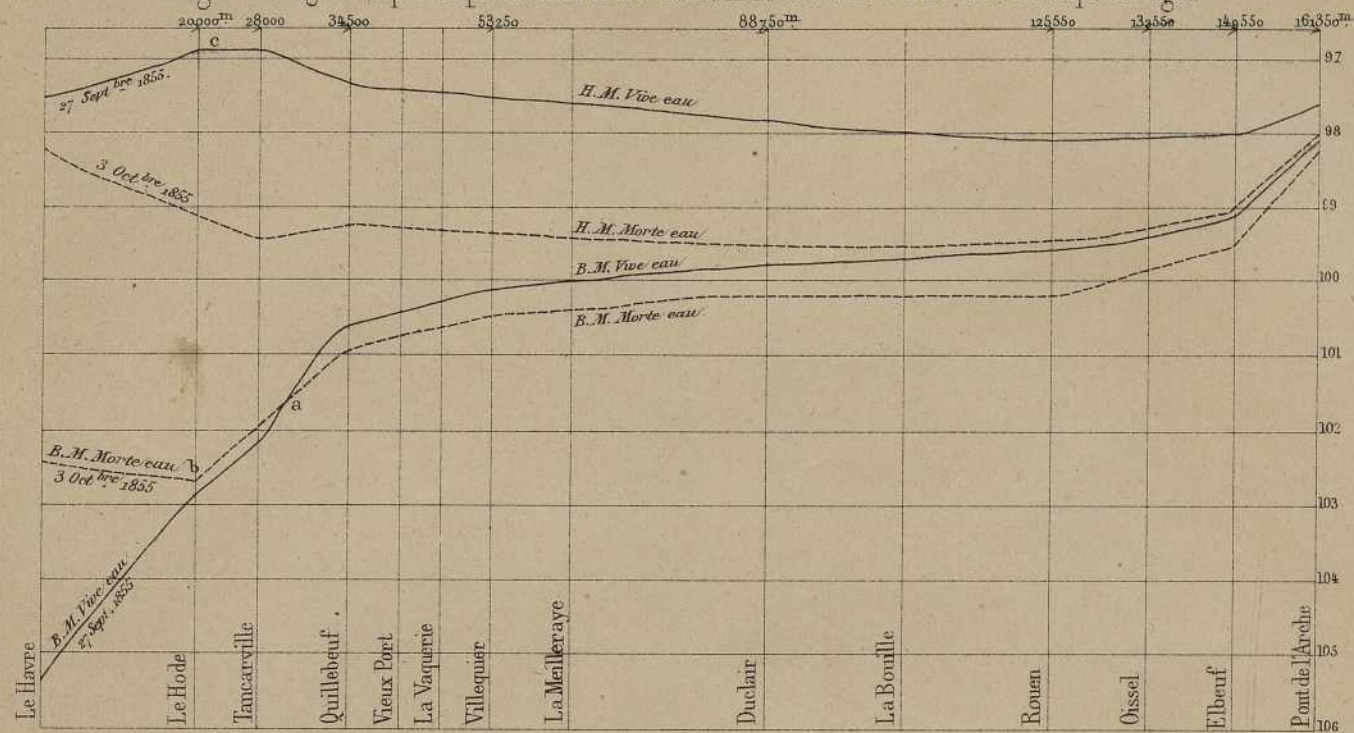


Fig.3. Courbes locales relevées sur la Seine le 18 Août 1856 en vive eau et en étiage

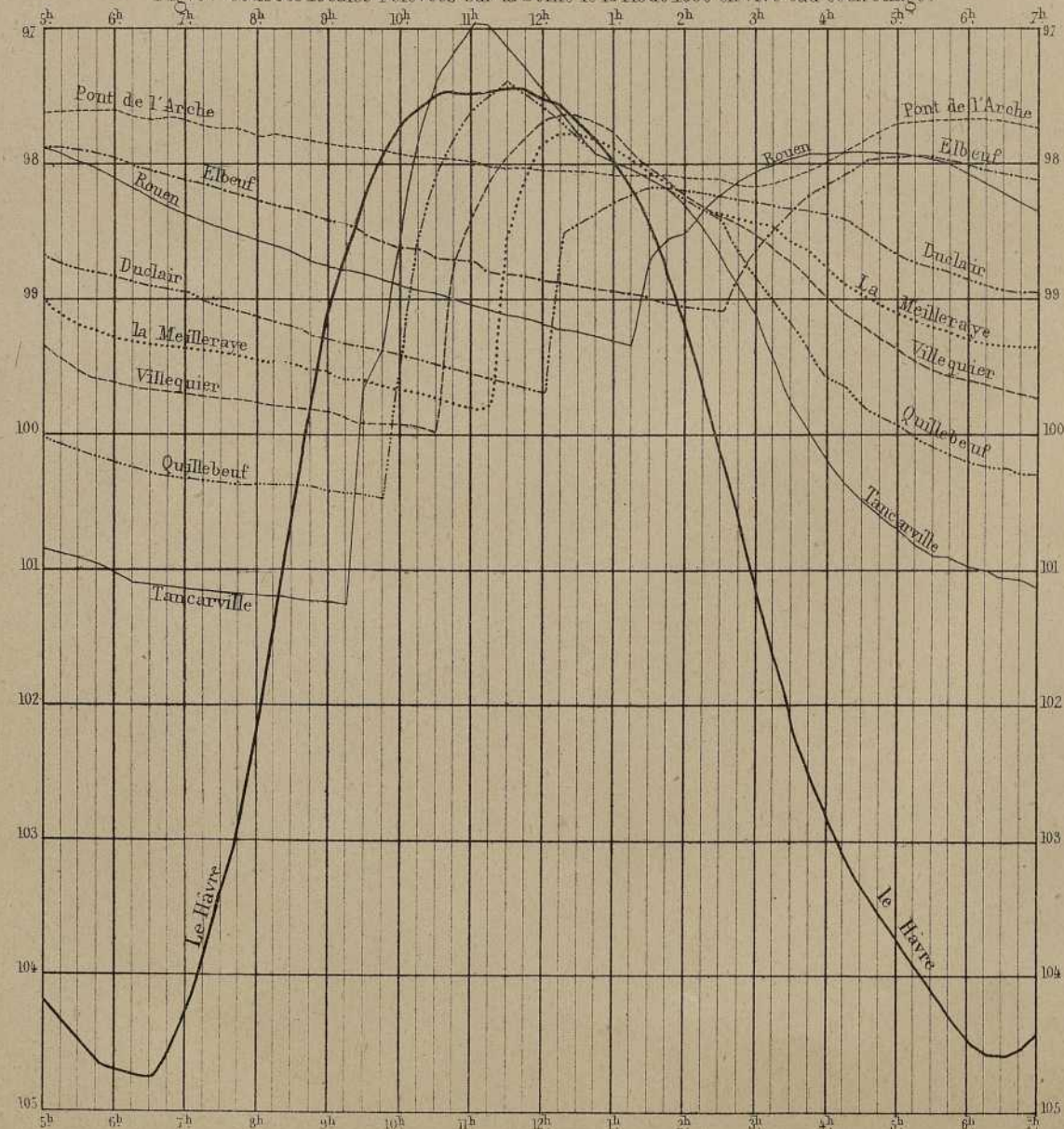


Fig.1. Seine maritime

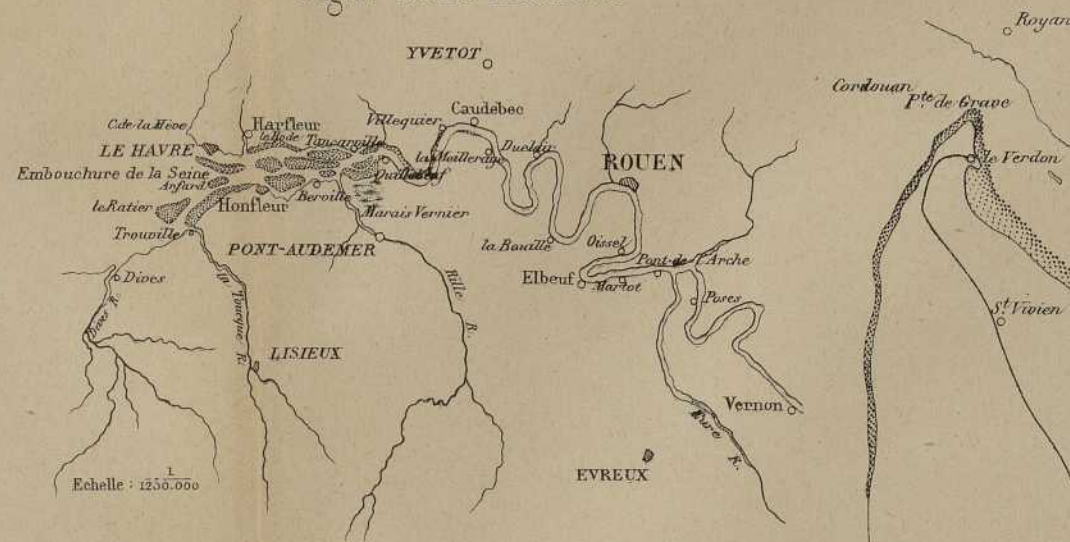


Fig.4. Gironde.

Echelle de 1:500.000

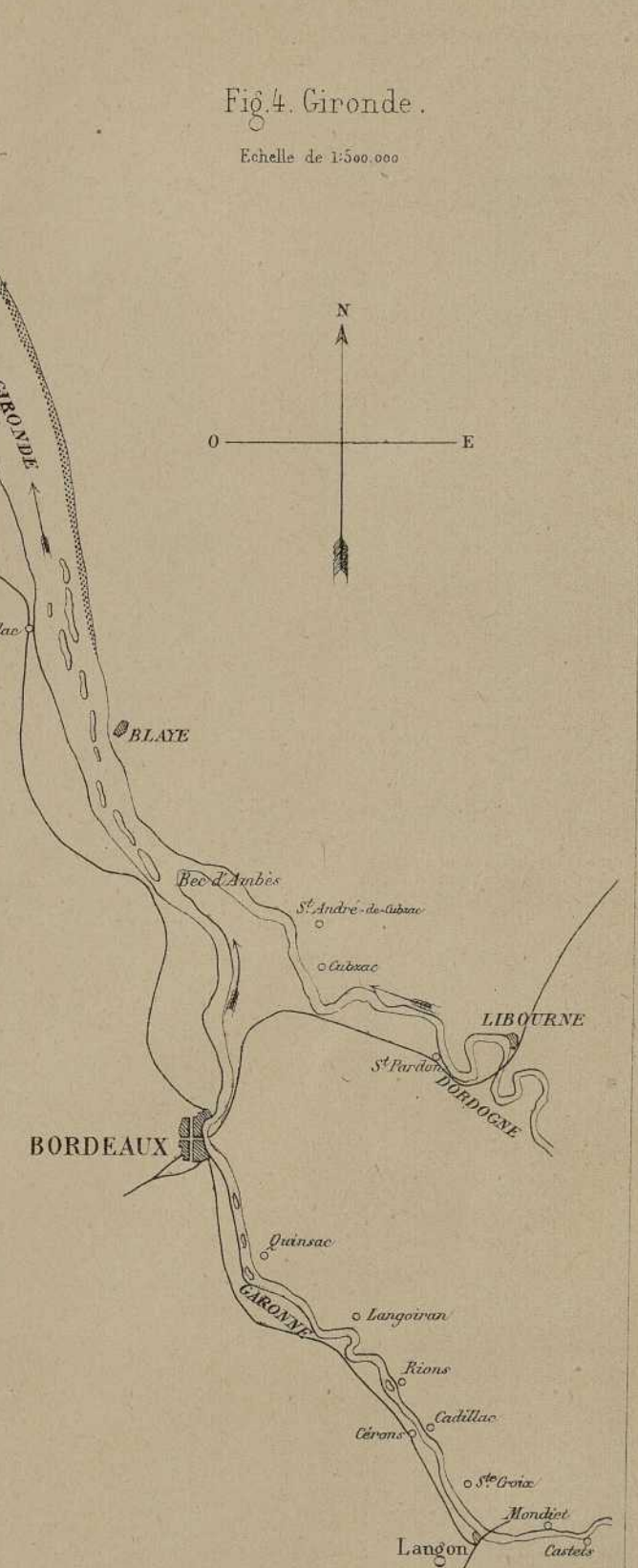


Fig. 5. Profils momentanés de la Garonne et de la Gironde le 6 Septembre 1846 en vive eau et près de l'étiage.

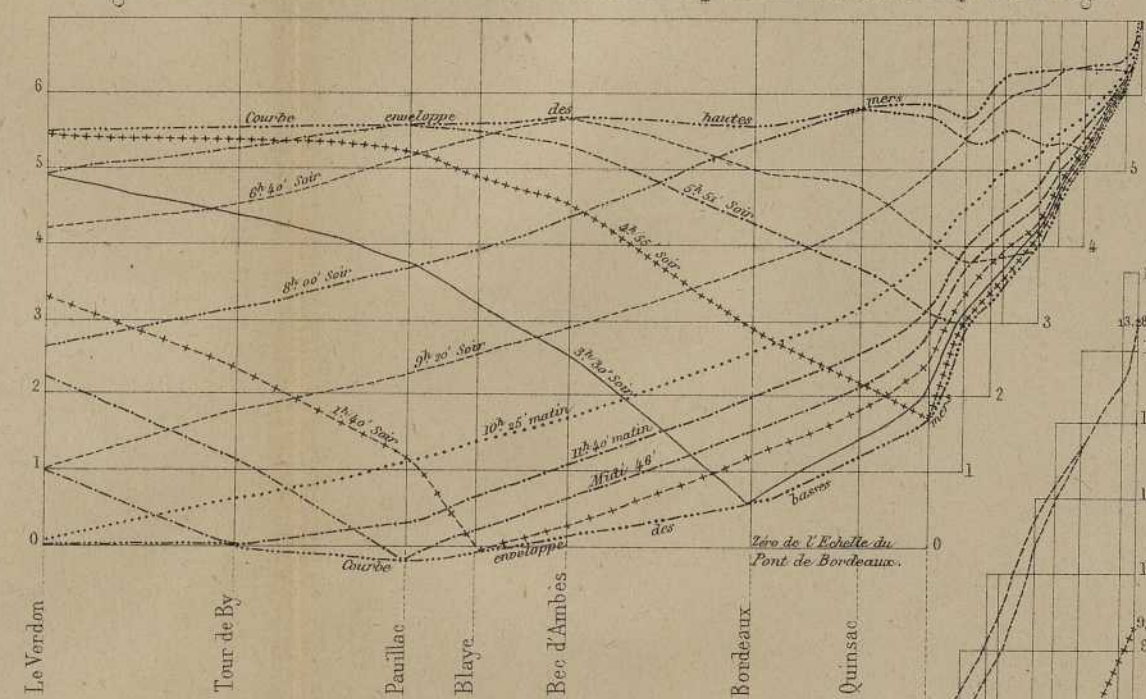
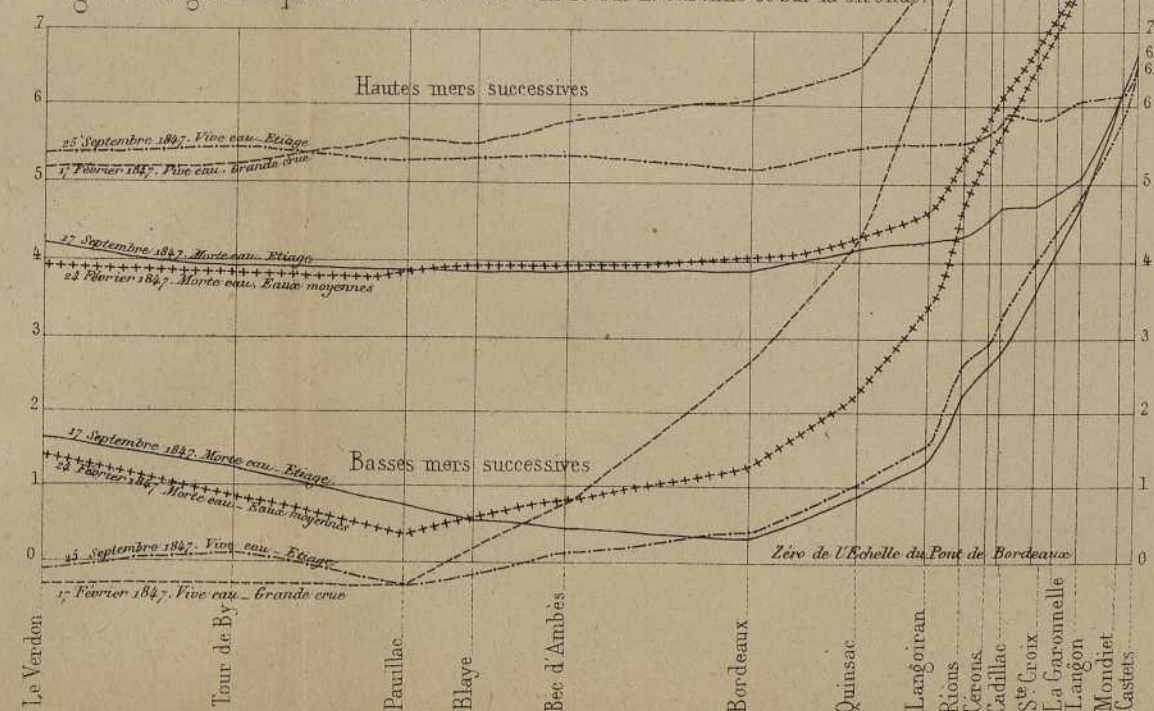
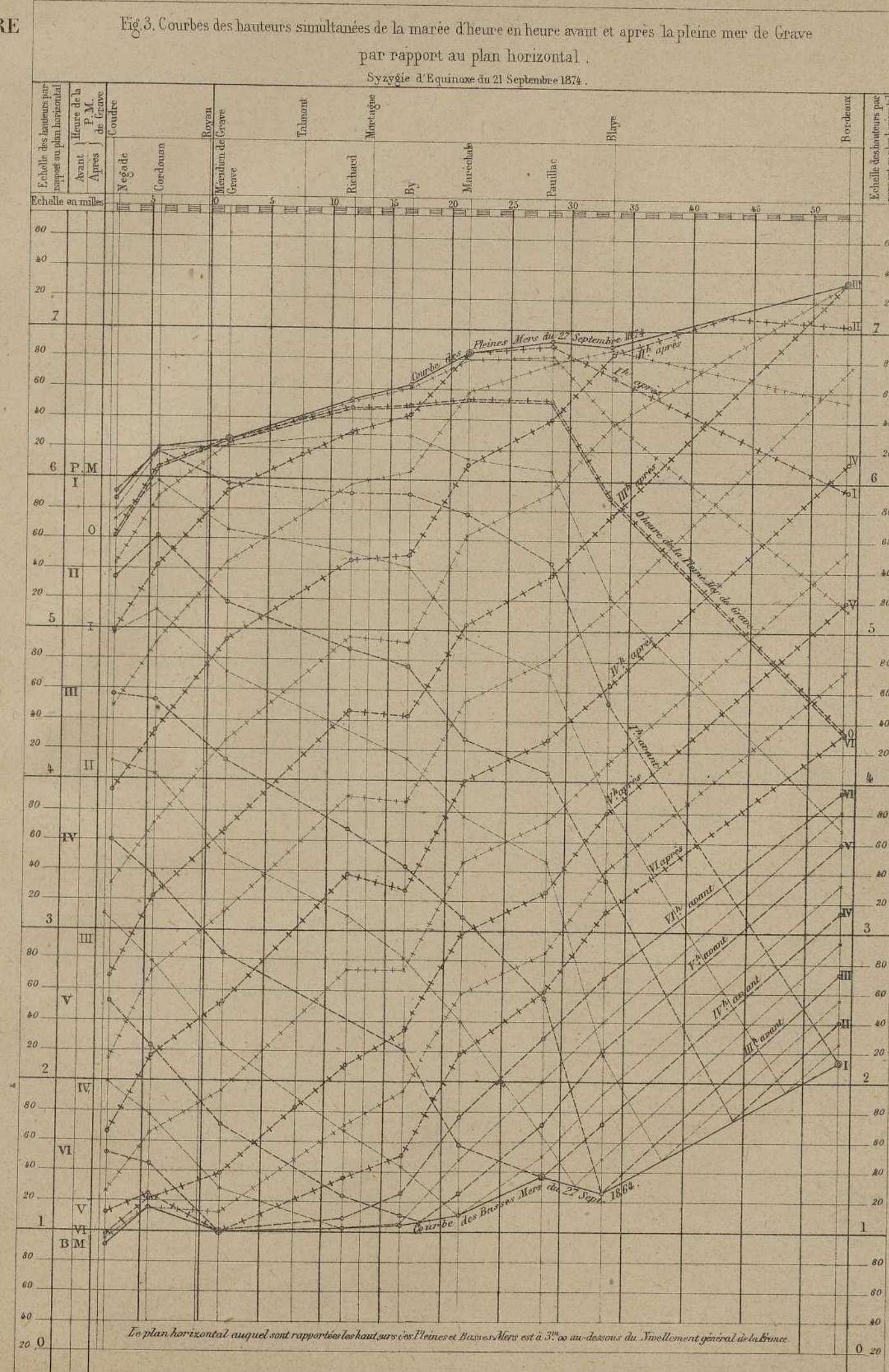
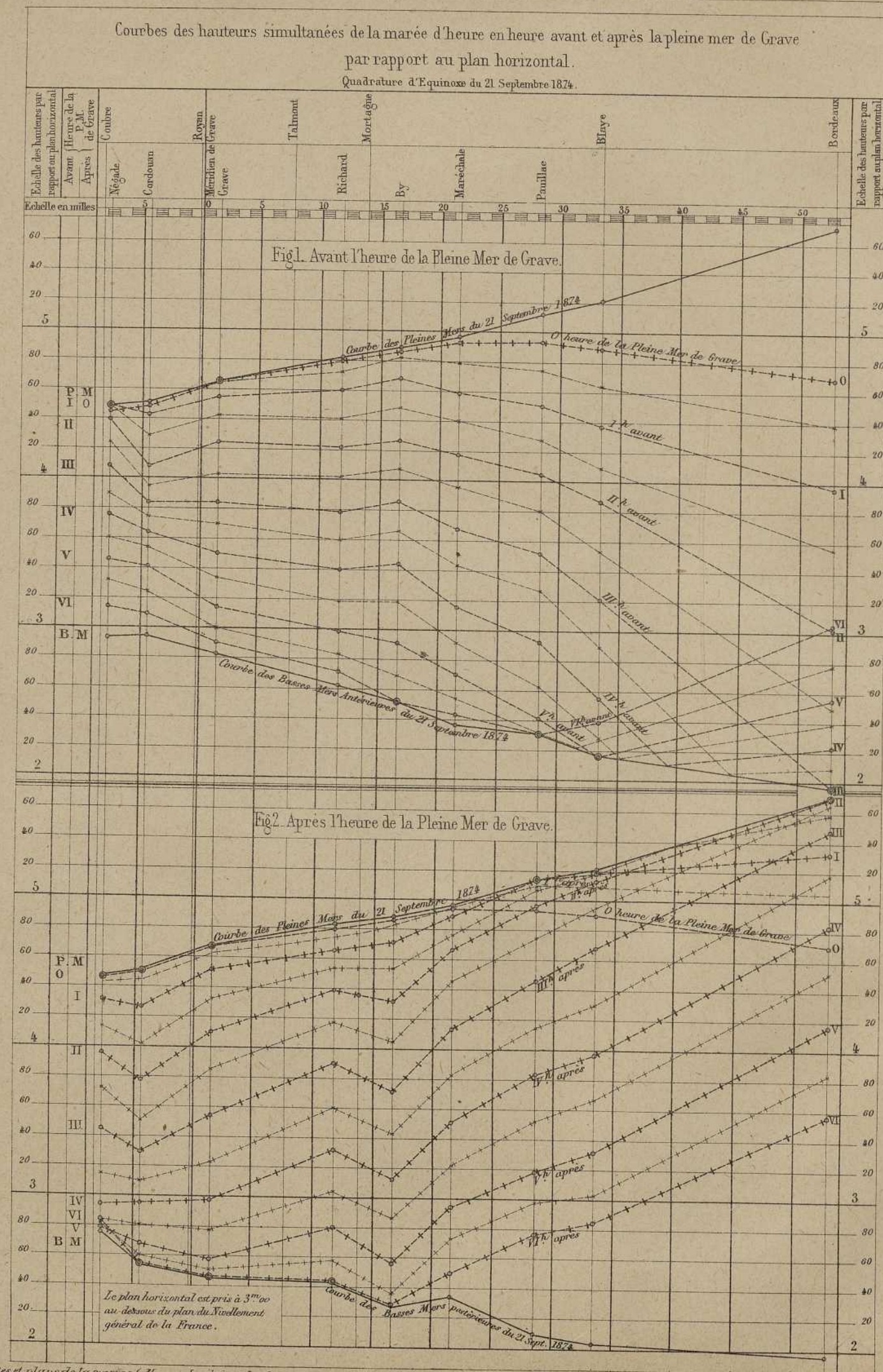


Fig. 6. Lieux géométriques des hautes et basses mers sur la Garonne et sur la Gironde.



EMBOUCHURE
de la
GIRONDE

Courbes locales relevées sur la Gironde et sur la Garonne le 6 septembre 1846 en vive eau et près de l'étiage

Fig. 1. Entre le Verdon et Bordeaux.

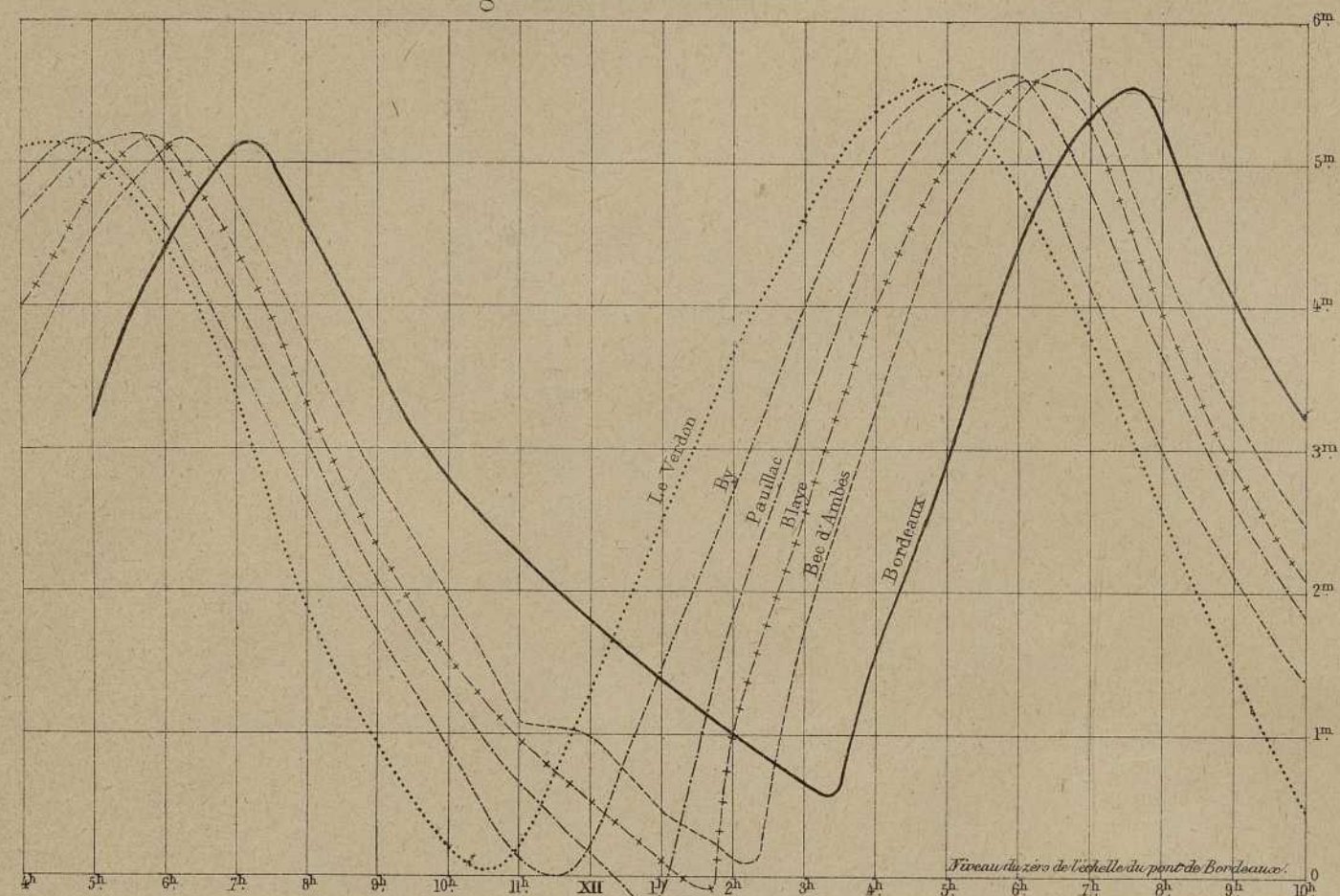


Fig. 2. Entre Bordeaux et Mondiet.

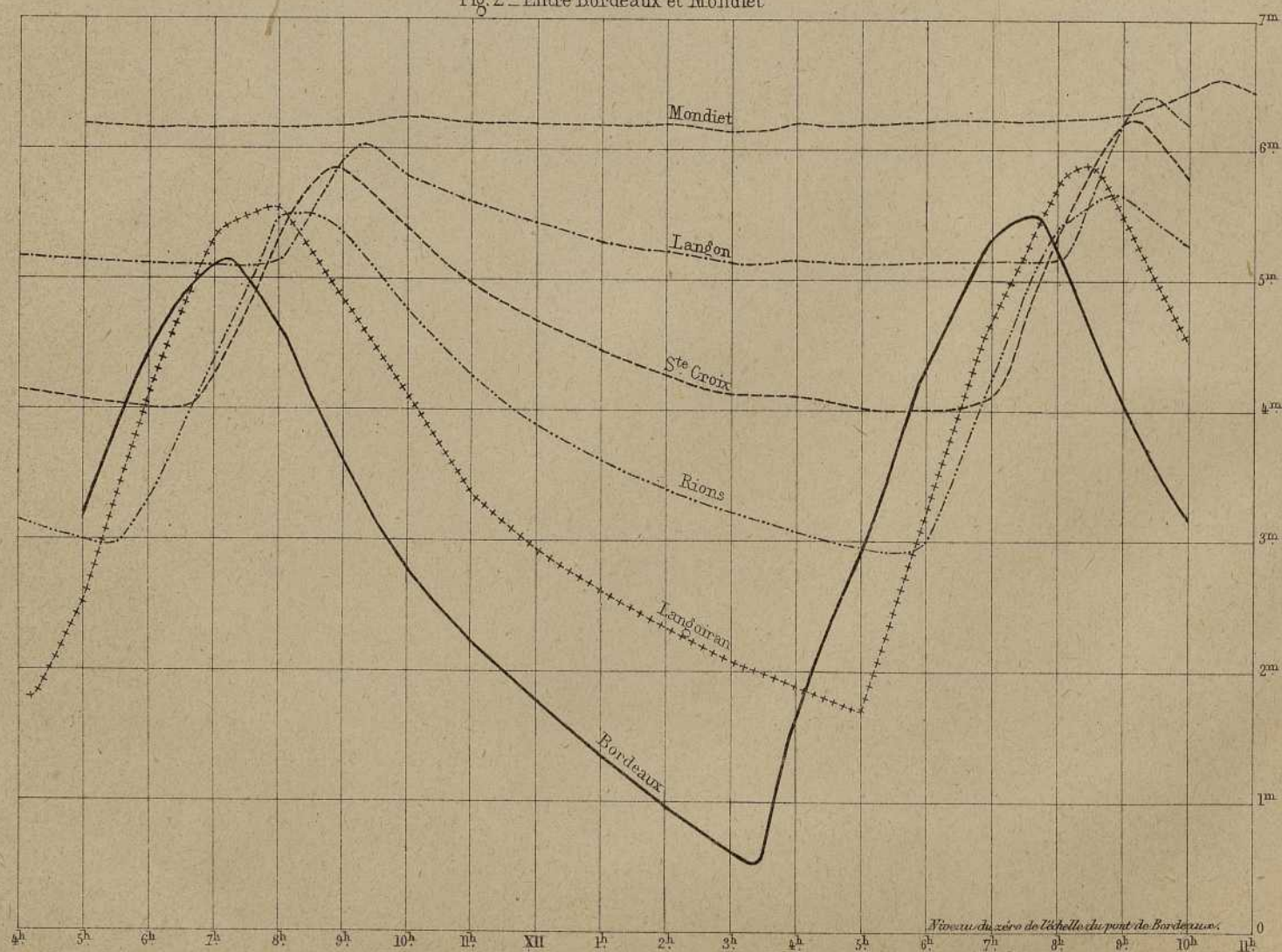
EMBOUCHURE
de la
GIRONDE

Fig. 3. Courbes des hauteurs des pleines et basses mers de Syzygie et de quadrature de Solstice et d'équinoxe par rapport au plan horizontal.

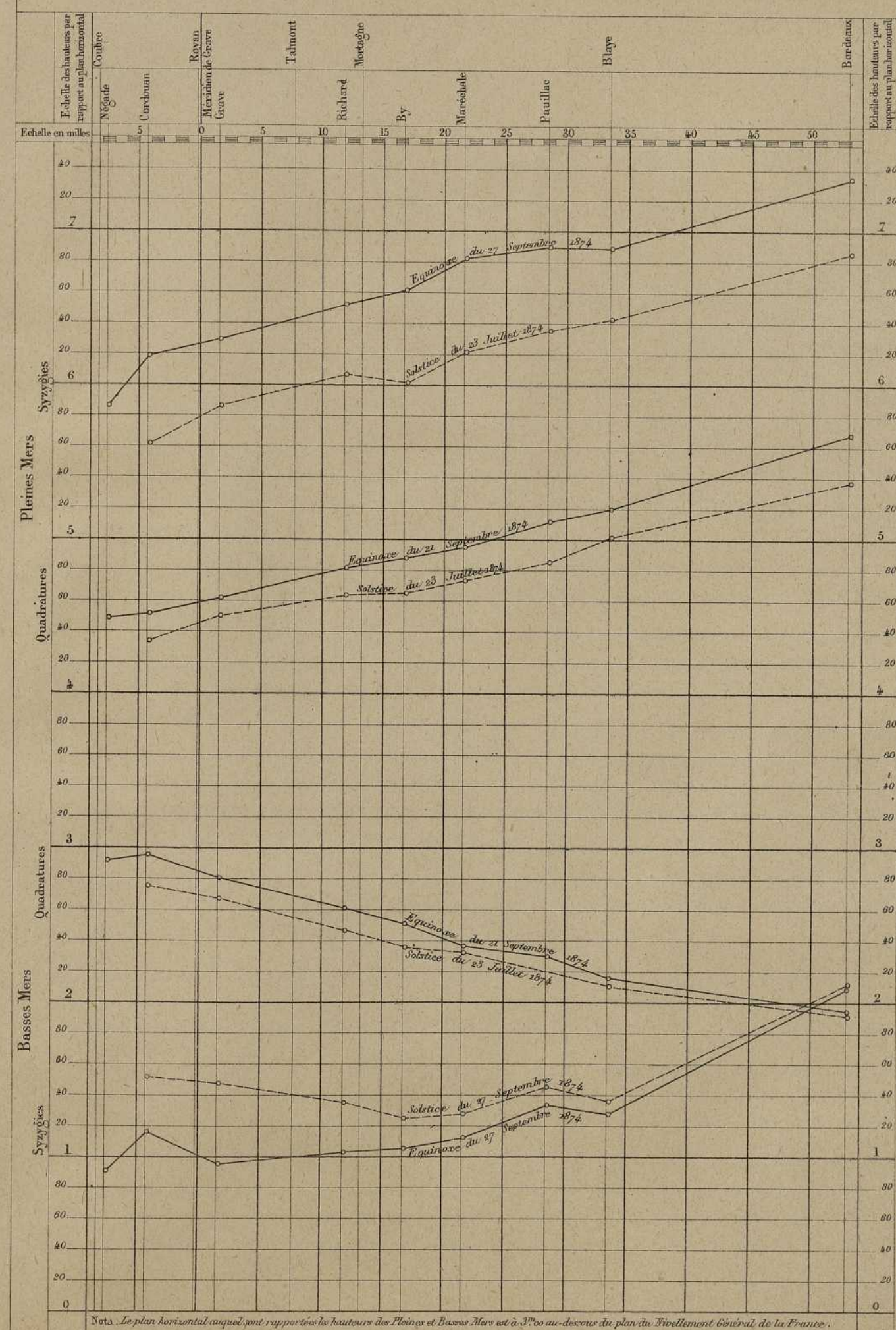
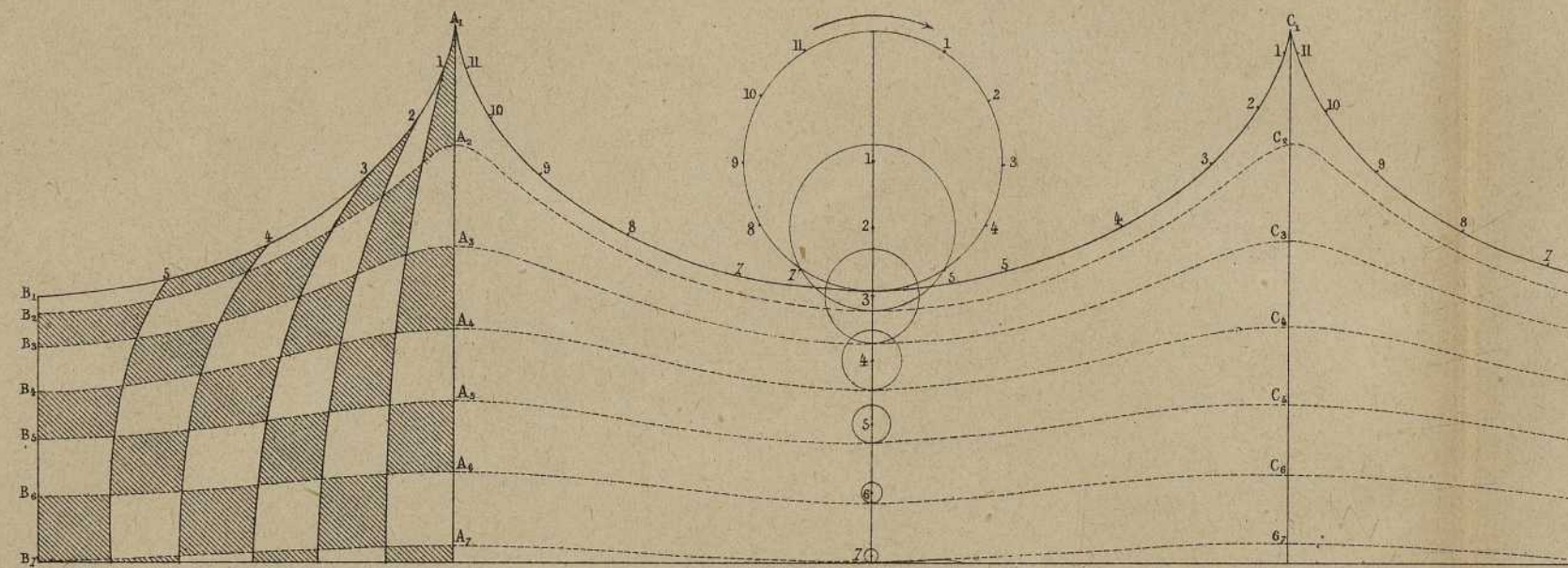


Fig. 5.



Lames — Théorie du Colonel Emy.

Fig. 6.

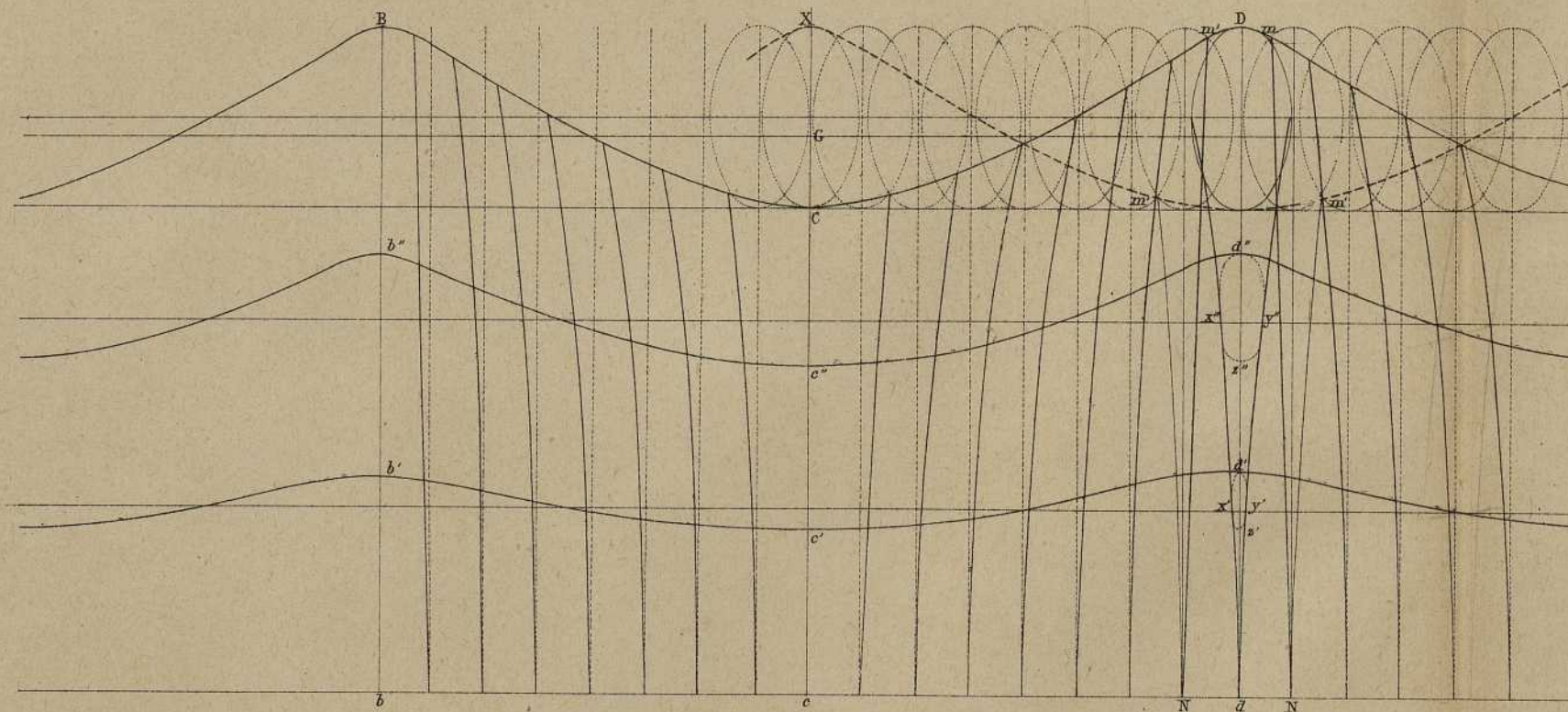
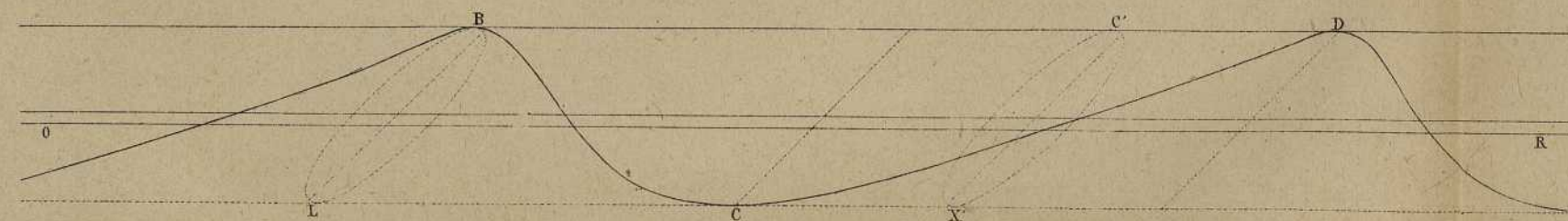


Fig. 7.



Anémomètre de Robinson.

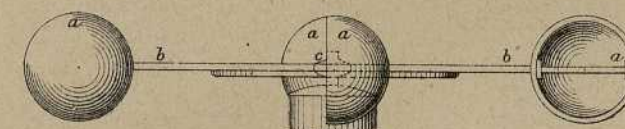


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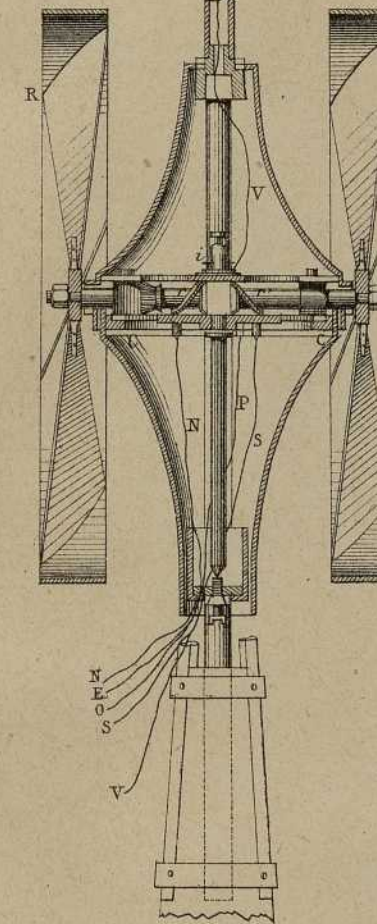


Fig. 4.

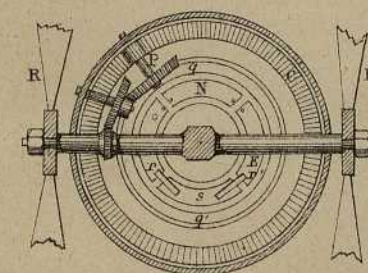
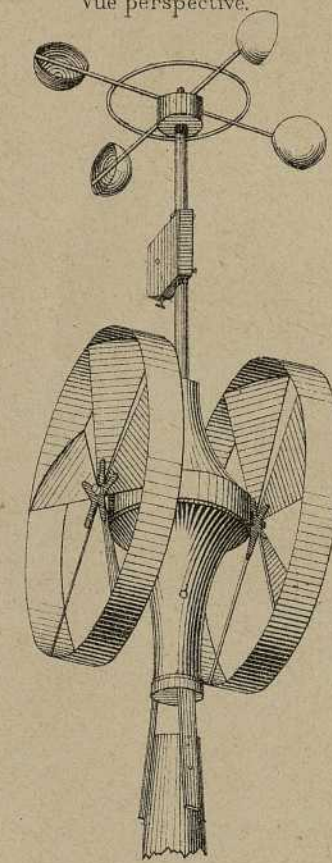
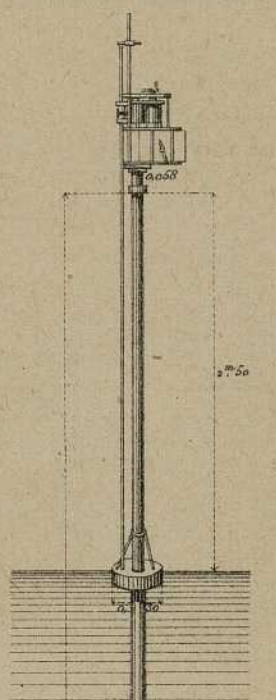
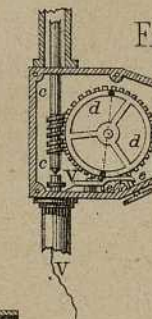
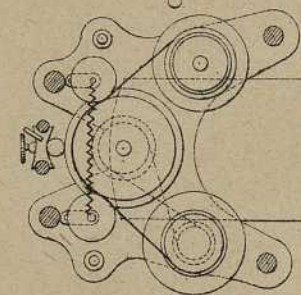
Fig. 3
Vue perspective.Fig. 9
Vue d'ensemble
de l'appareil de l'amiral Paris.

Fig. 2.



Appareil de l'amiral Paris pour le tracé des lames.

Fig. 8.



Coupe AB

Détail C

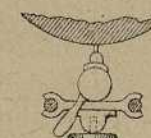
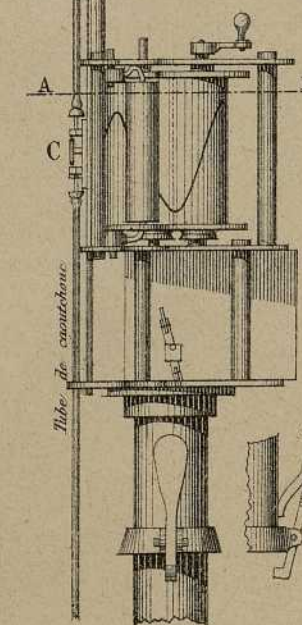


Fig. 1. Réduction au $\frac{1}{2}$ d'une courbe tracée par l'appareil Paris le 13 Décembre 1866. — Goulet de Brest, fin de jusant. — Reste d'une forte mer qu'il avait fait pendant la nuit.

Fig. 2. Représentation à l'échelle de $\frac{1}{460}$ de la mer tracée par la courbe de la figure précédente. — Vitesse des lames $7^m 40$ par seconde.

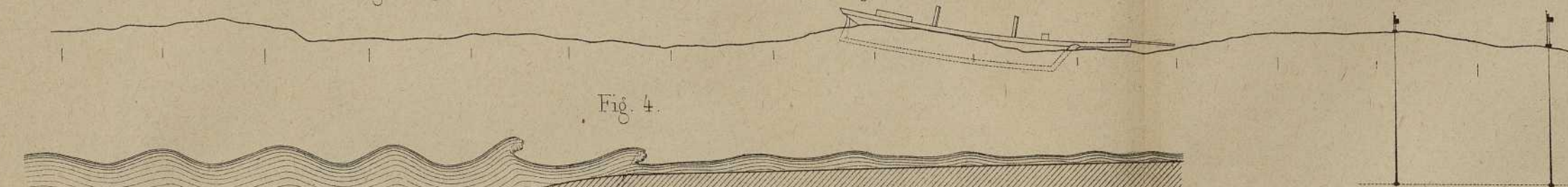


Fig. 4.

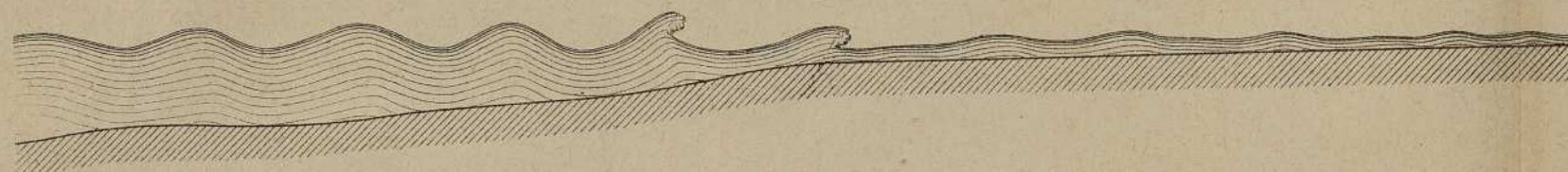


Fig. 3.

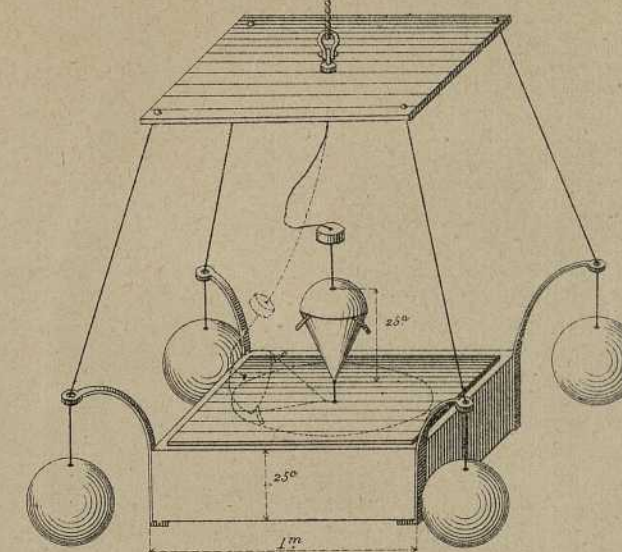


Fig. 8.—Appareil Stevenson.

Coupe suivant xy

Plan supérieur

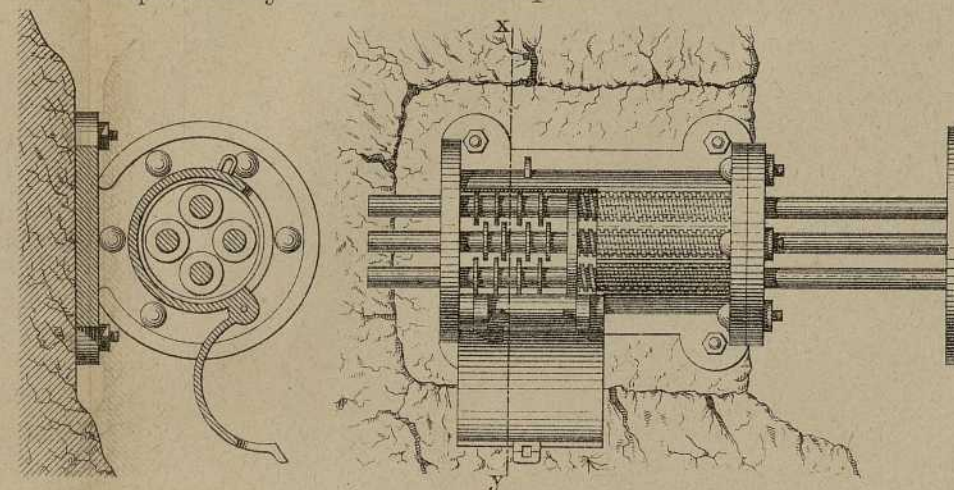
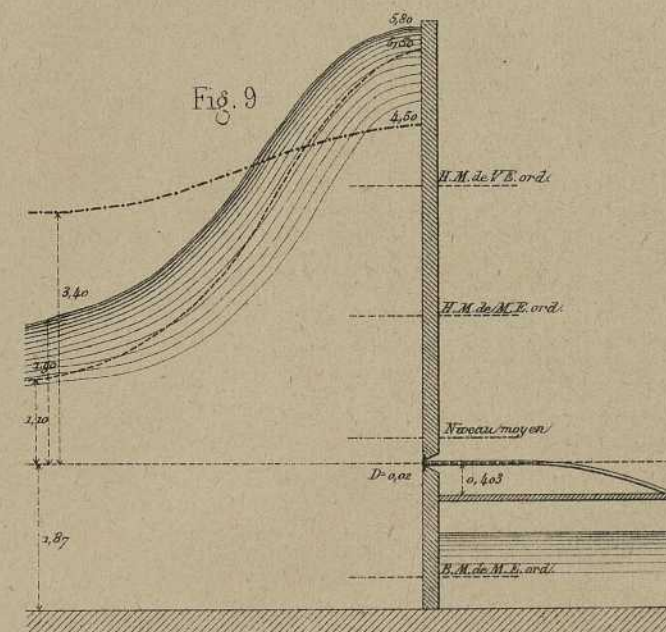


Fig. 9



Port de Cherbourg.

Fig. 5.

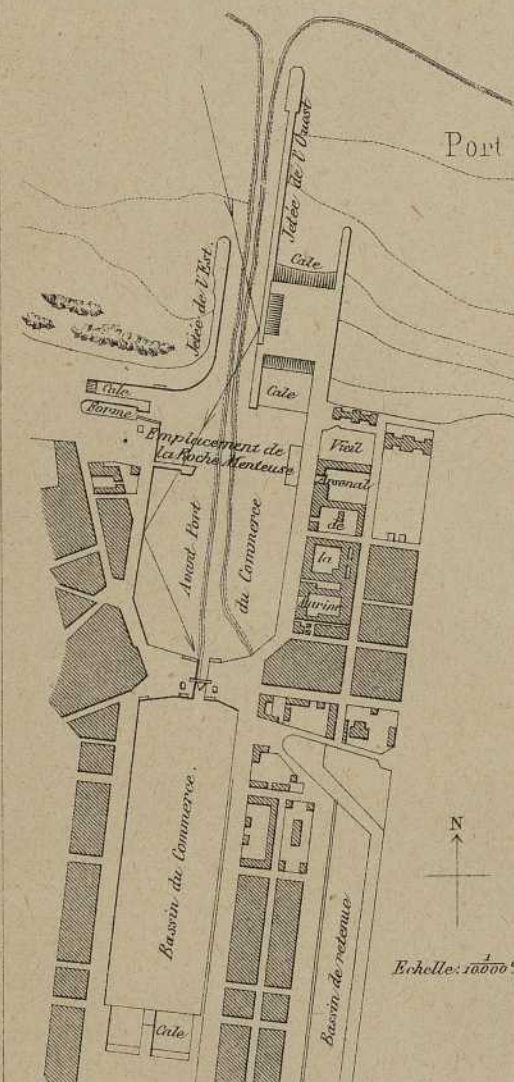


Fig. 6

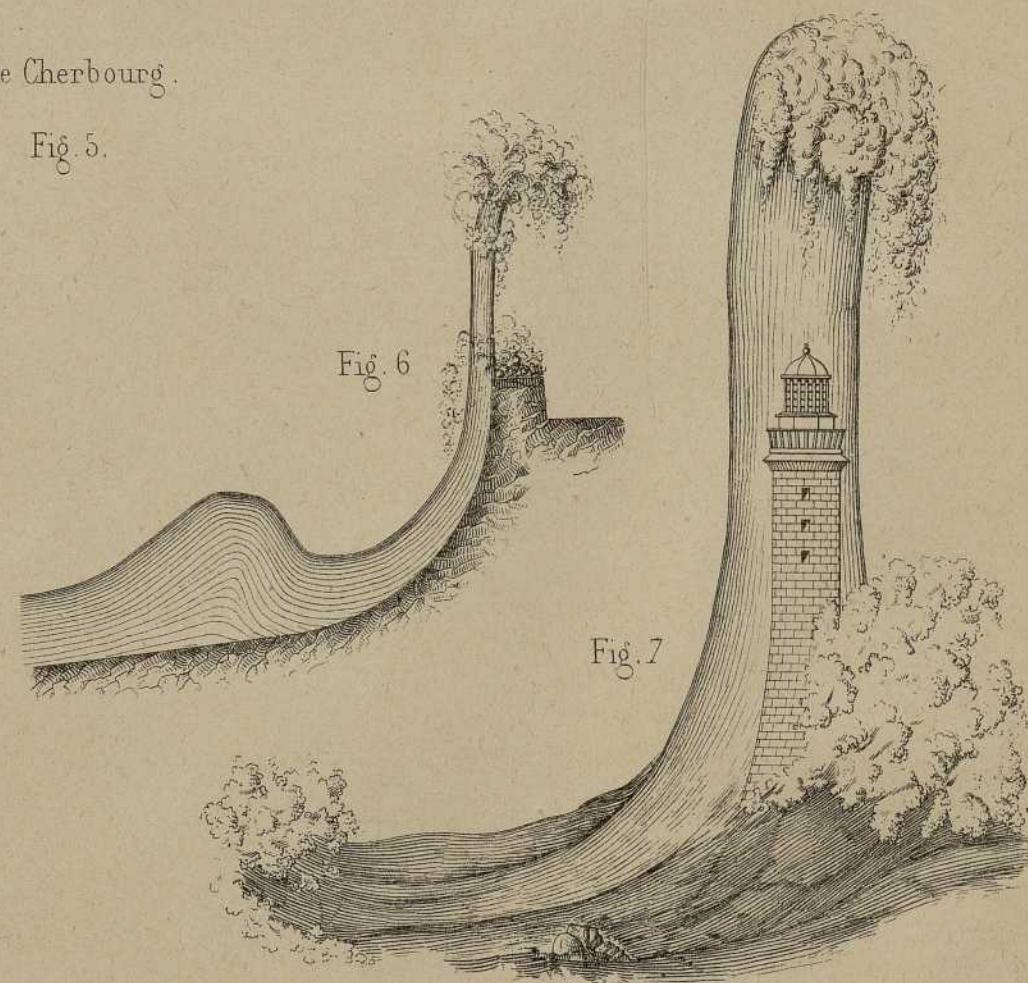


Fig. 7

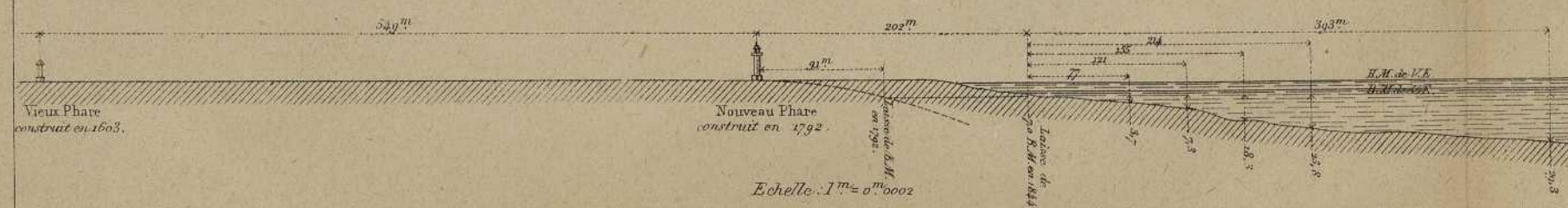
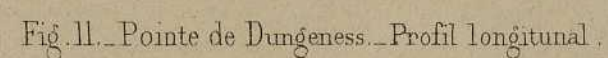
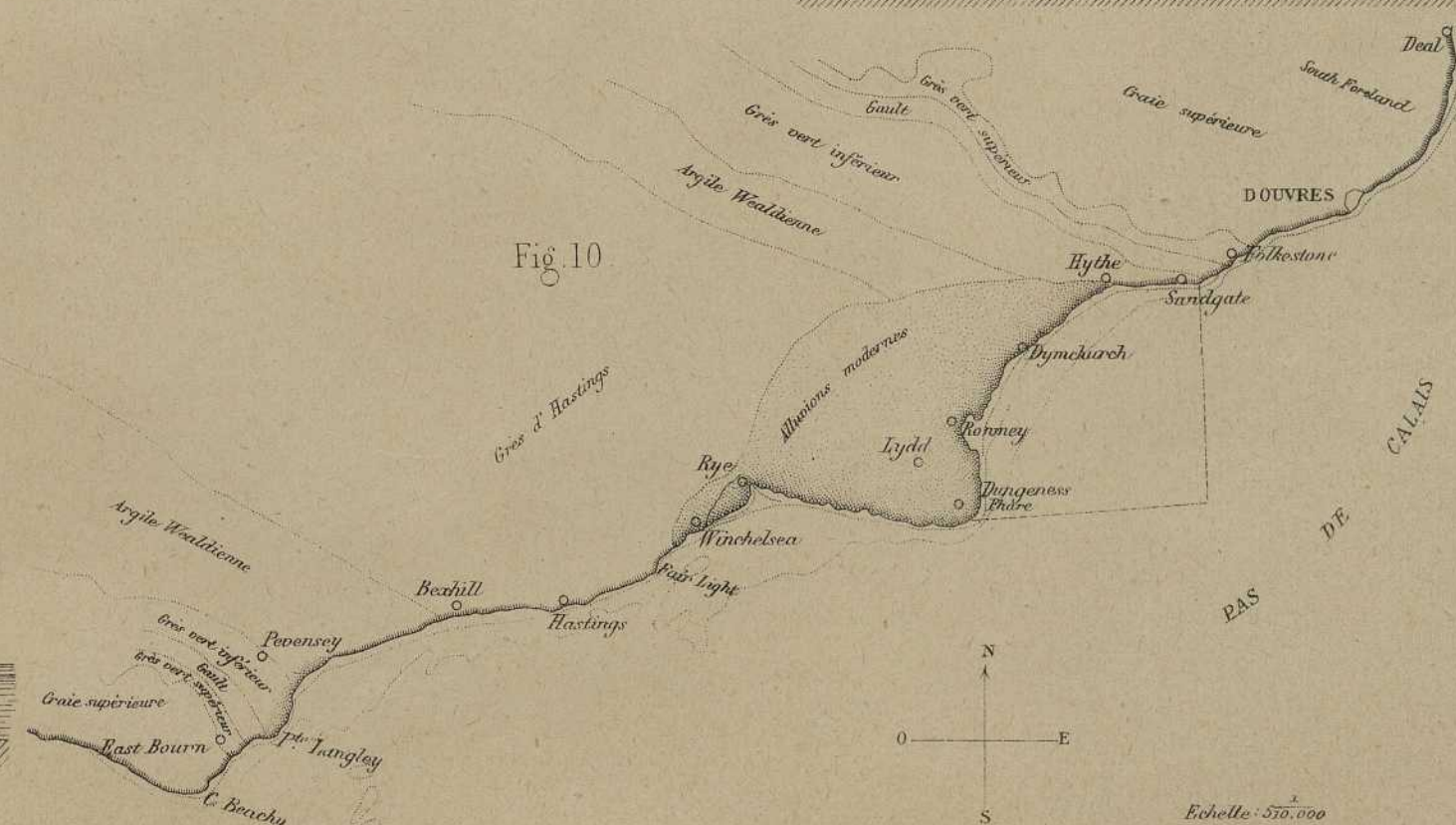


Fig. 10



PORT DE CALAIS — Jetée Est

Fig. 1 — Plan général

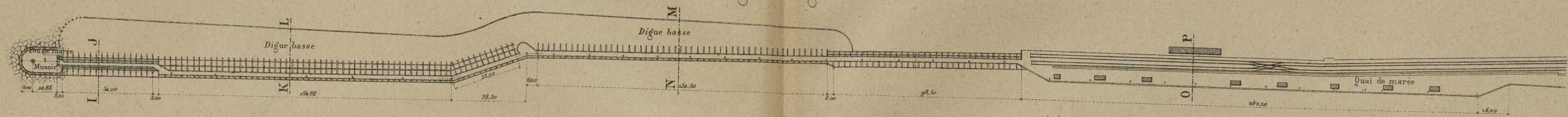


Fig. 2 — Coupe longitudinale suivant ABCD

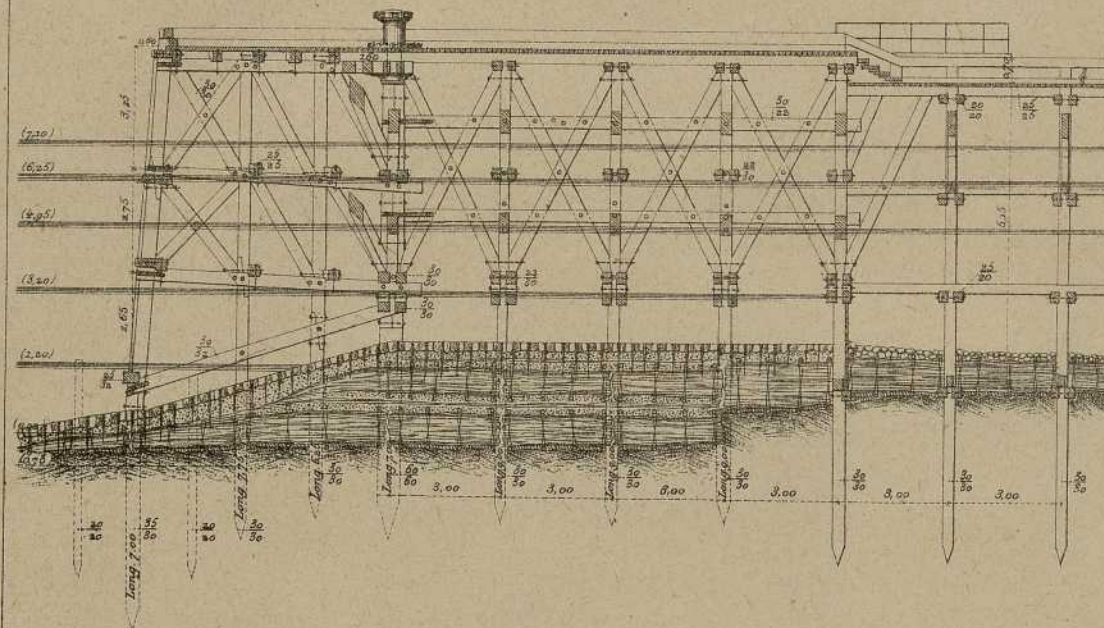


Fig. 4 — Coupe transversale E F

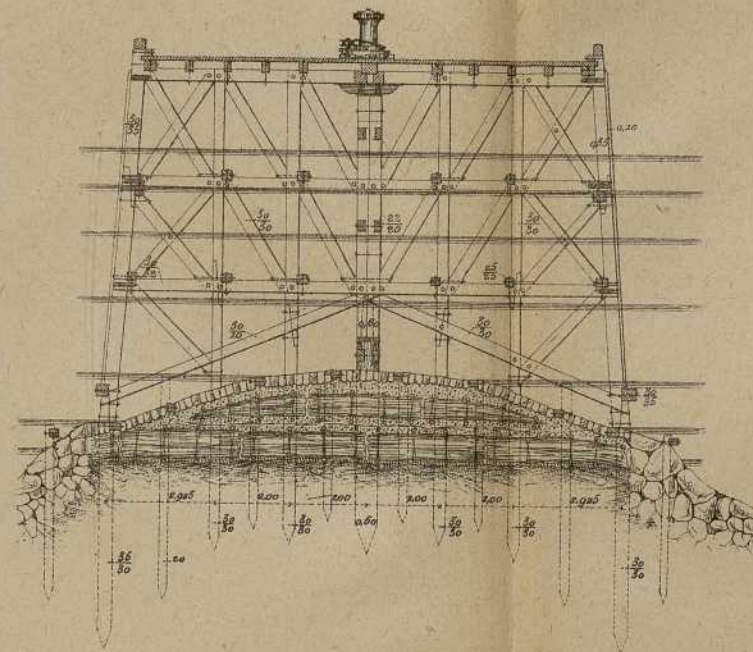


Fig. 5 — Coupe transversale G H

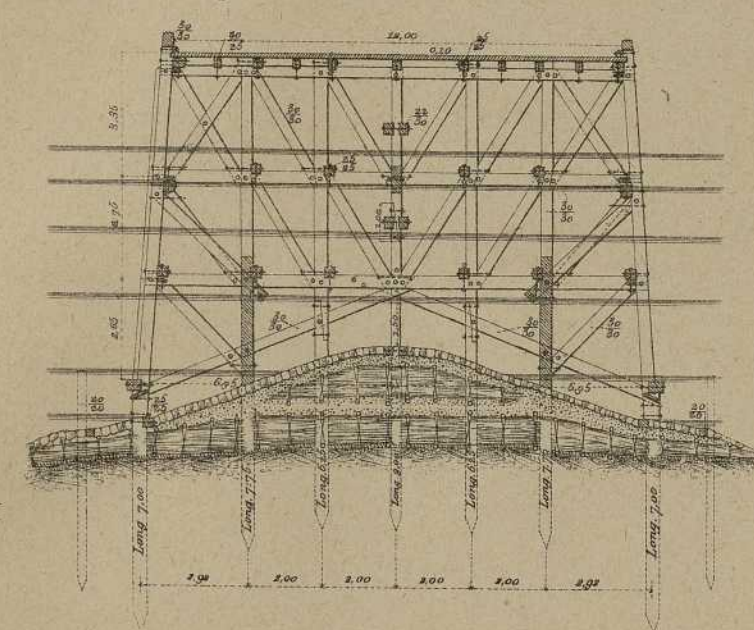


Fig. 6 — Coupe transversale I J

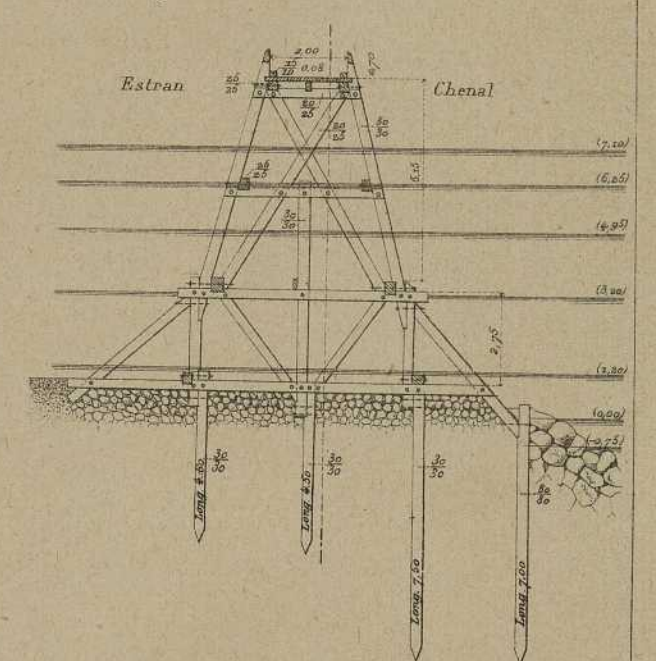


Fig. 3 — Plan du Musoir à différents niveaux

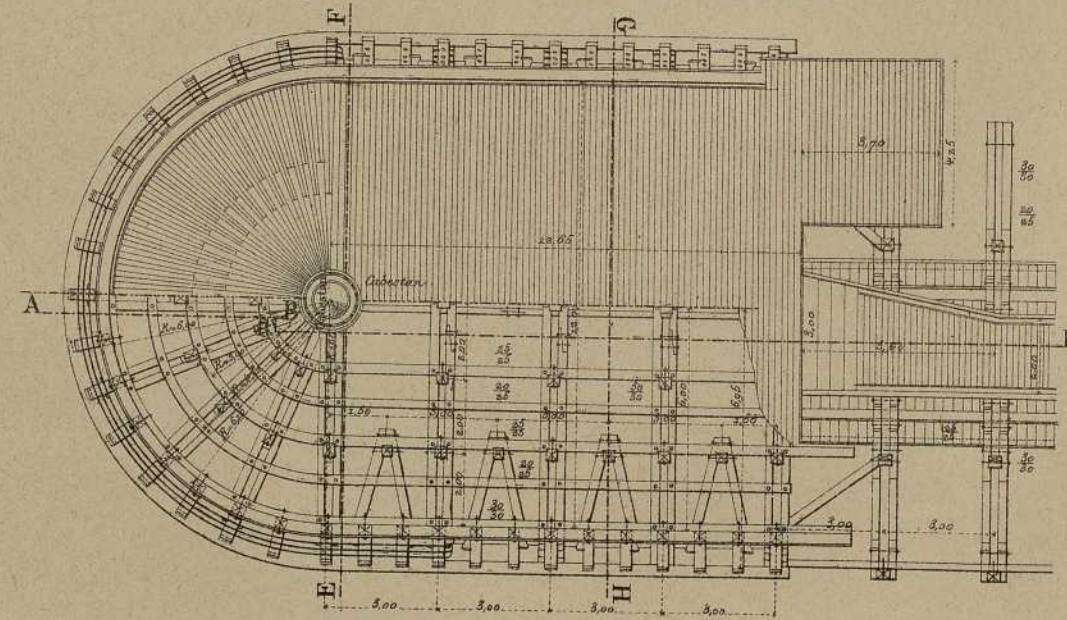


Fig. 7 — Coupe transversale K L

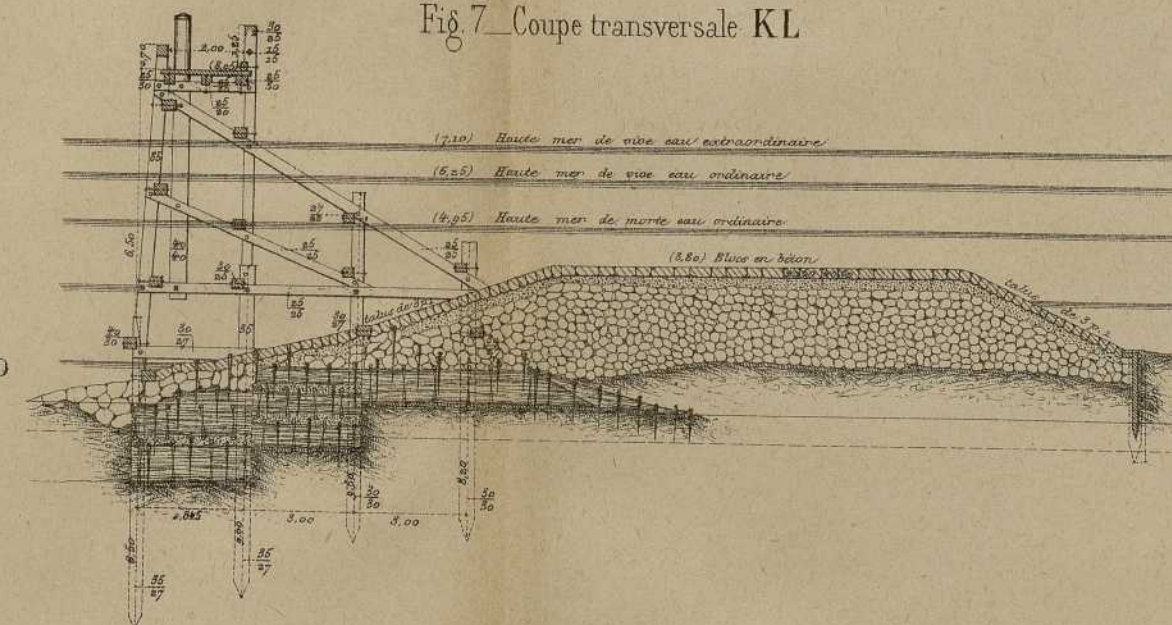


Fig. 9 — Coupe transversale O P

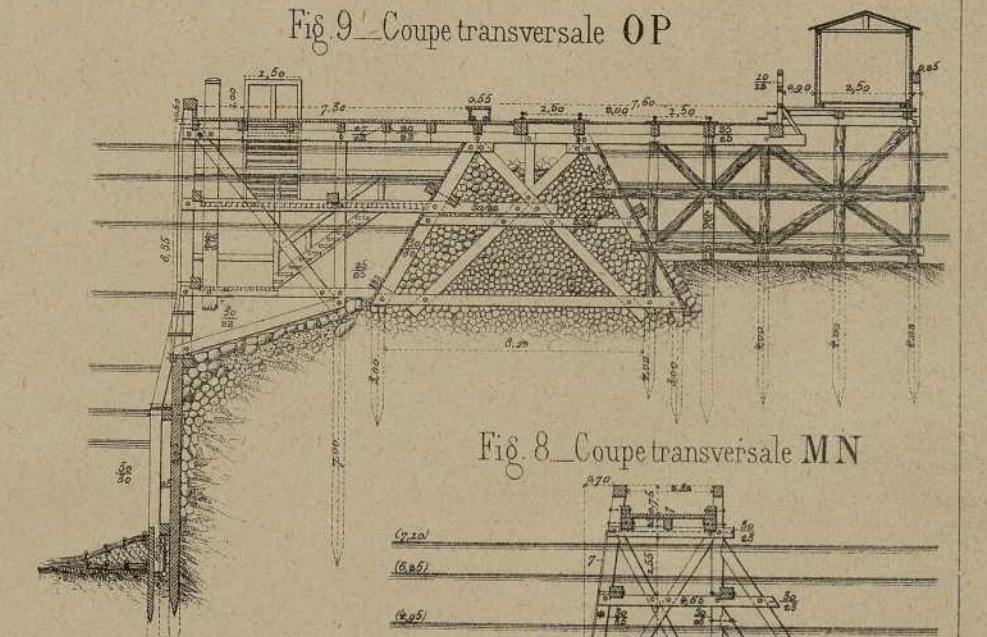
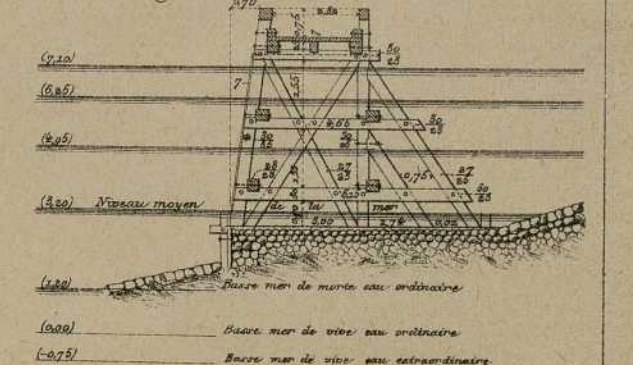


Fig. 8 — Coupe transversale M N



Dressé d'après les documents fournis par M.M. les Ingénieurs en 1887.

Gravé par A. Simon, 13, rue du Val-de-Grâce — Paris

Echelle { de la figure 1 2000
des autres figures 200

PORT DE CALAIS — Jetée Ouest

Fig. 1. — Plan général

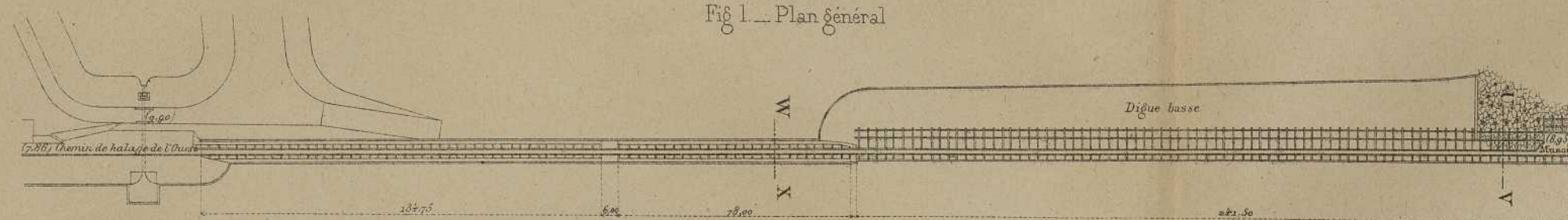


Fig. 3. — Coupe longitudinale ST

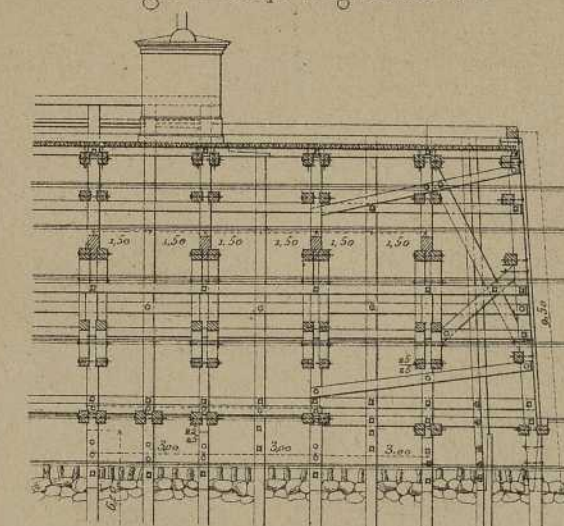


Fig. 5. — Coupe transversale WX

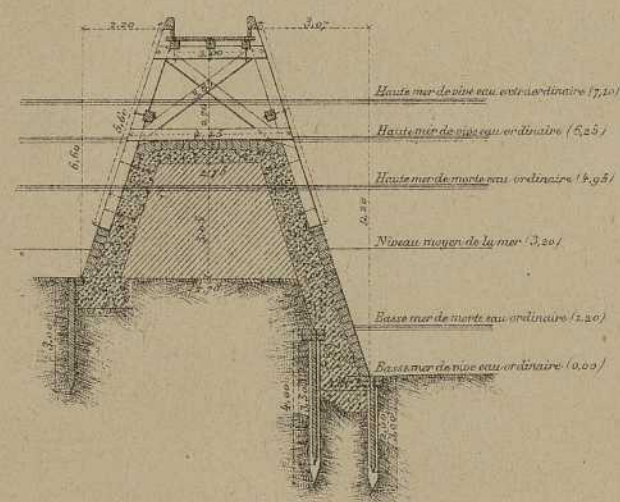


Fig. 6. — Coupe transversale UV

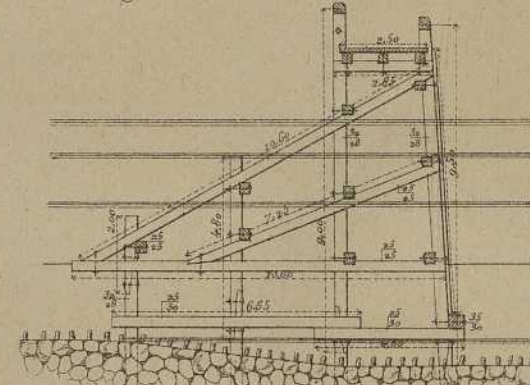


Fig. 2. — Coupe transversale QR

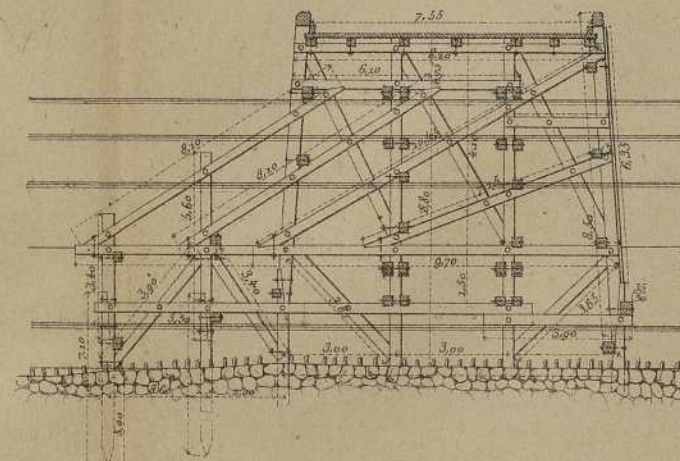
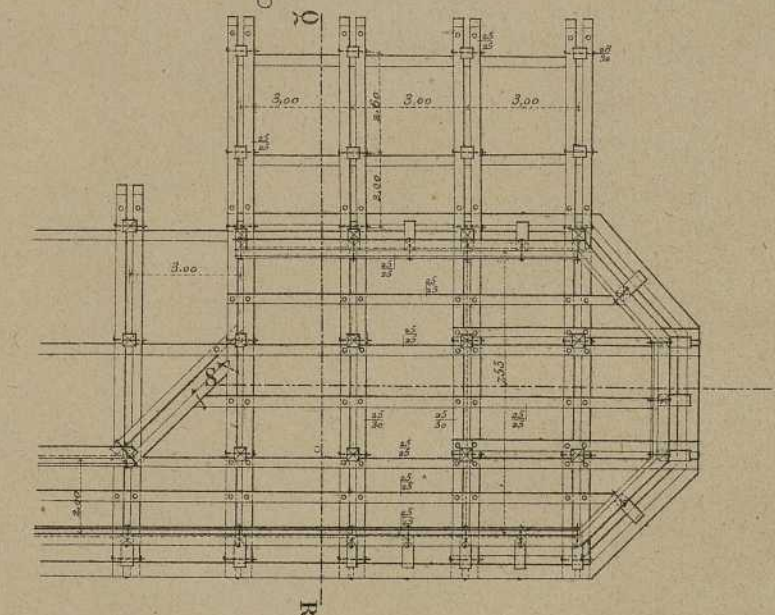
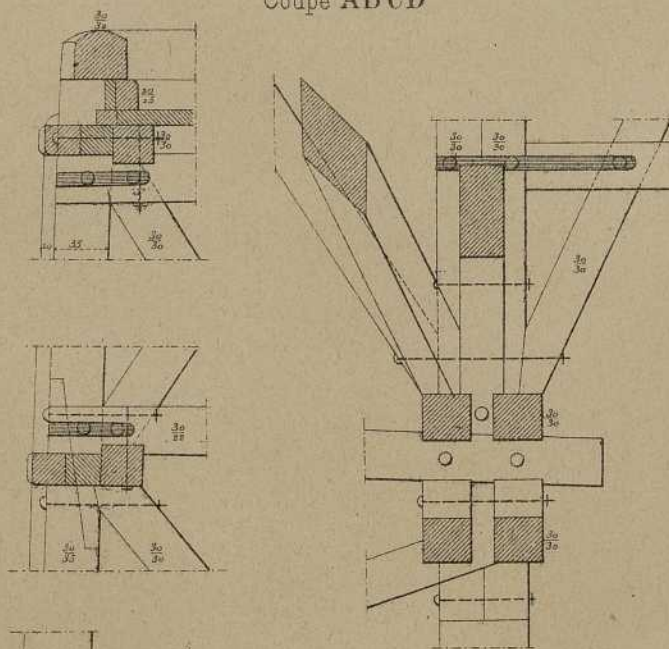


Fig. 4. — Plan du Musoir

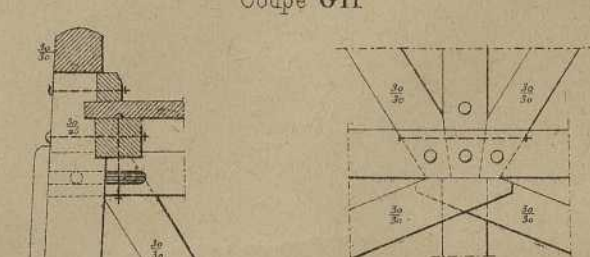


Détails

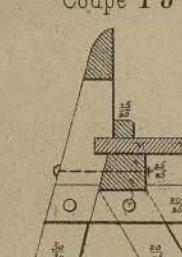
Coupe ABCD



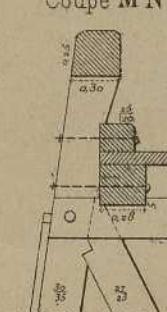
Coupe GH



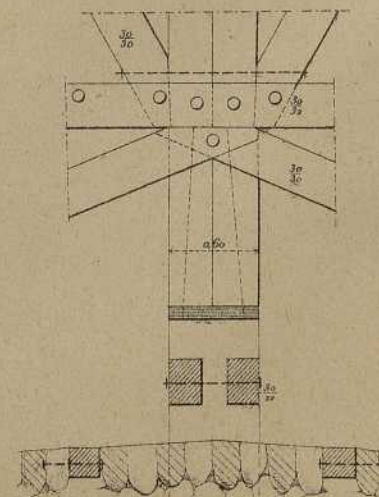
Coupe I J



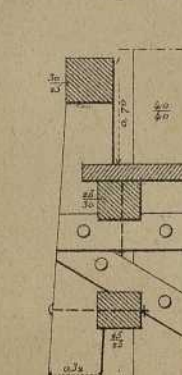
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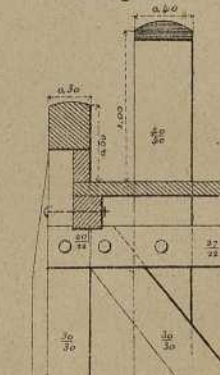
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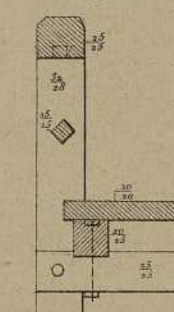
Coupe KL



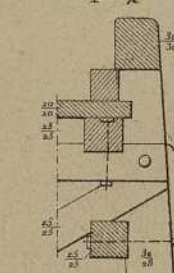
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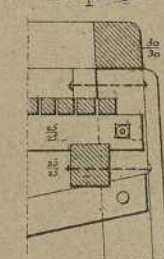
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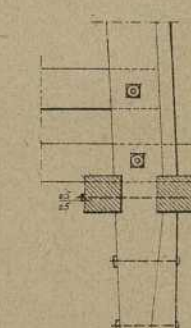
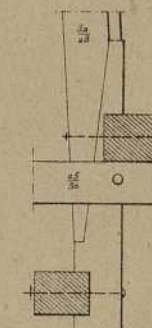
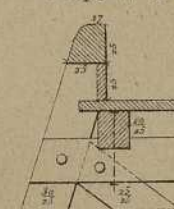
Coupe QR



Coupe ST



Coupe WX



Echelle
 du plan général 1/2000
 des figures 2, 3, 4, 5, 6 1/250
 des détails 1/50

PORT DE BOULOGNE — Jetée Nord-Est

Fig. 1. — Elévation du Musoir

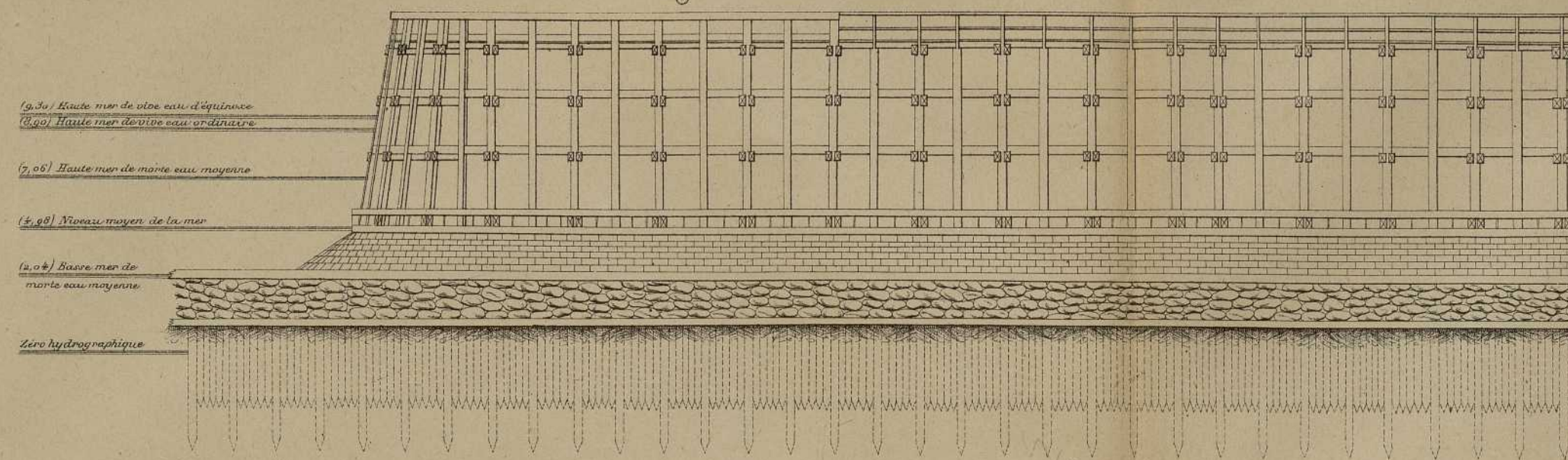


Fig. 2. — Plan du Musoir

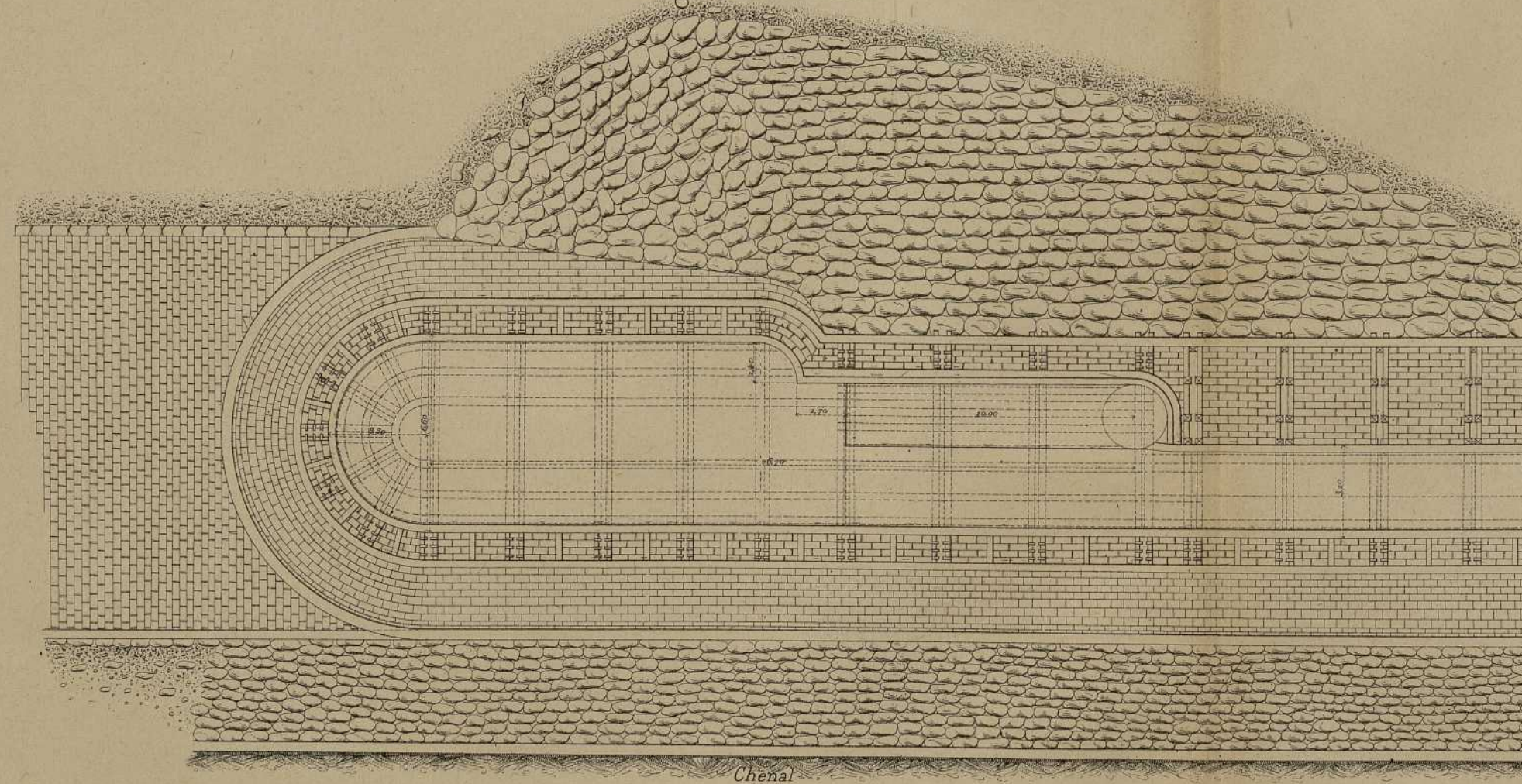


Fig. 3. — Elévation de la Jetée (Côté du Chenal)

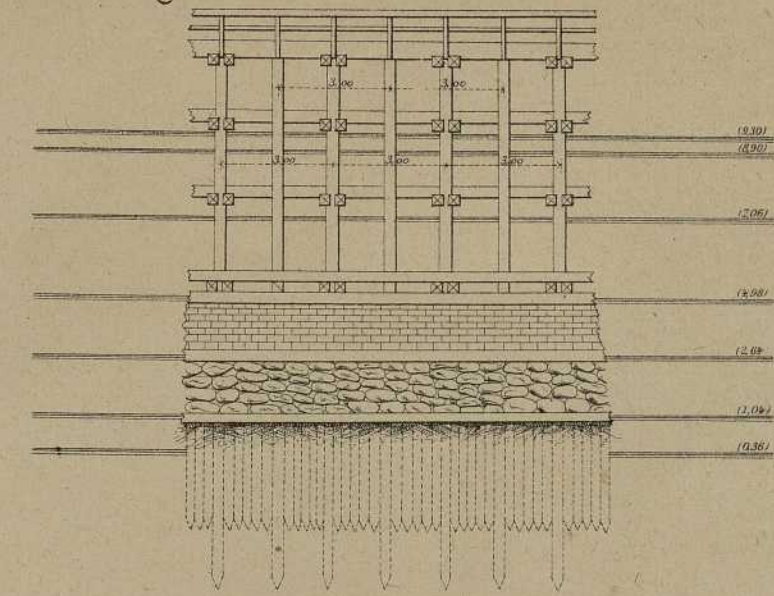


Fig. 4. — Coupe en travers de la Jetée

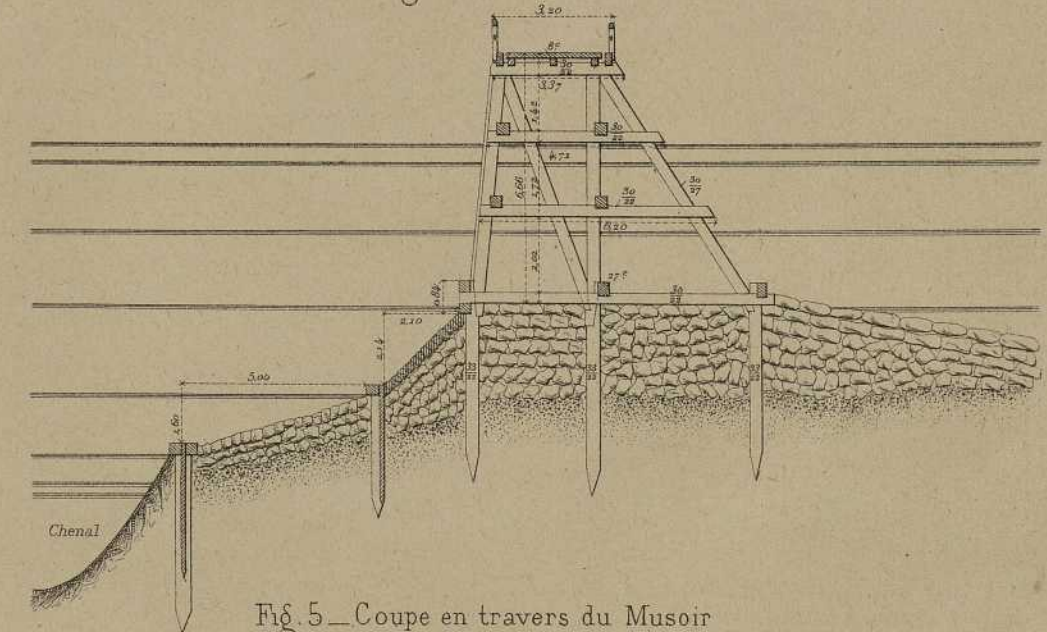
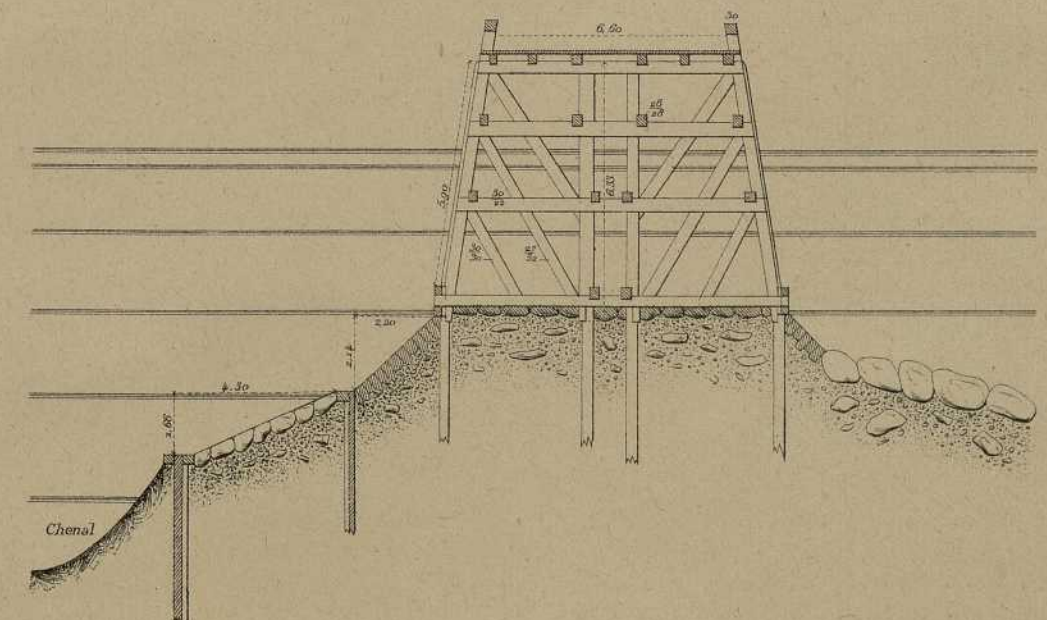
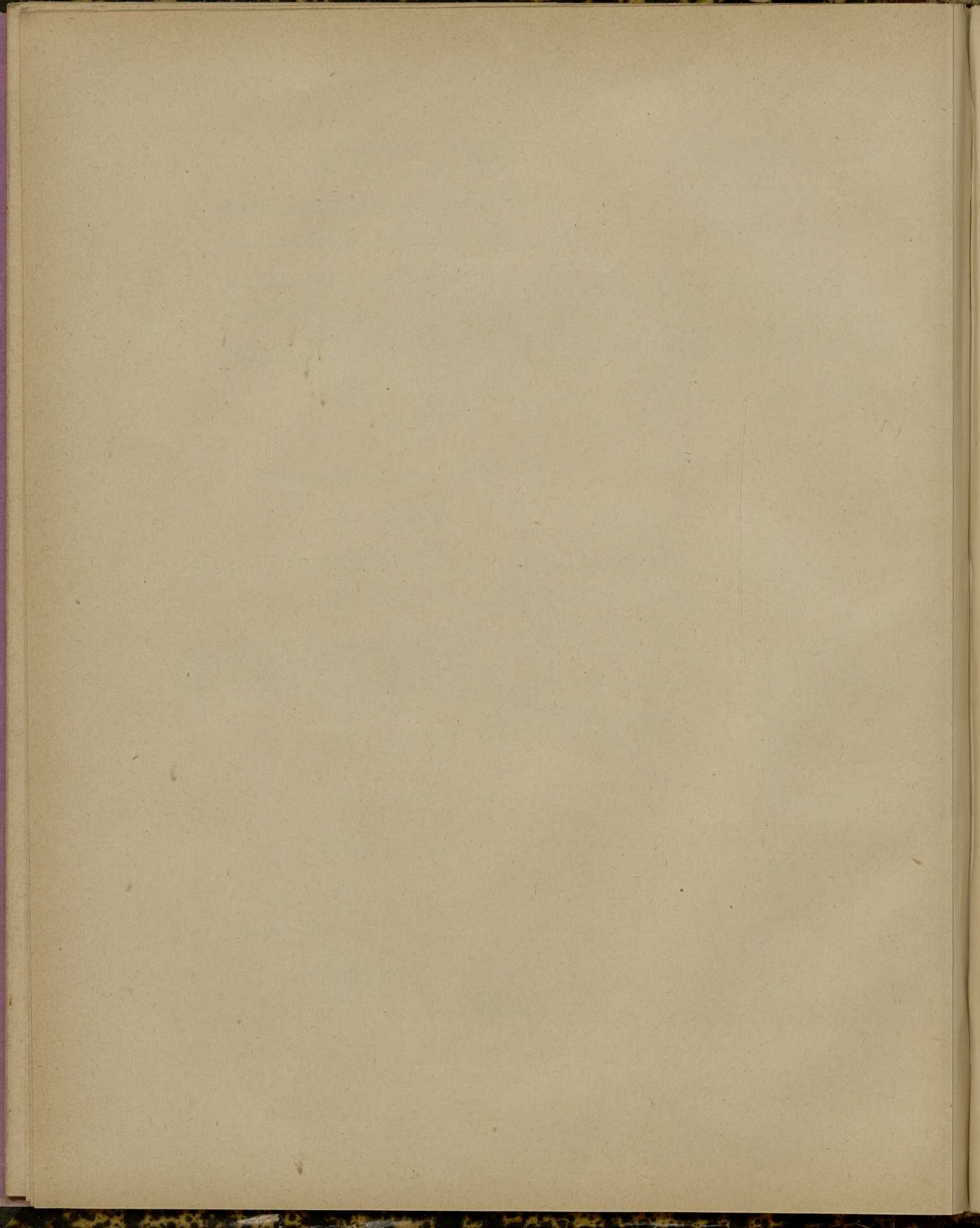


Fig. 5. — Coupe en travers du Musoir





PORT DE BOULOGNE — Jetée Sud-Ouest

Fig. 1. — Elévation du Musoir (Côté du large)

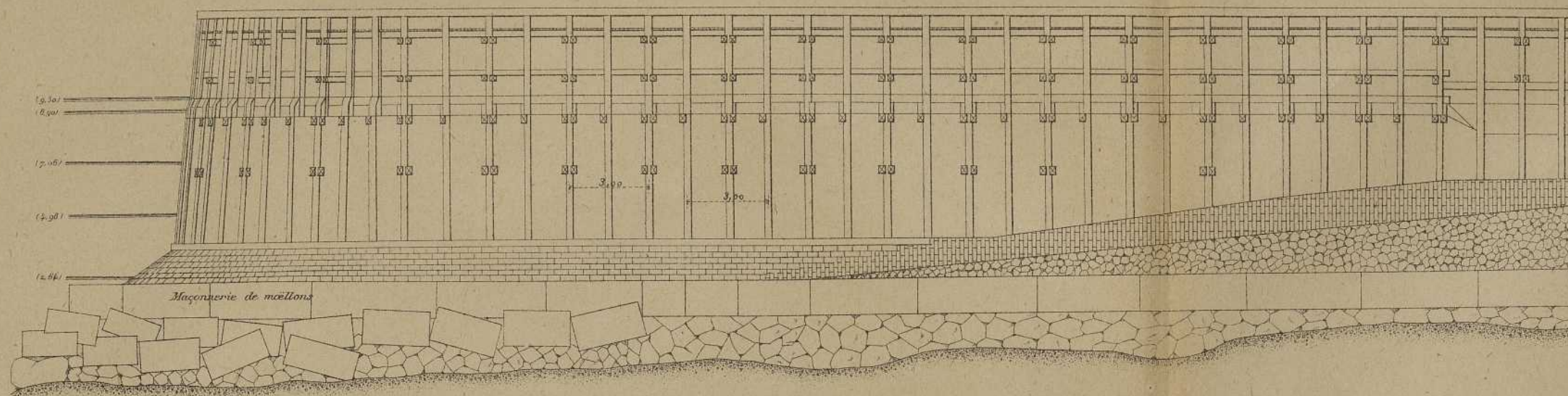


Fig. 2. — Plan du Musoir.

Fig. 4. — Coupe en travers de la Jetée

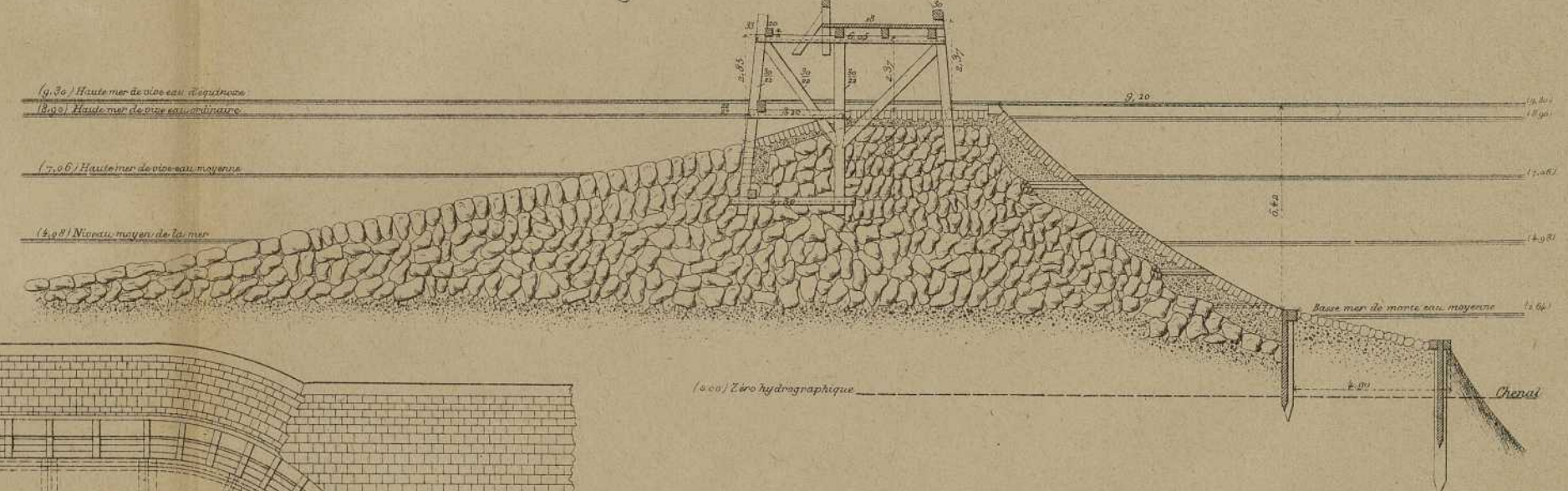
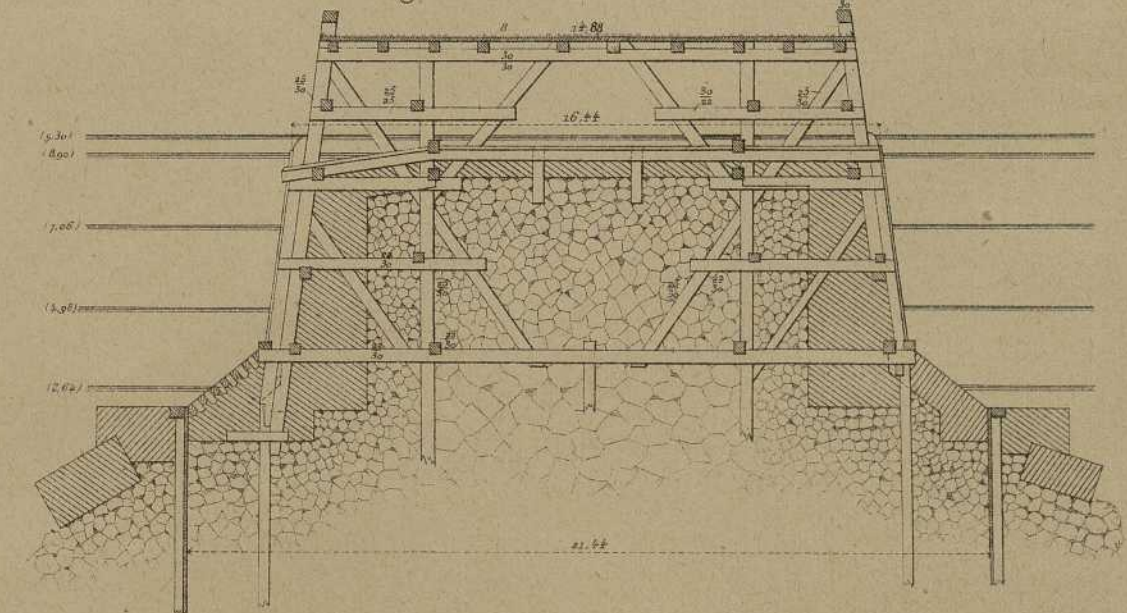


Fig. 5. — Coupe en travers du Musoir suivant A B.



Dressé d'après les documents fournis par MM les Ingénieurs en 1887.

Echelle: 0.005 p.m. 2 1/2

PORT DE DIEPPE—Prolongement de la Jetée Ouest.

Fig. 1 — Elevation du musoir en bois (Cote' du Chenal)
(avant const^{on} de la risberme)

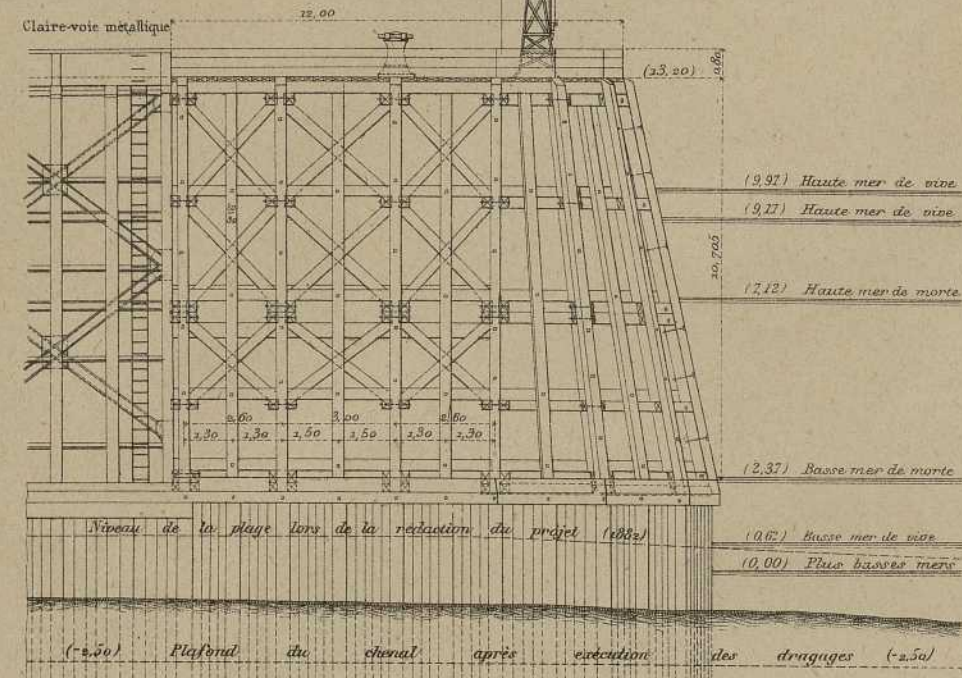


Fig. 2—Plan supérieur du musoir

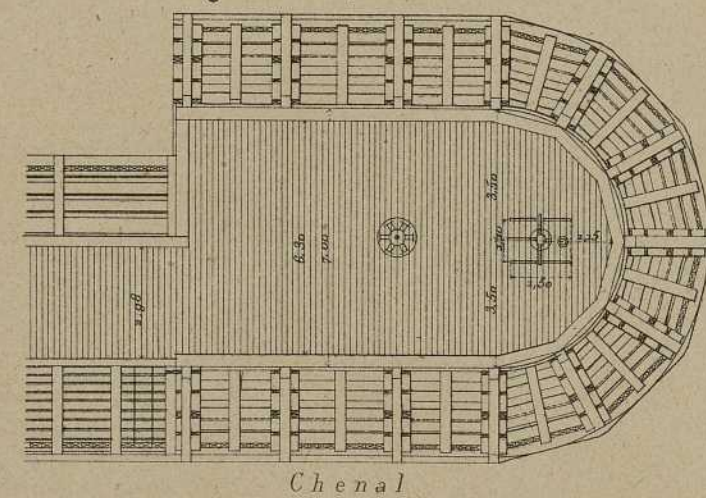


Fig. 3—Plan au niveau du seuil du musoir

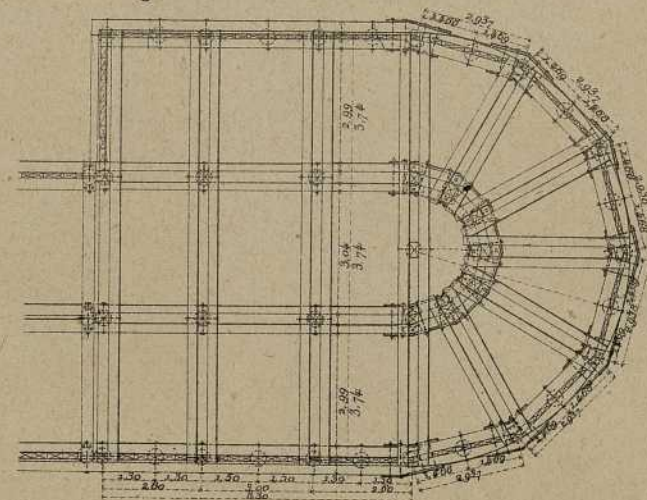


Fig. 4 — Coupe transversale du musoir
(après const^{on} de la risberme)

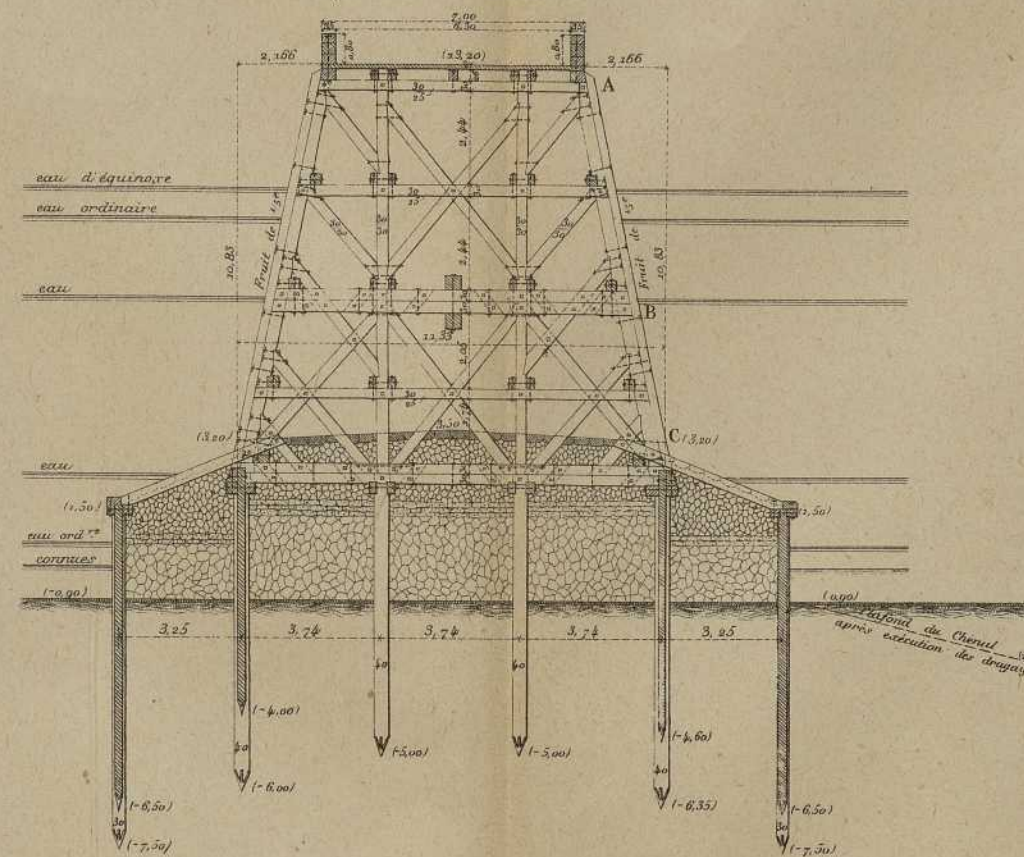


Fig. 5 — Musoir en bois
Elevation. (*Côté du Chenal*)

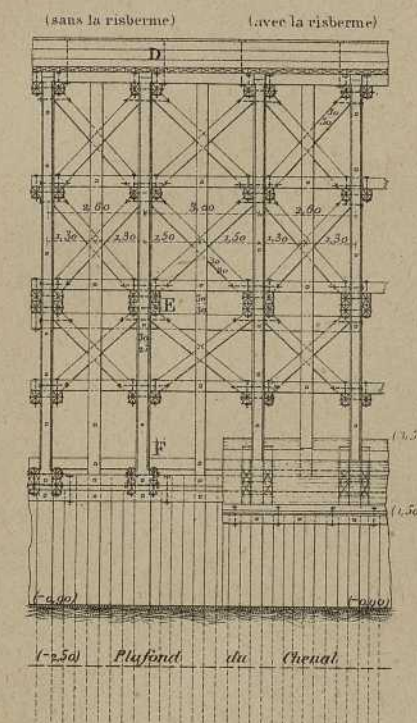


Fig. 6—Claire-voie métallique
Élévation (Côté du Chenal)

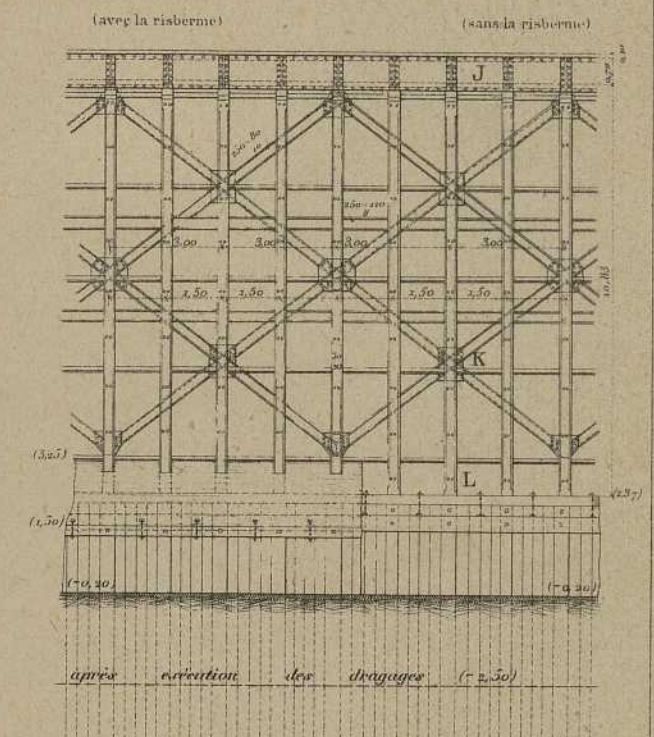


Fig. 8 — Vue générale de la Jetée.
(avant construction de la risberme)

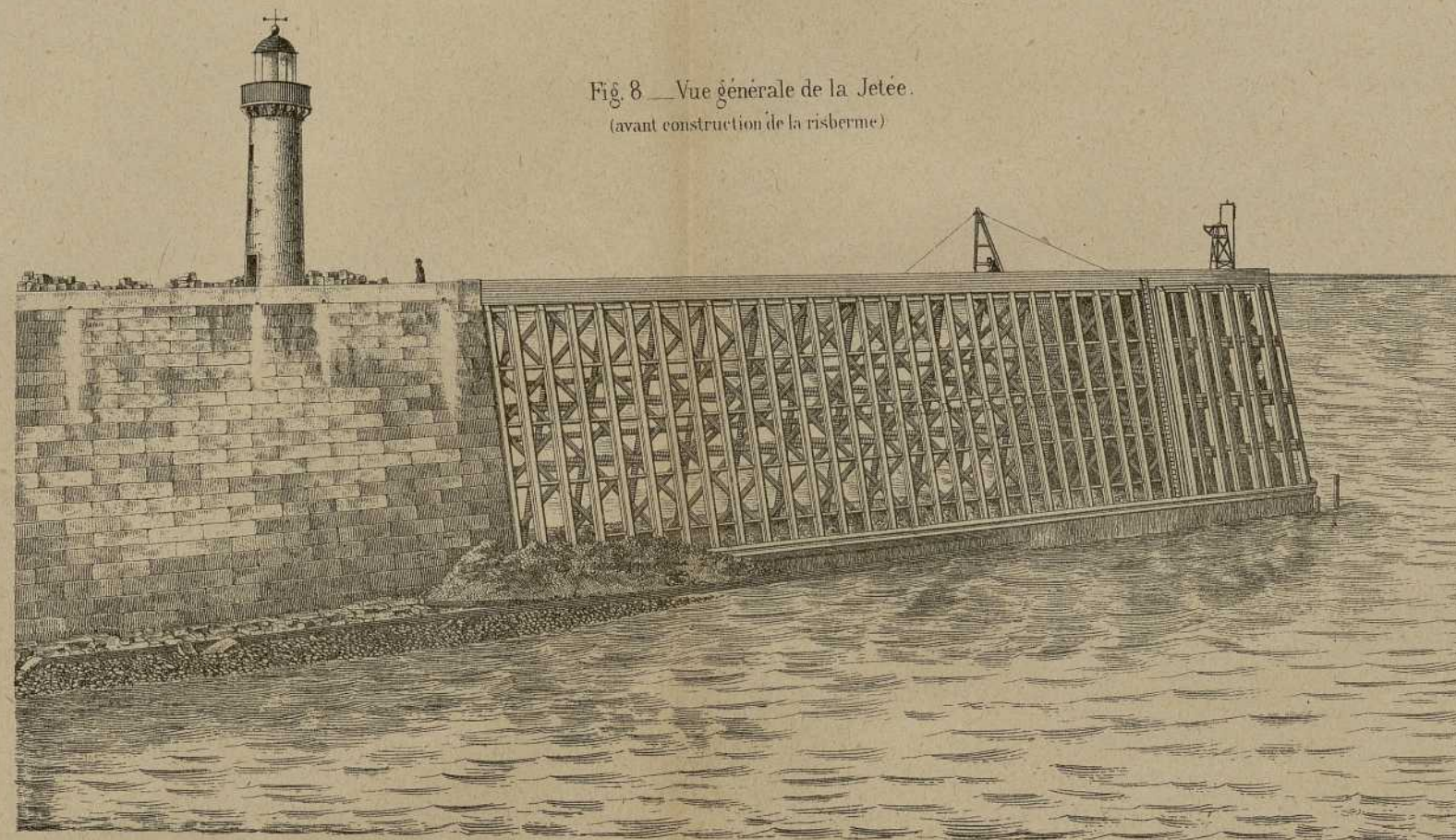
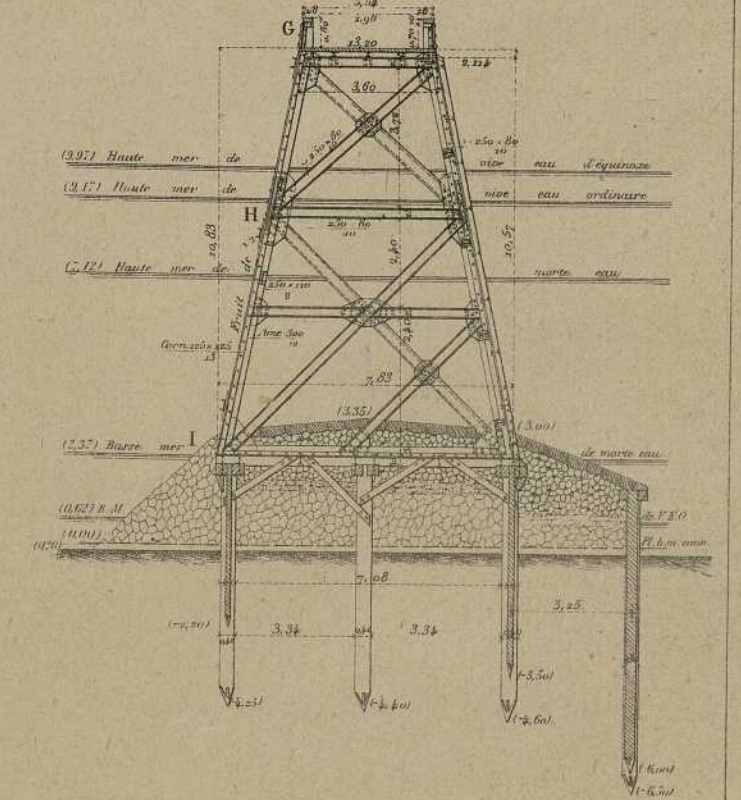


Fig. 7—Coupe transversale de la claire-voie métallique
(après construction de la risberme)



Echelle: 0.005 p.m. $\frac{1}{200}$

Dressé d'après les documents fournis par MM. les Ingénieurs en 1887

Gravé par A. Simon, 13 rue du Val-de-Grâce, Paris

Imp. Mûsseny, 29, rue du Montparnasse Paris.

PORT DE ST NAZAIRE. (Jetée Nord)

Fig 1 — Elevation

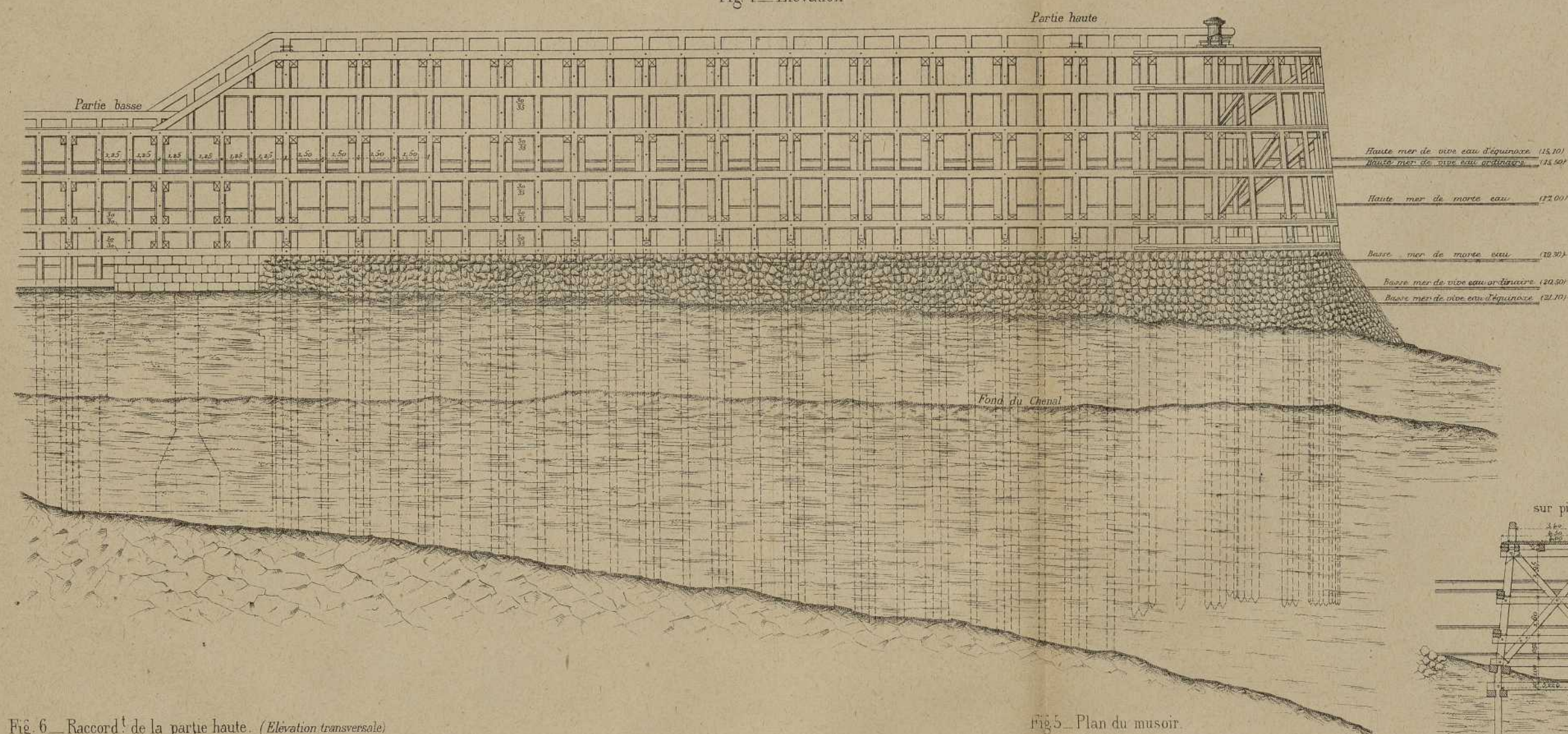


Fig 2 — Coupe transversale (Partie haute)

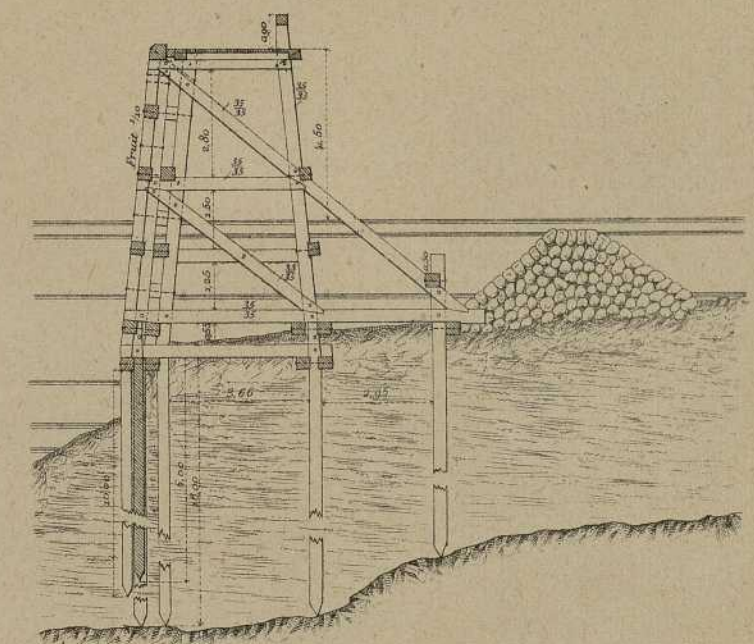
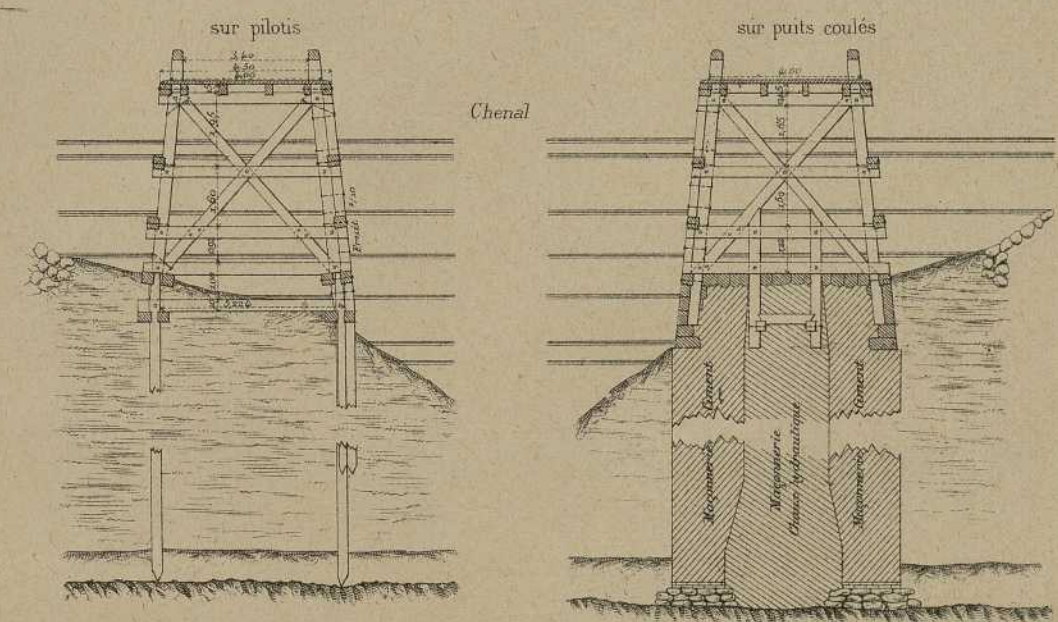
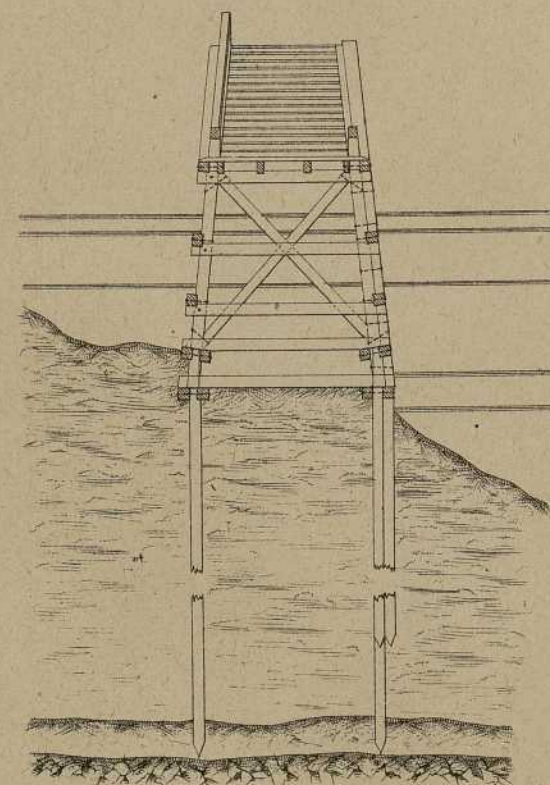


Fig 3 — Coupes transversales (Partie basse)

Fig 6 — Raccord^t de la partie haute. (Elevation transversale)

Echelle (des Fig. 1, 2, 3, 4, 5, 6 : 1:100)
(des Fig. 7 et 8 : 1:50)

Fig 5 — Plan du musoir.

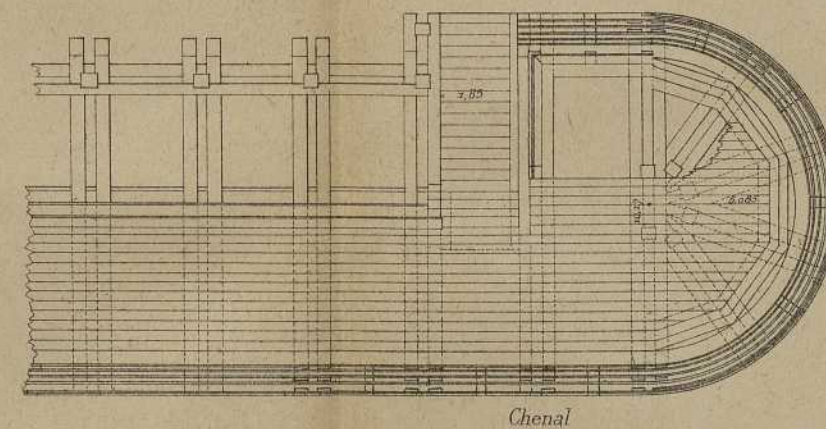
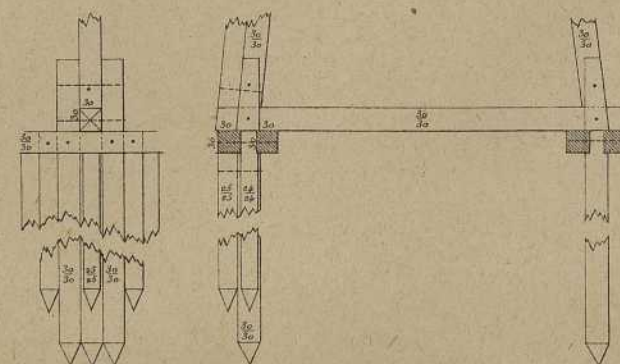
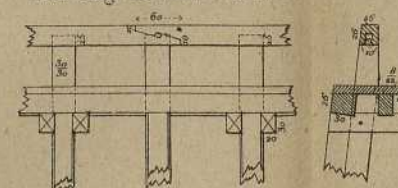


Fig 7 — Détails.

Assemblage des pieux



Assemblage des mains courantes



Assemblage des hermes

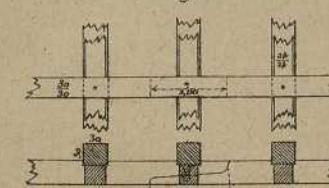
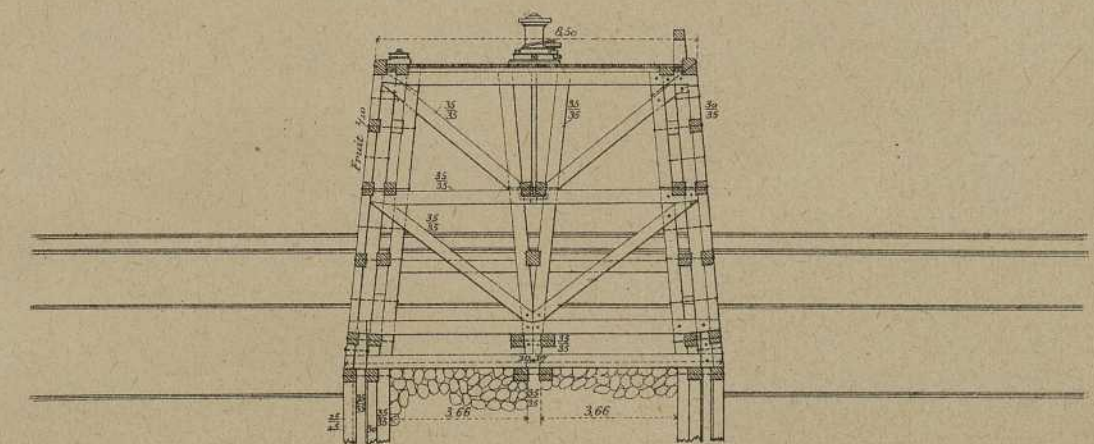


Fig 4 — Coupe transversale du musoir.



Dressé d'après les documents fournis par M.M. les Ingénieurs en 1887.

Gravé par A. Simon, 23 rue du Val-de-Grâce, Paris.

Imp. Ruyben, 29, rue du Montparnasse, Paris.

PORT DE DUNKERQUE

Fig 1—Elevation (*Côté du Chenal*)

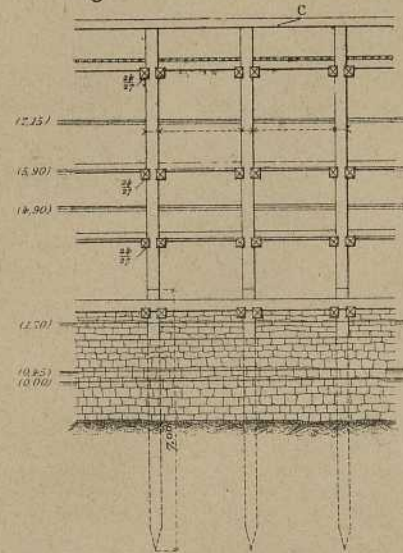


Fig. 2—Coupe transversale suivant AB.

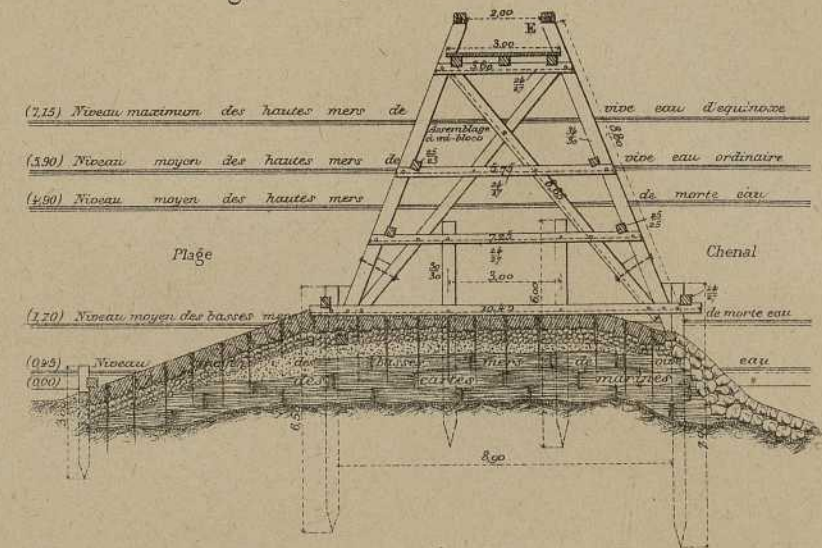


Fig. 3—Coupe transversale suivant C D.

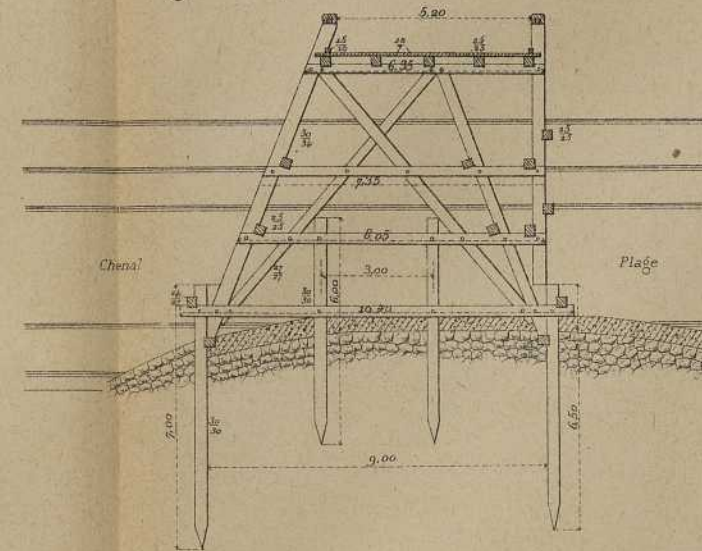


Fig. 4 — Coupe transversale du musoir suivant E F.

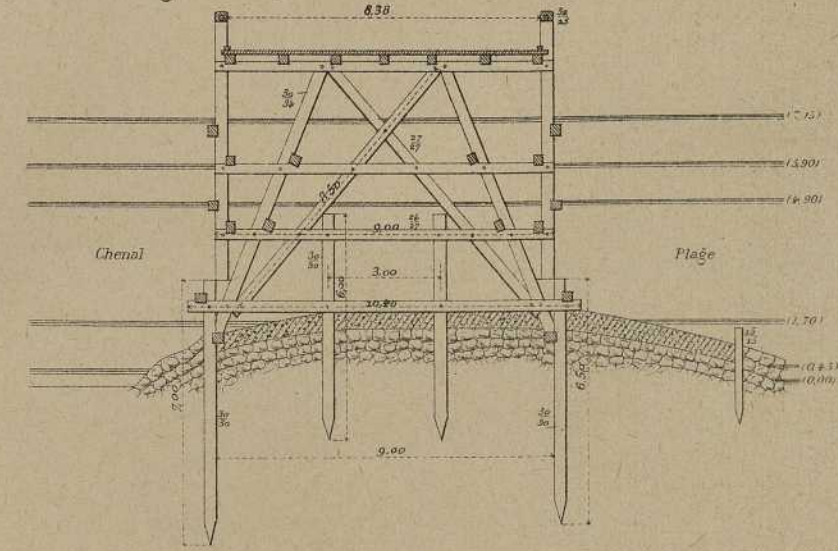


Fig. 5—Plan du musoir

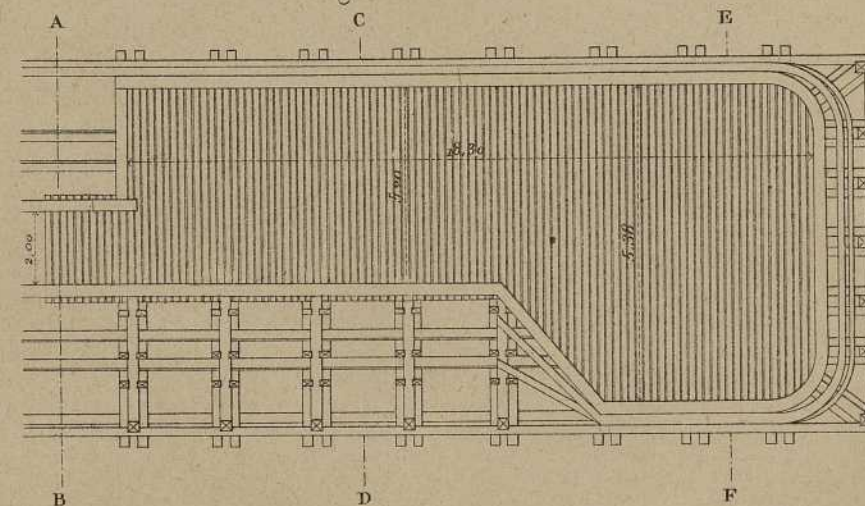


Fig. 6—Type des nouvelles jetées coffrées

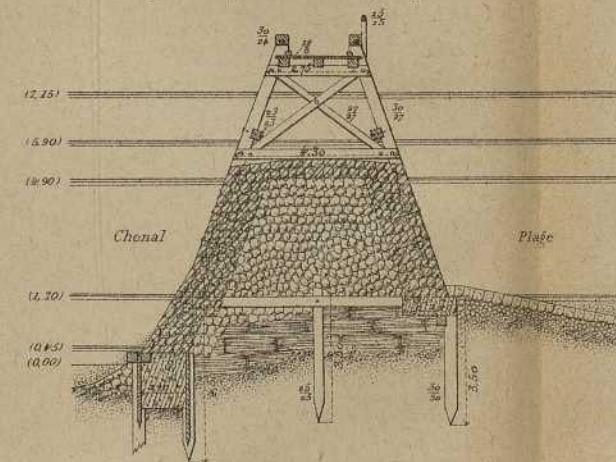


Fig. 7 — Type des anciennes jetées coffrées

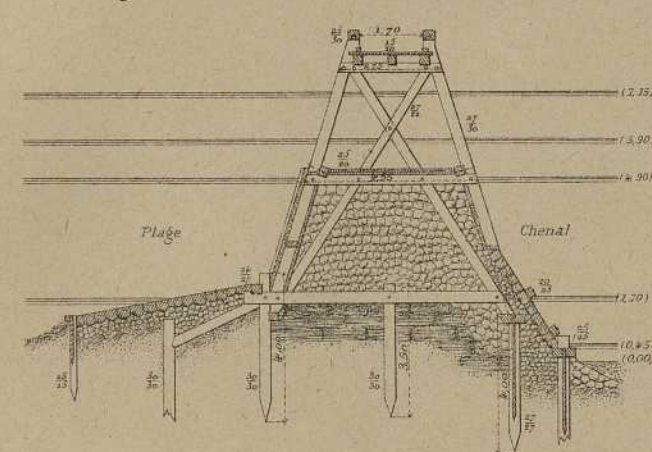


Fig. 8—Détails. Ech. $\frac{1}{40}$

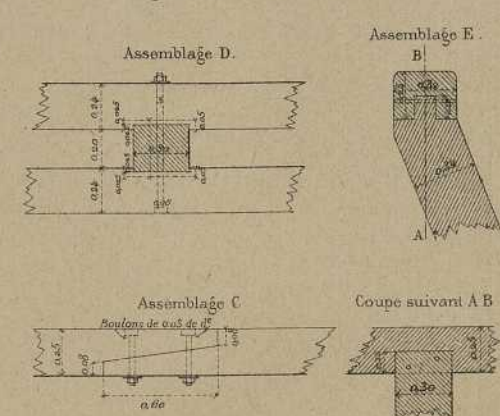


Fig. 9 et 10 — Croquis montrant la disposition adoptée pour le montage des fermes

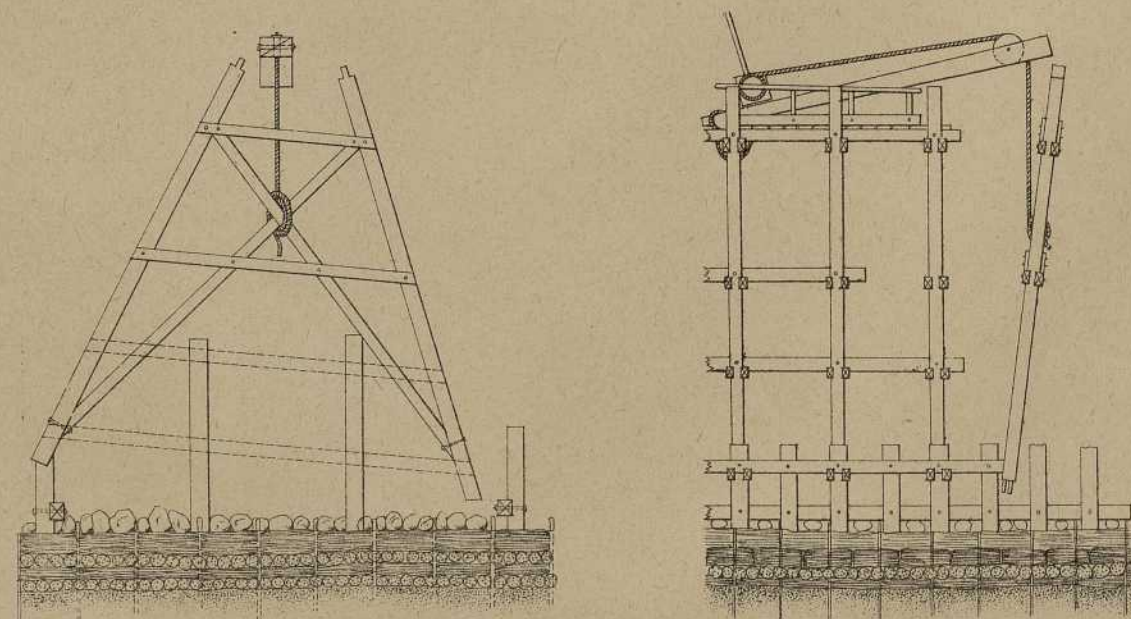
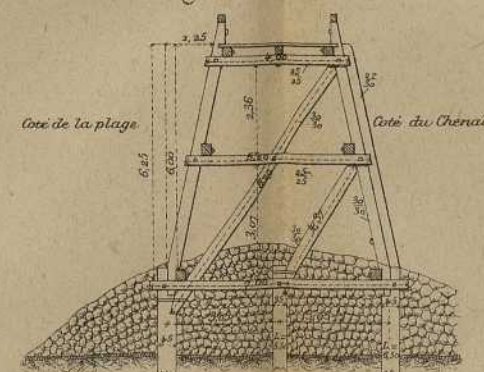


Fig. 3—Coupe.



Echelle de $\frac{1}{200}$

Fig. 1—Elevation.

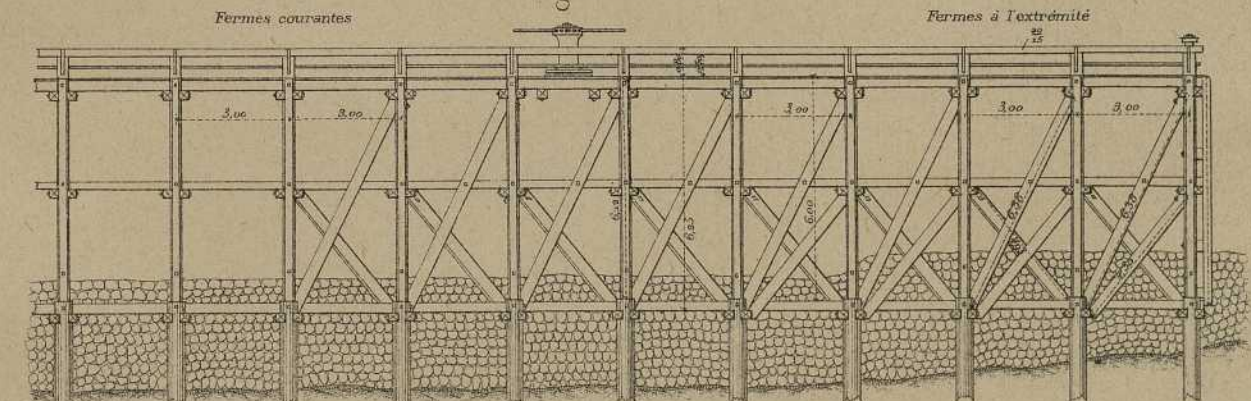
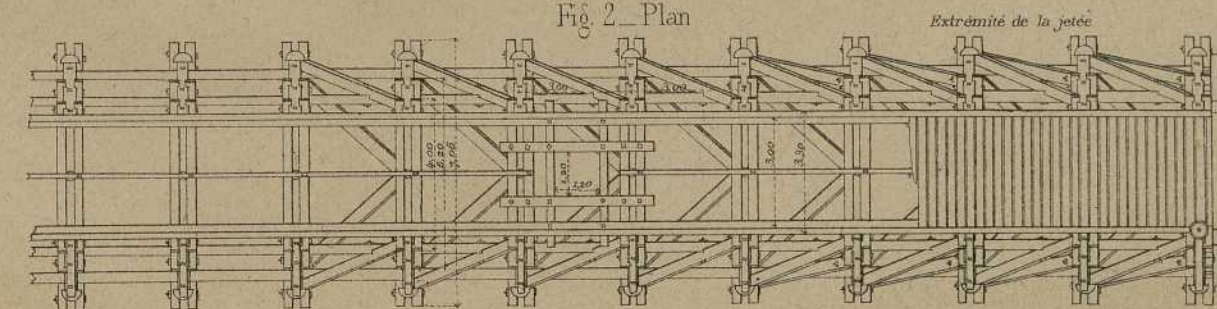


Fig. 2—Plan



Dresse d'après les documents fournis par M.M. les Ingénieurs en 1887

Gravé par A. Simon, rue du Val-de-Grâce 13, Paris

Imp. Dufrenoy, 49, rue du Montparnasse. Paris

PORT DE GRAVELINES.

Fig. 1. — Elevation de la Jetée.

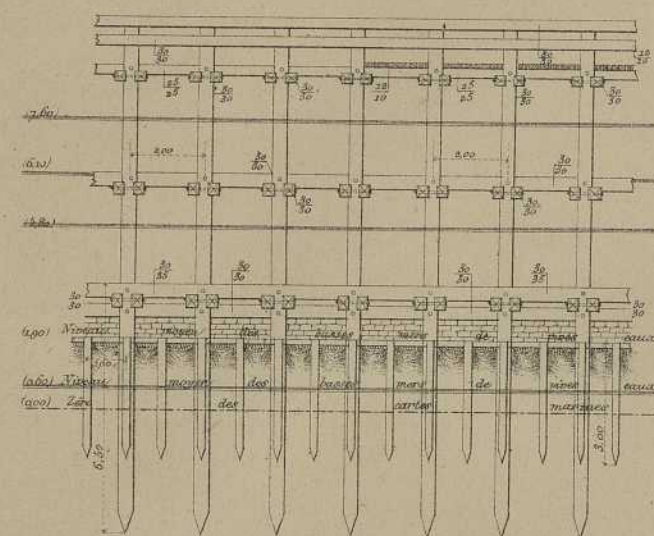


Fig. 2. — Plan de la Jetée.

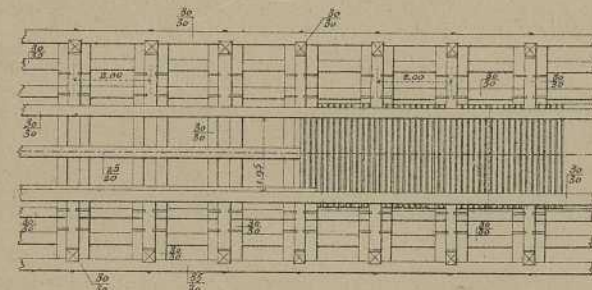


Fig. 3. — Coupe transversale.

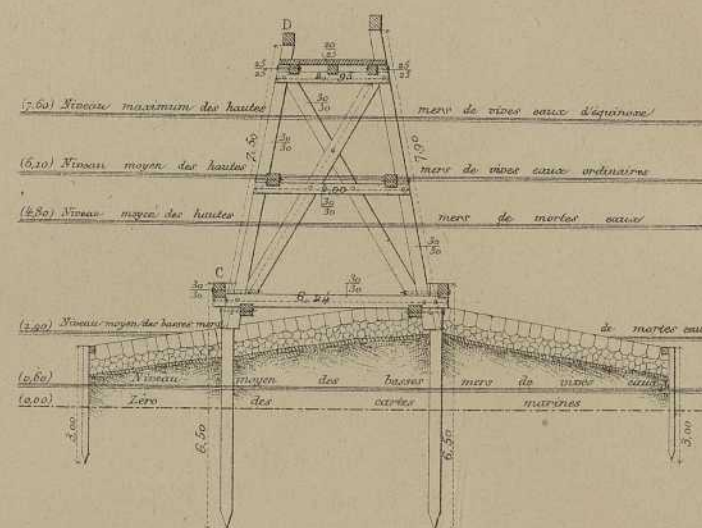


Fig. 4. — Détails des assemblages.

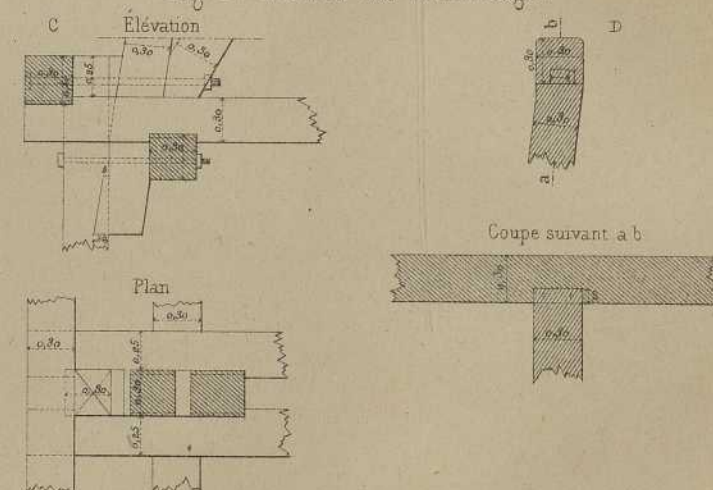


Fig. 7. — Détails A de la sonnette.

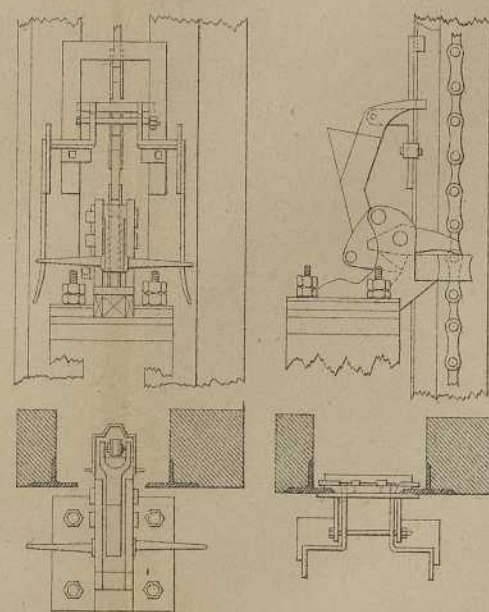


Fig. 8. — Détails B.

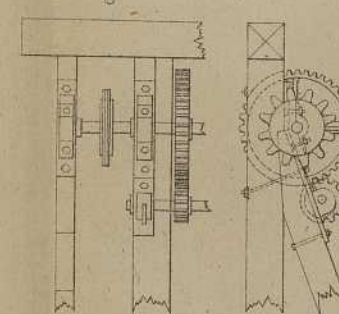


Fig. 5. — Elevation de côté.

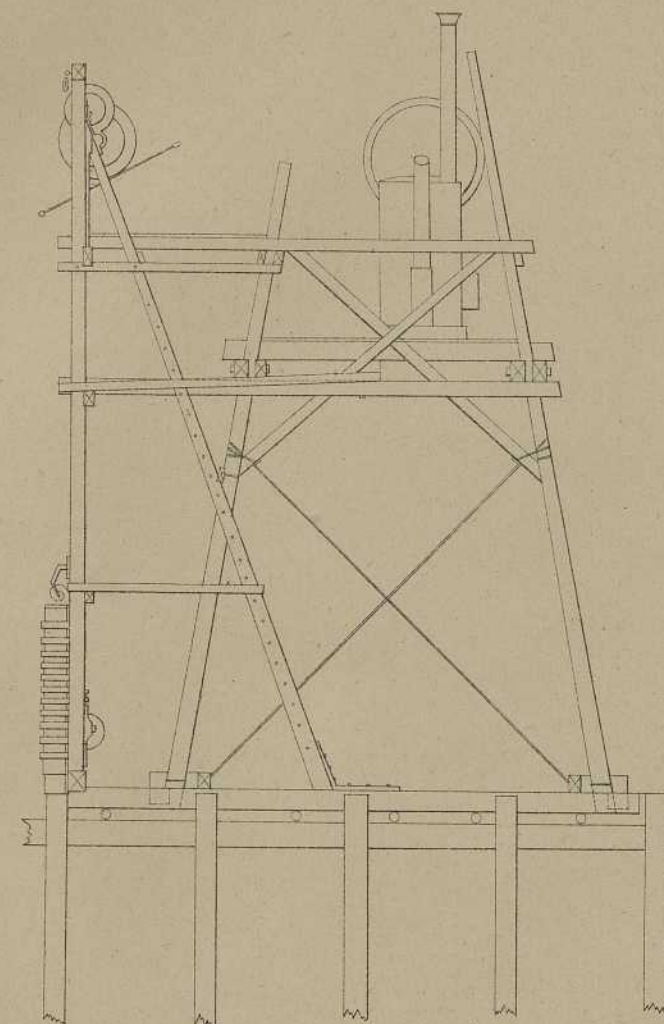
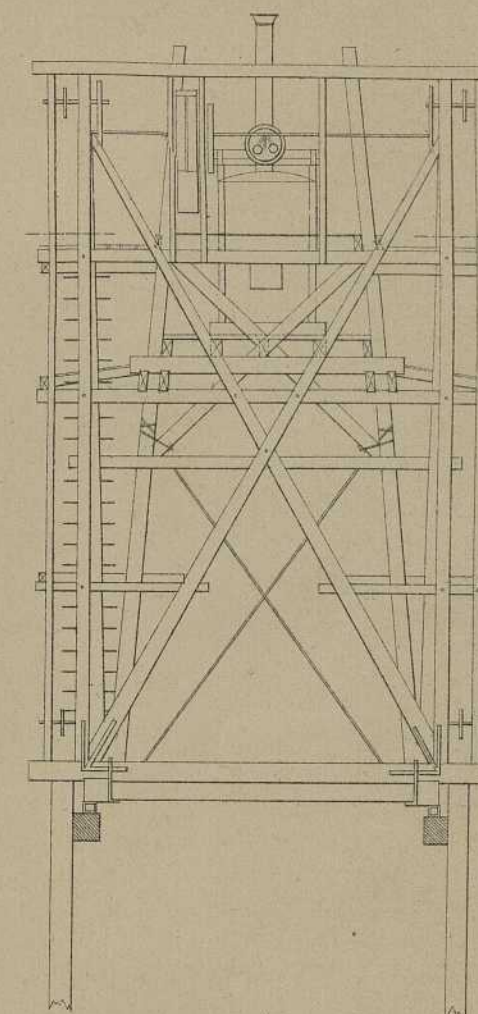


Fig. 6. — Elevation de face.



Echelle { des figures 1, 2, 3..... 200
de la figure 4..... 50
des figures 5, 6..... 100
des figures 7, 8..... 200

PORT DE ST MALO — Jetée d'abri des écluses abandonnées.

Fig. 2. — Elevation.

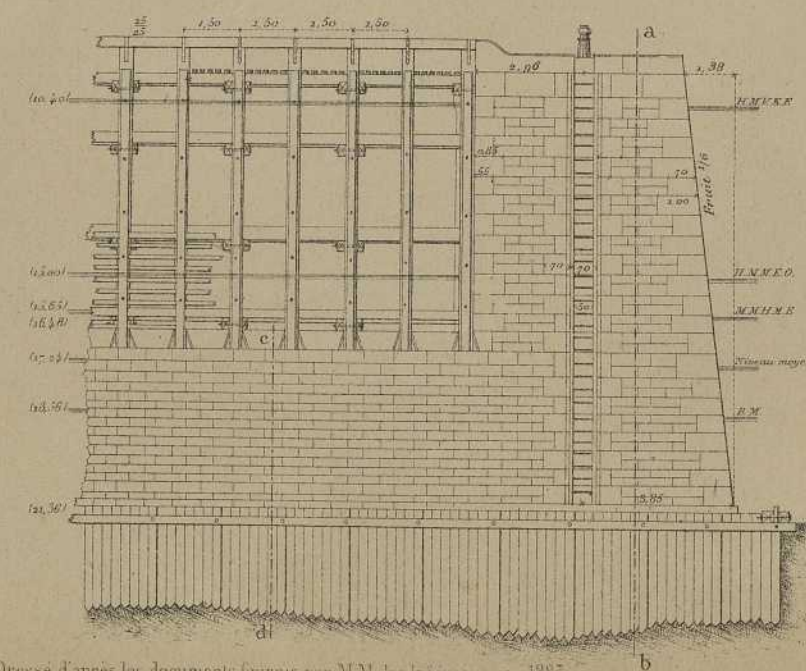


Fig. 3. — Coupe suivant ab, cd.

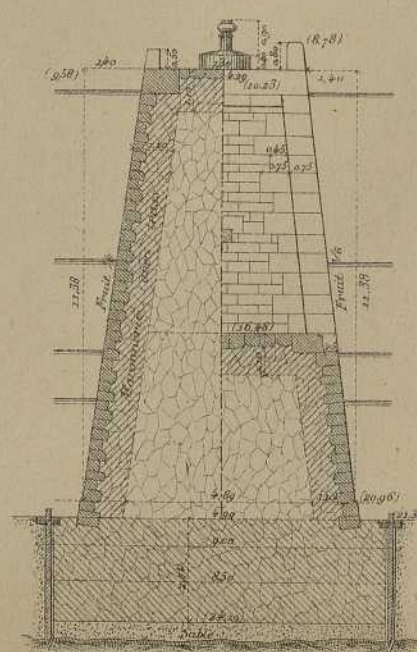


Fig. 1. — Plan général.

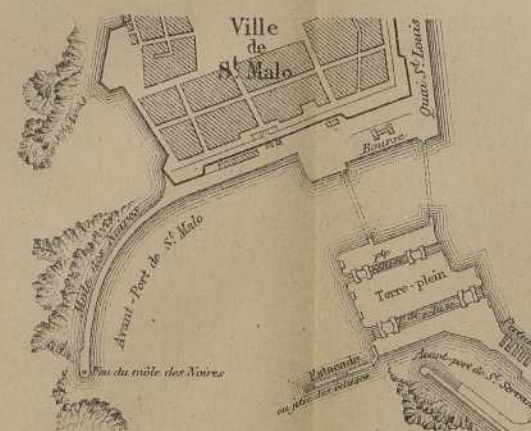


Fig. 5. — Ferme de remplage.

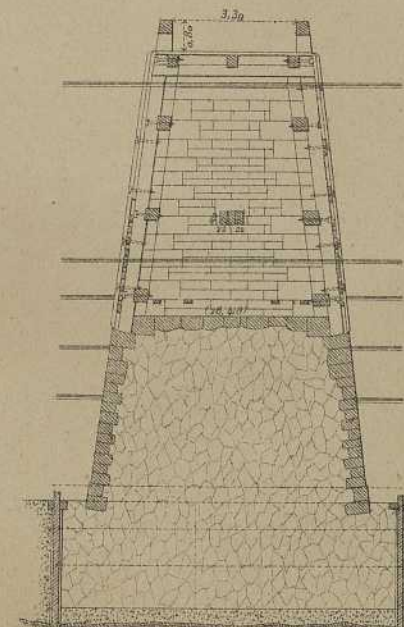


Fig. 4. — Plan du musoir.

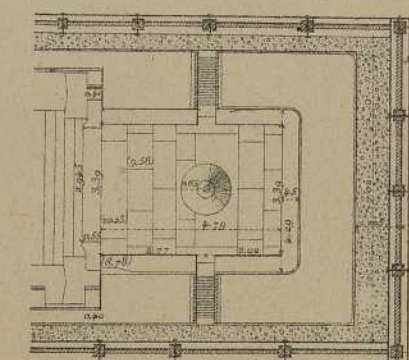
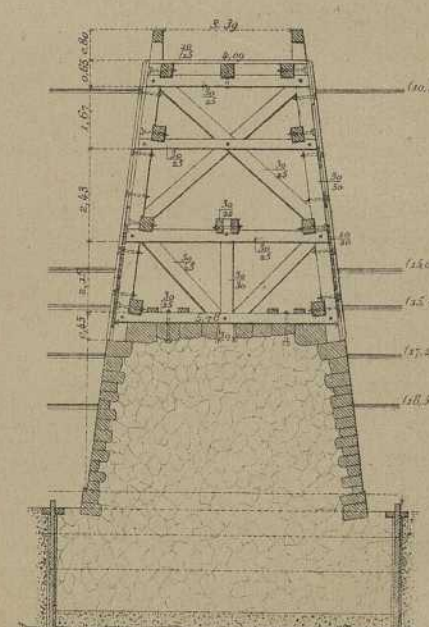


Fig. 6. — Ferme principale.



Echelle { du plan général : 10.000
des autres figures : 200

Dressé d'après les documents fournis par M.M. les ingénieurs en 1887.

Gravé par M. Simon, 27 rue de Valenciennes, Paris.

Imp. Dufrenoy, 42, rue du Montparnasse, Paris.

PORT DE DIELETTE

Fig. 1 — Elévation

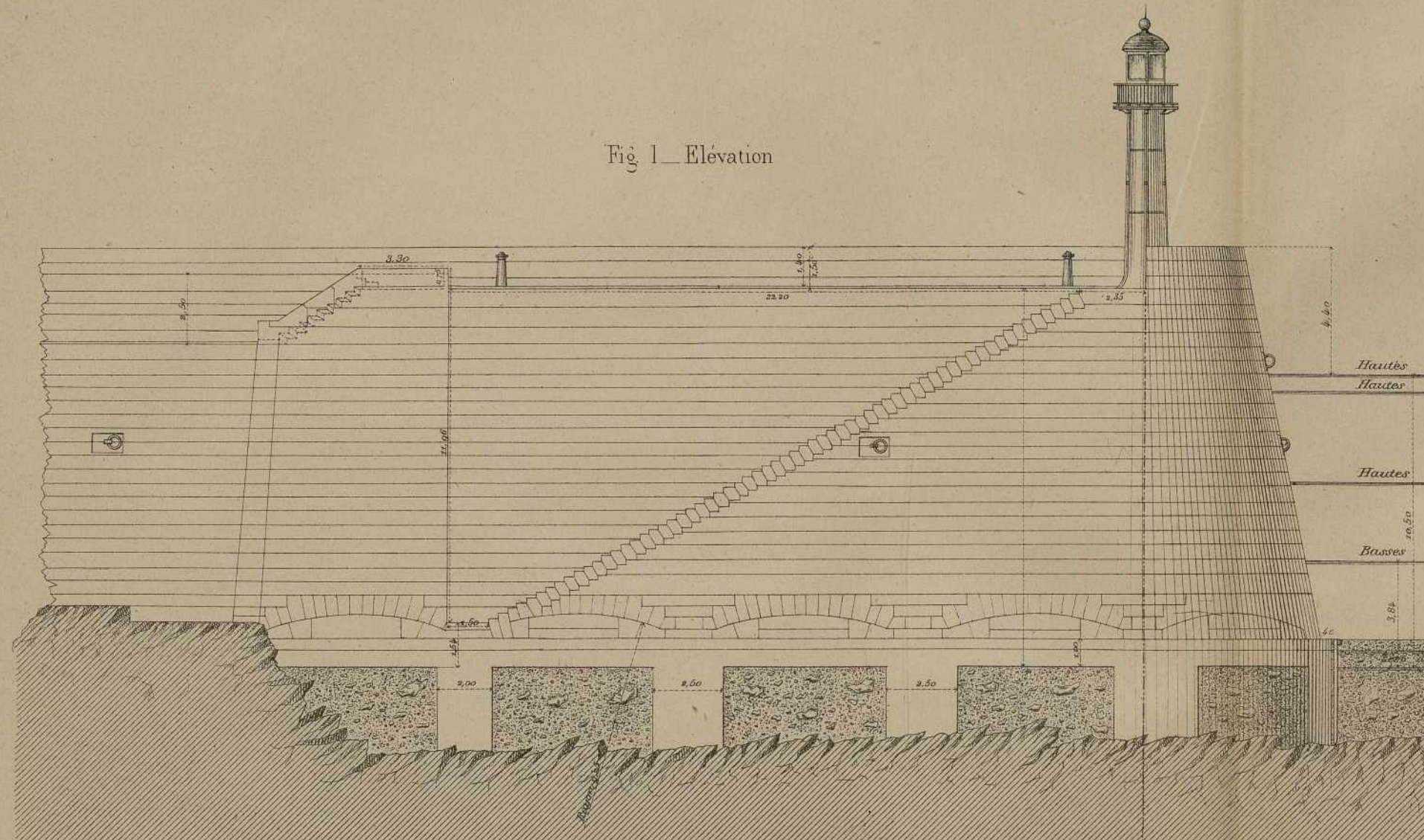
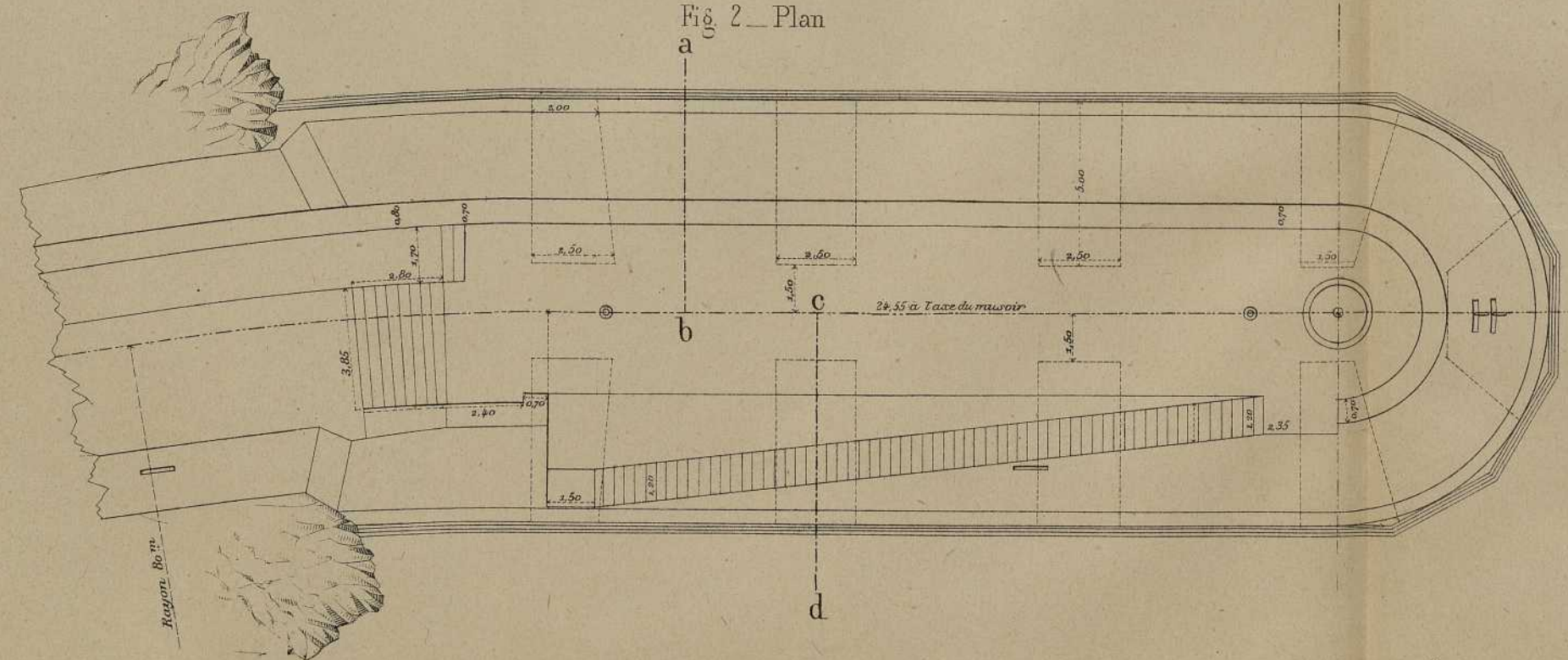
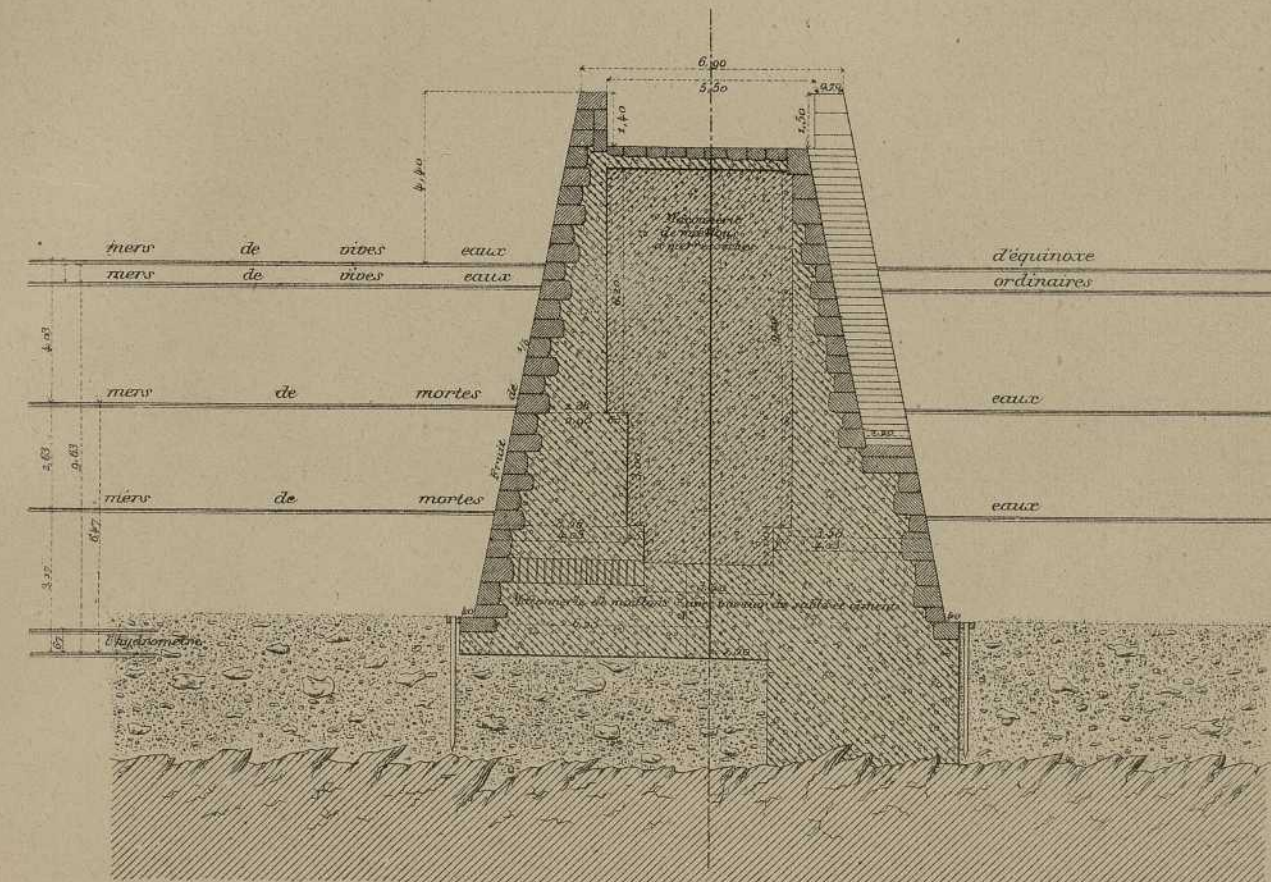


Fig. 2 — Plan

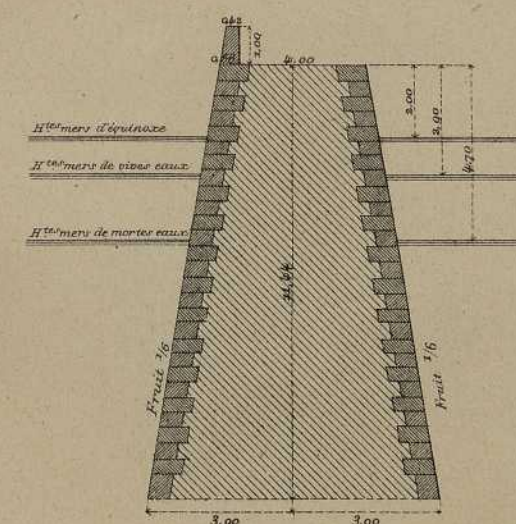
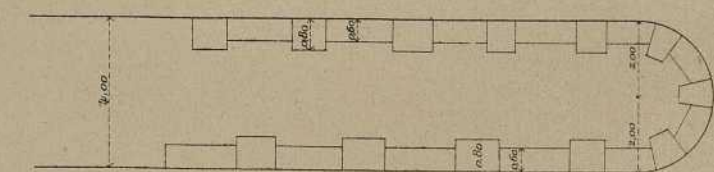
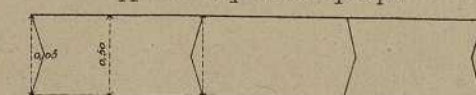
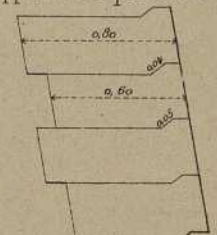
Echelle de $\frac{1}{200}$

Dressé d'après les documents fournis par MM. les Ingénieurs en 1887

Gravé par A. Simon, 3, rue du Val-de-Grâce, Paris

Fig. 3.
Coupe suivant ABCD

Port de refuge de l'île de Batz

Fig. 1.
Coupe transversale du môle.Fig. 2.
Plan du môleFig. 3.
Appareil des pierres du parapetFig. 4.
Appareil du parement

Brise-lames Vidame

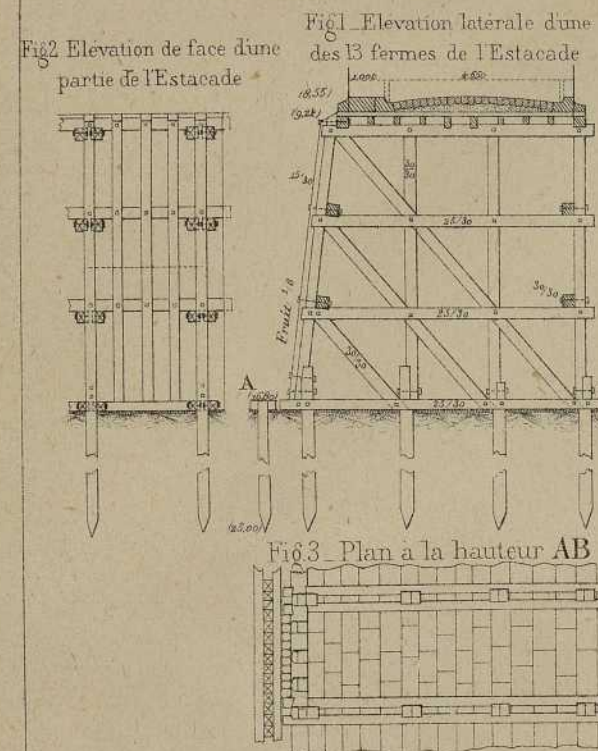


Fig. 8. Brise-lames Nord

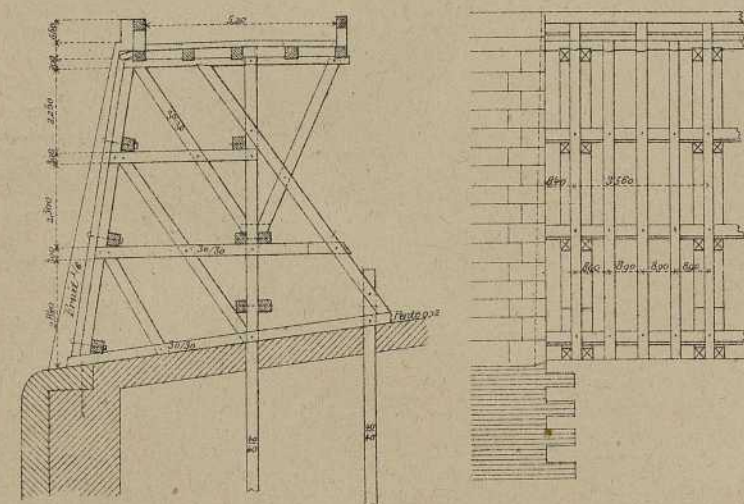


Fig. 4. Elevation d'une ferme

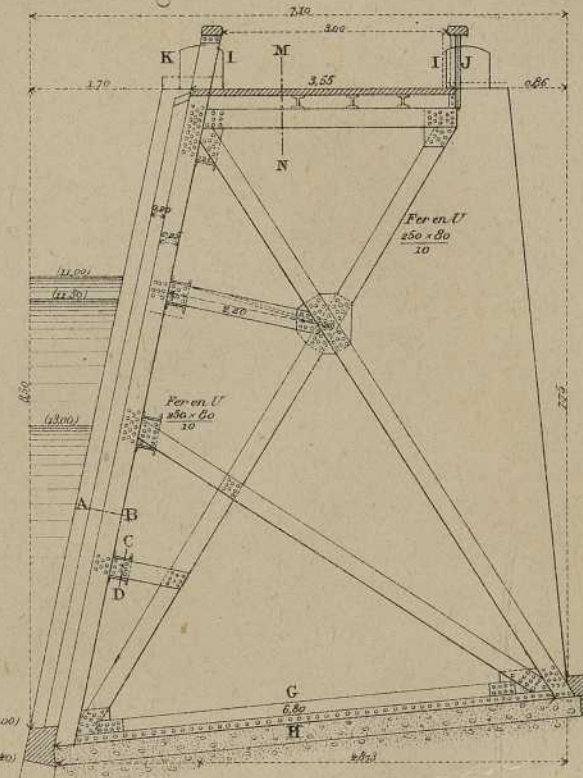
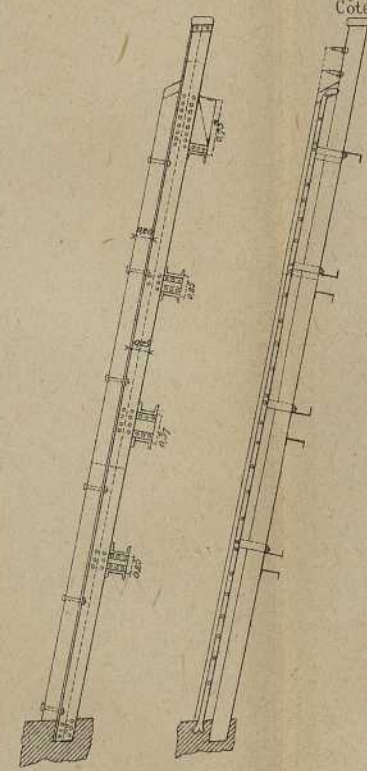
PORT DU HAVRE
Estacade métallique

Fig. 6. Elevation d'un poteau.



Elevation d'une échelle

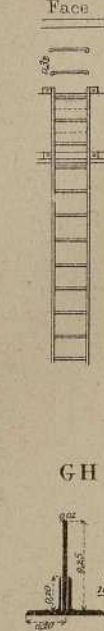


Fig. 7. Détails des fers

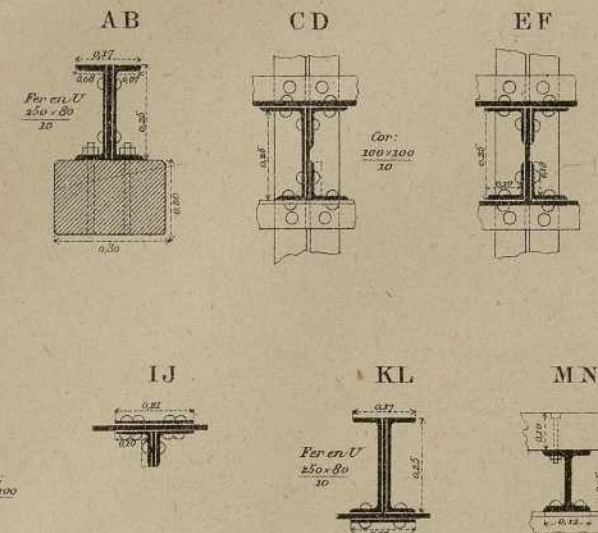
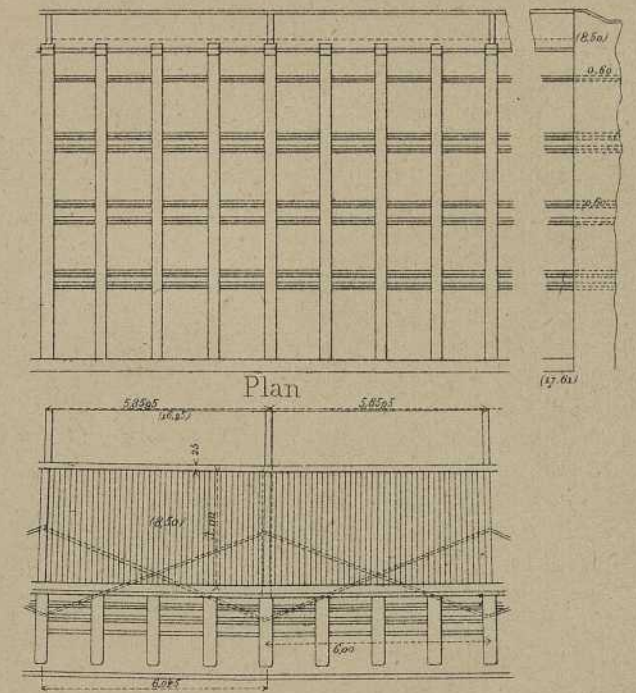


Fig. 5. Elevation de l'estacade



PORT DE DIEPPE Brise-lames de la Jetée Ouest

Fig. 12. Elevation

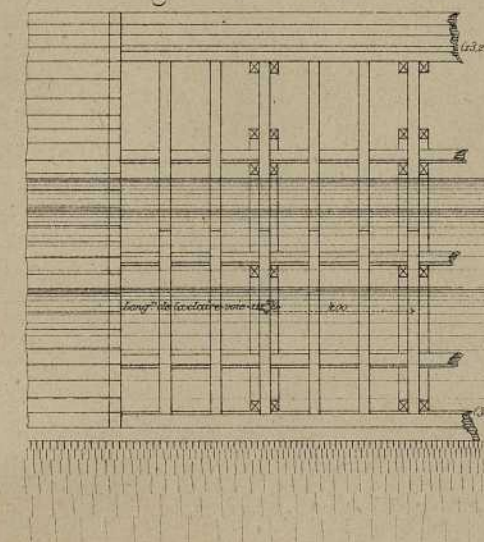
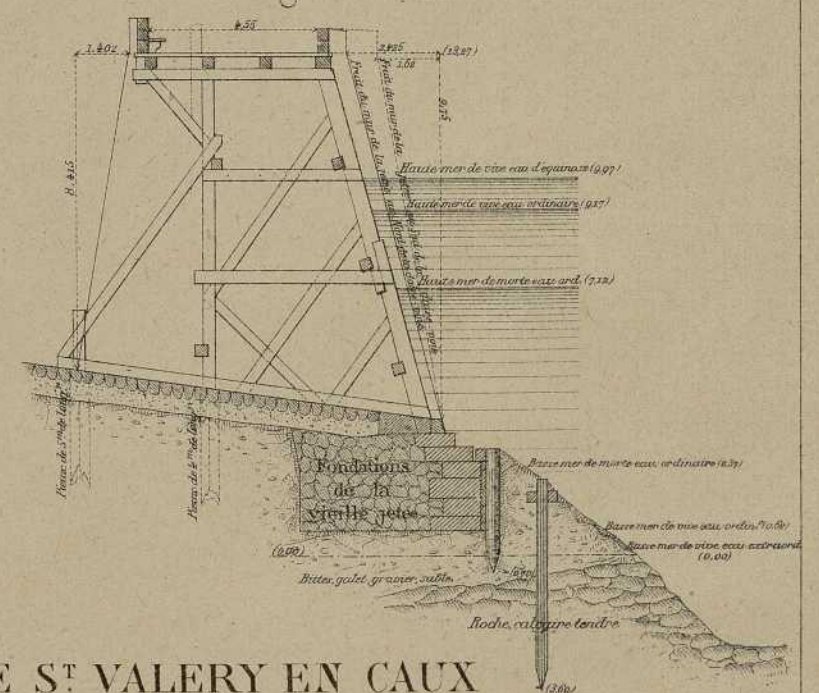


Fig. 13. Coupe



PORT DE FÉCAMP

Coupe moyenne du brise-lames Sud

Fig. 14

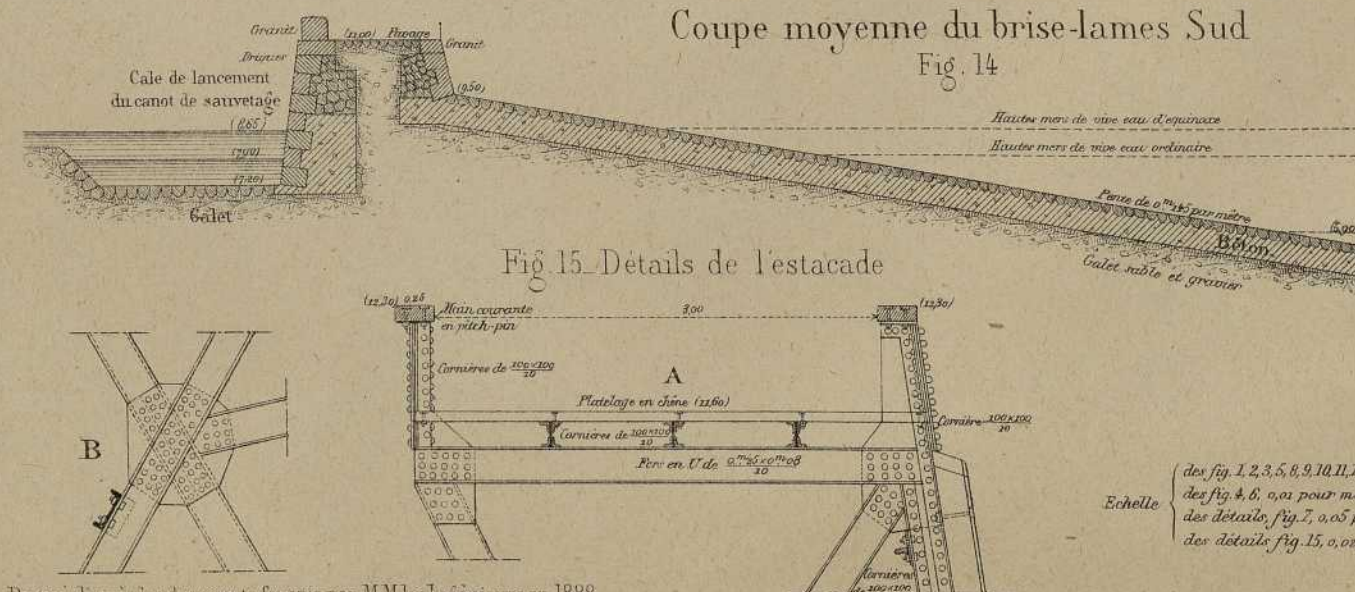
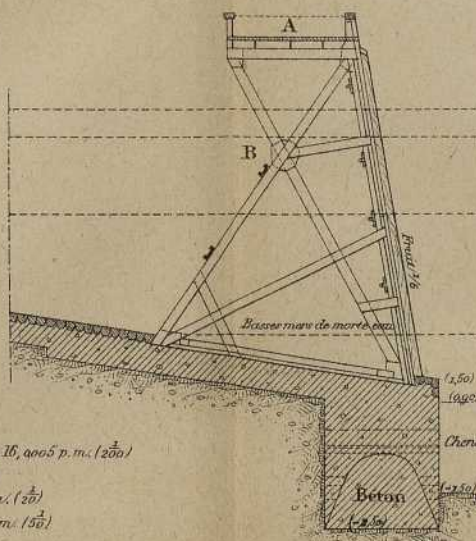
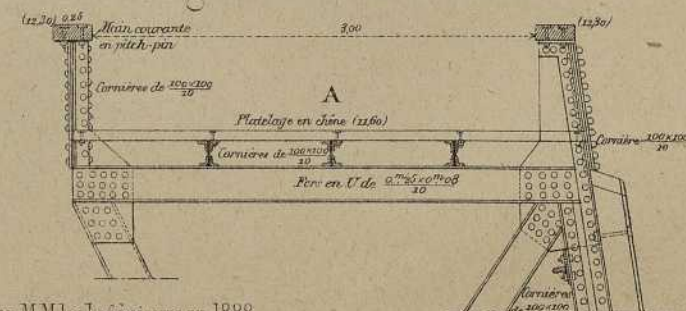


Fig. 15. Détails de l'estacade

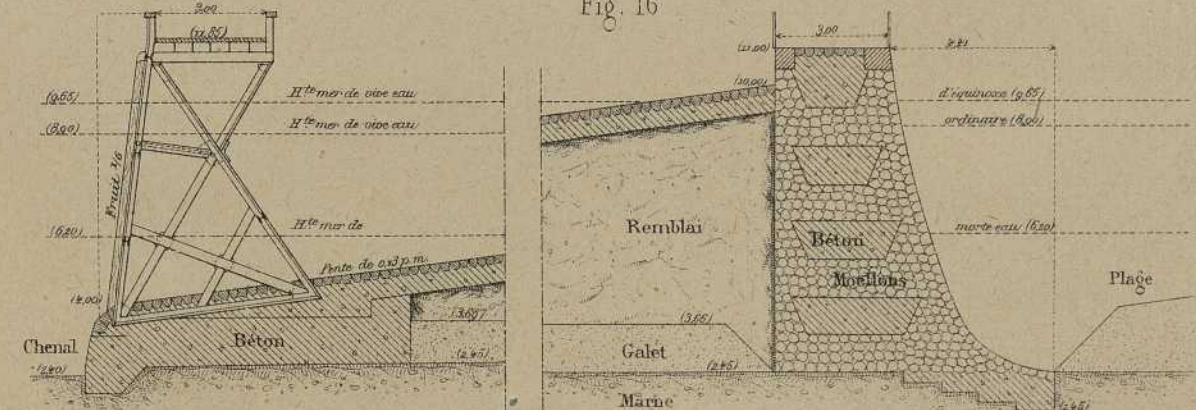


(des fig. 1, 2, 3, 5, 6, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000)

PORT DE ST VALERY EN CAUX

Coupe du brise-lames Est

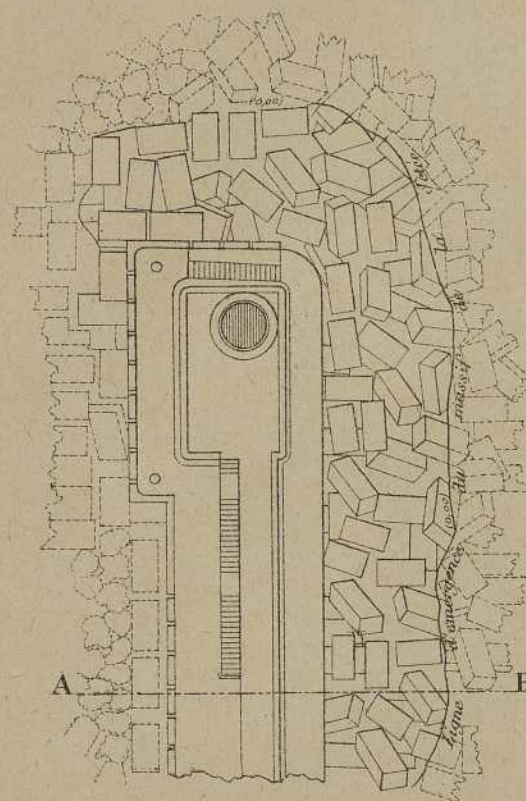
Fig. 16



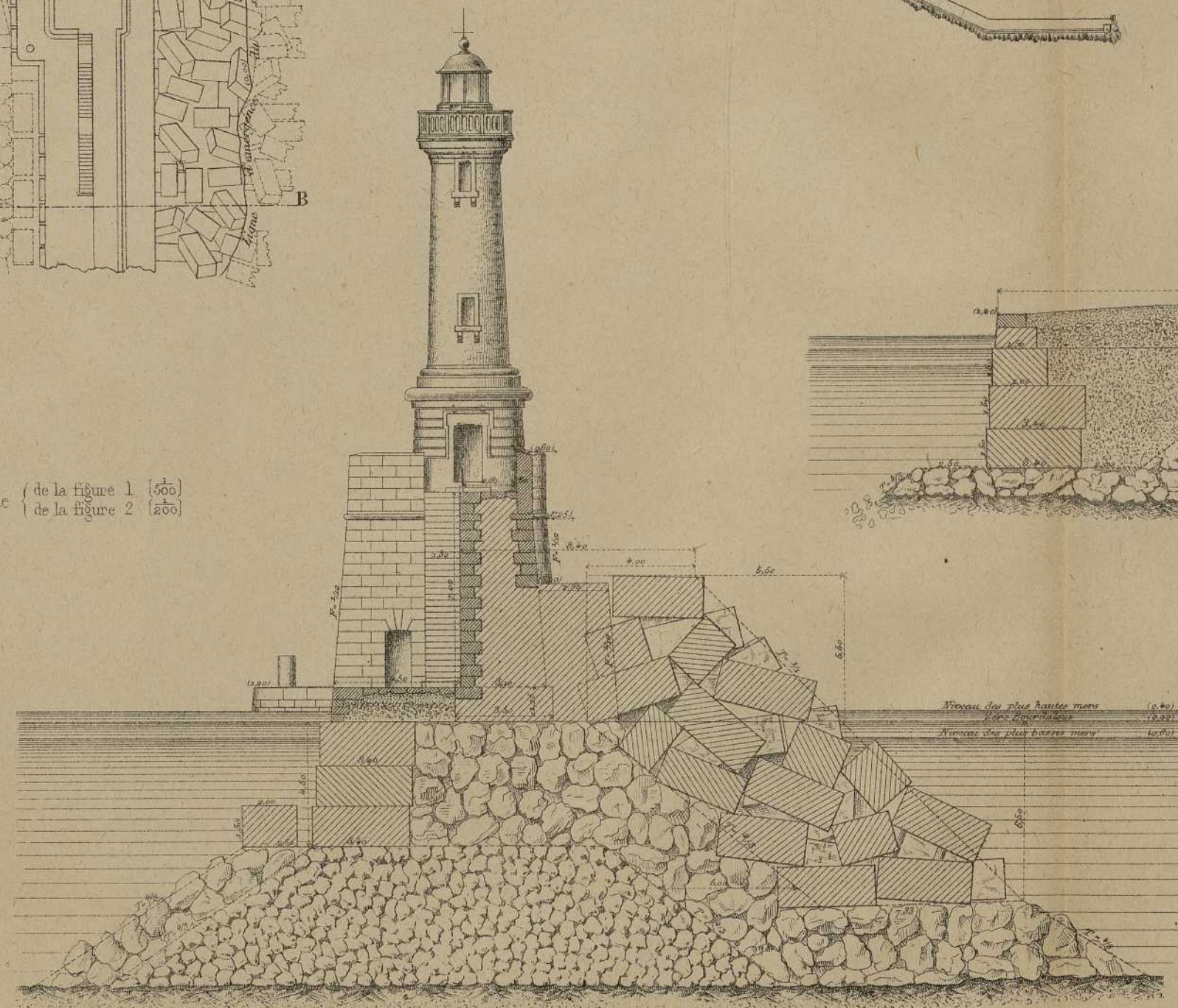
PORT DE NICE

Prolongement de la jetée

Fig 1 — Plan du Musoir

Fig 2 — Profil de la jetée
(Coupe suivant AB)

Echelle { de la figure 1 $\frac{1}{500}$
de la figure 2 $\frac{1}{200}$



Dressé d'après les documents fournis par M.M. les Ingénieurs en 1888

Gravé par A. Simon, 35 rue du Val-de-Grâce - Paris

PORT DE MENTON — Construction d'une jetée

Fig 1 — Plan général

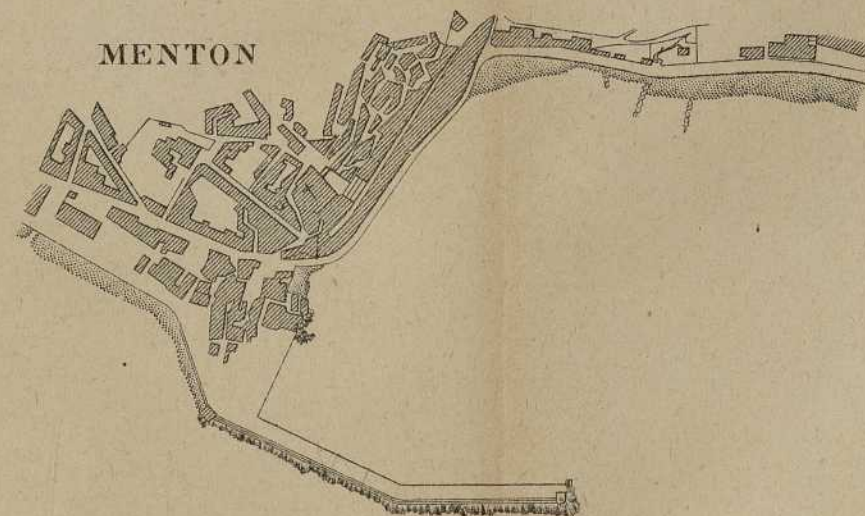
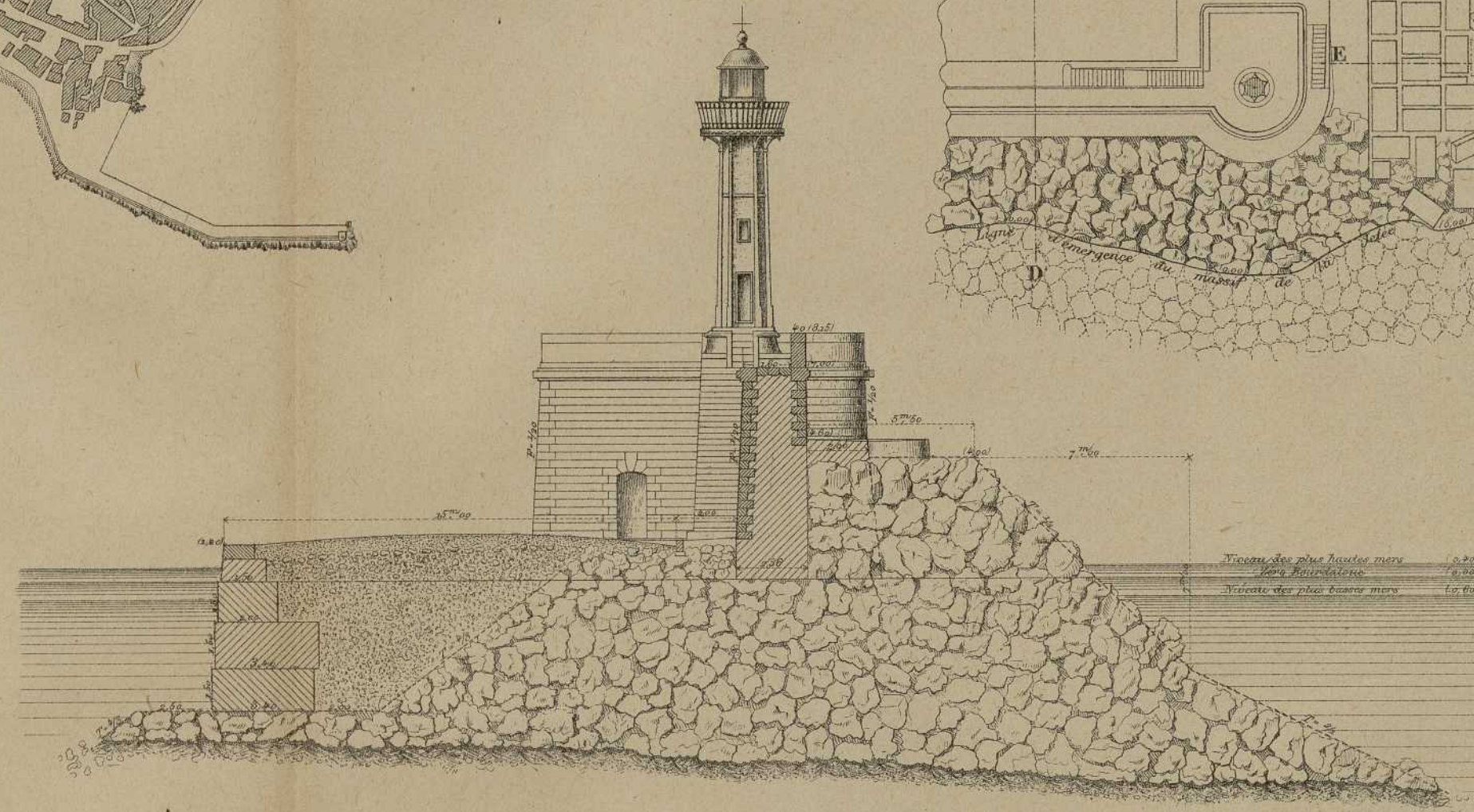
Fig 3 — Profil de la jetée
(Coupe suivant CD)

Fig 2 — Plan du Musoir

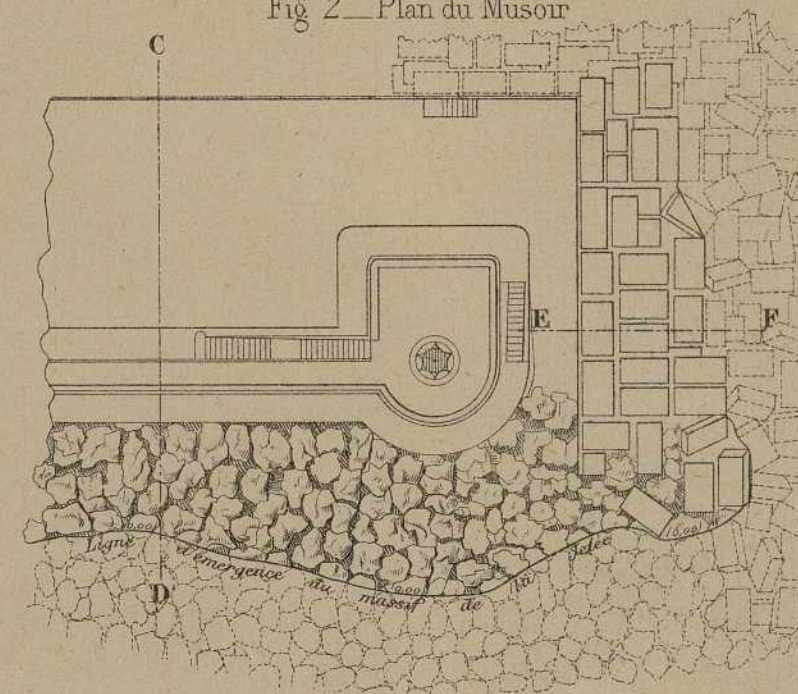
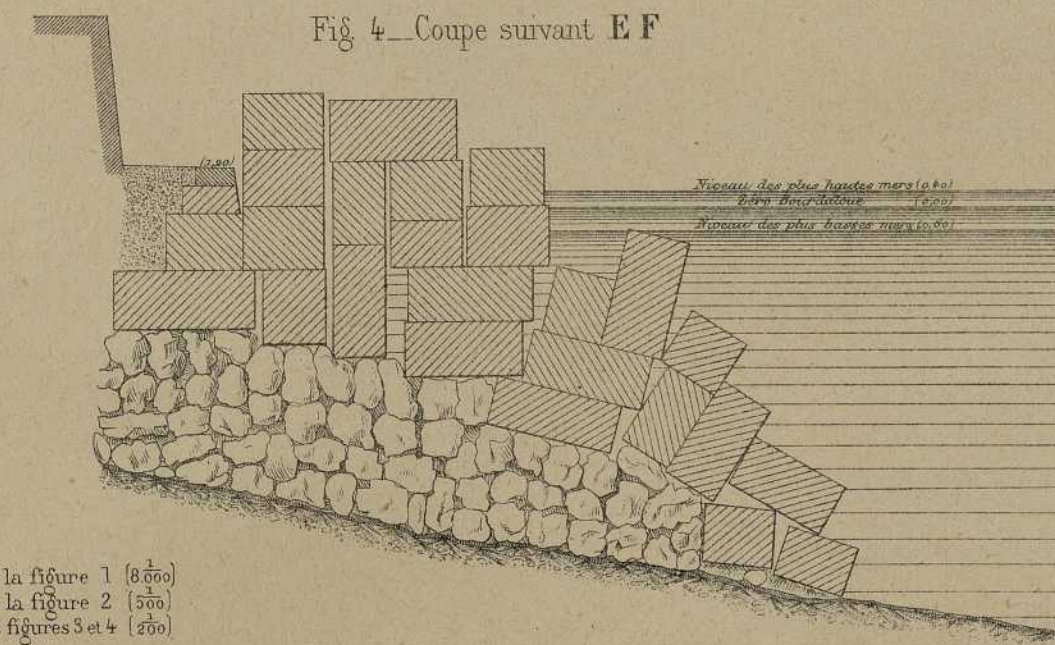


Fig 4 — Coupe suivant EF



Echelle { de la figure 1 $\frac{1}{8000}$
de la figure 2 $\frac{1}{500}$
des figures 3 et 4 $\frac{1}{200}$

Imp. Dufrenoy, 49, rue du Montparnasse - Paris.

Port d'Alger.

Fig. 1. Projet Poiré 1837.



Fig. 3. Projet Raffeneau 1840.



Fig. 5. Projet Lainé 1841.



Fig. 7. Projet Bernard 1842.

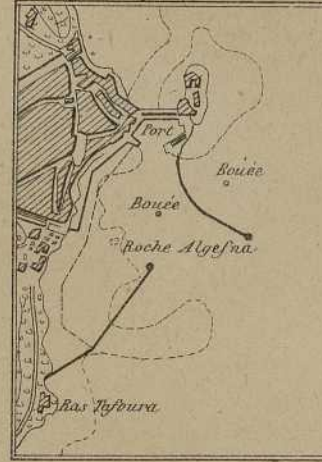


Fig. 9. Projet définitif 1847.

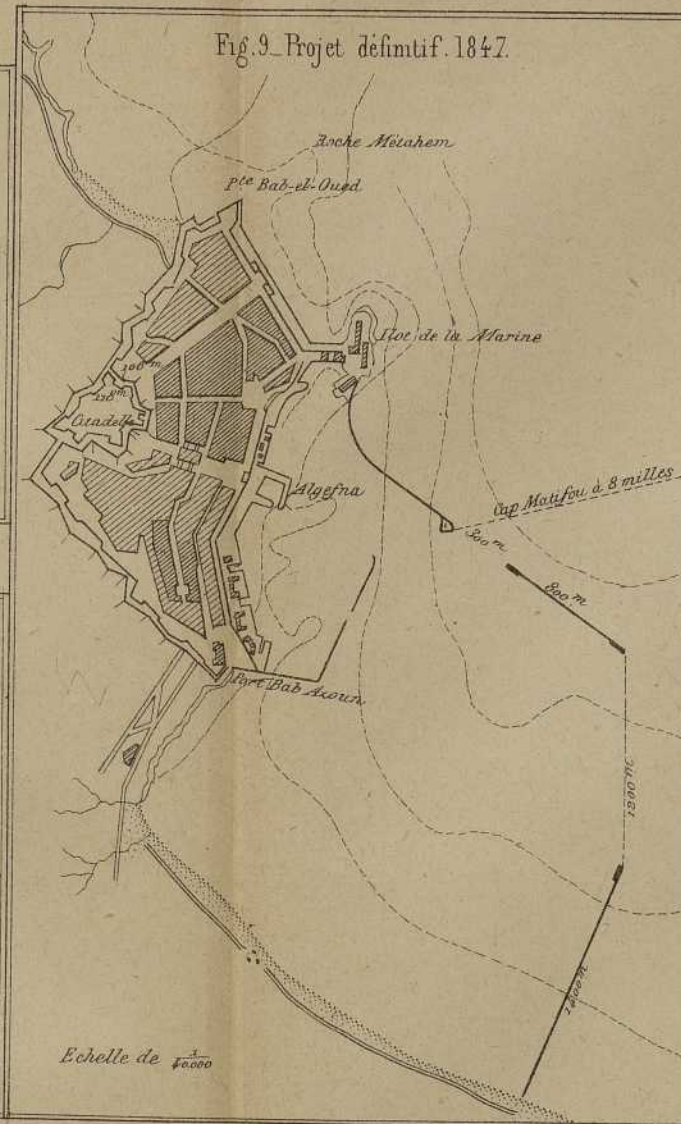


Fig. 2. Projet Rang 1837.

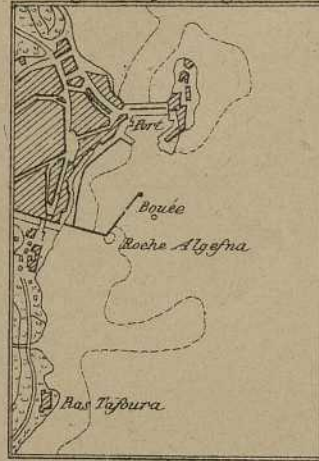


Fig. 4. Projet Delassaux 1841.

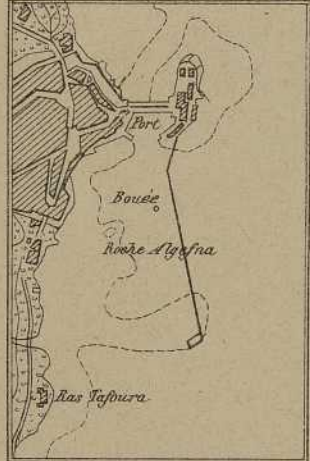
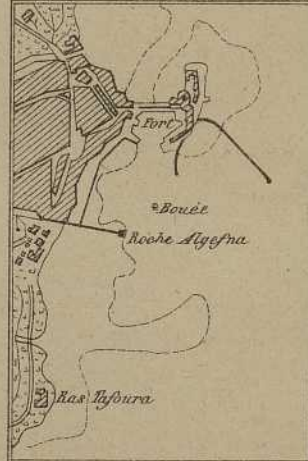
Fig. 6. 4^e Projet Raffeneau 1842.Fig. 8 1^{er} Projet de Lieussou 1845.

Fig. 10. Plan du chantier de construction des blocs.

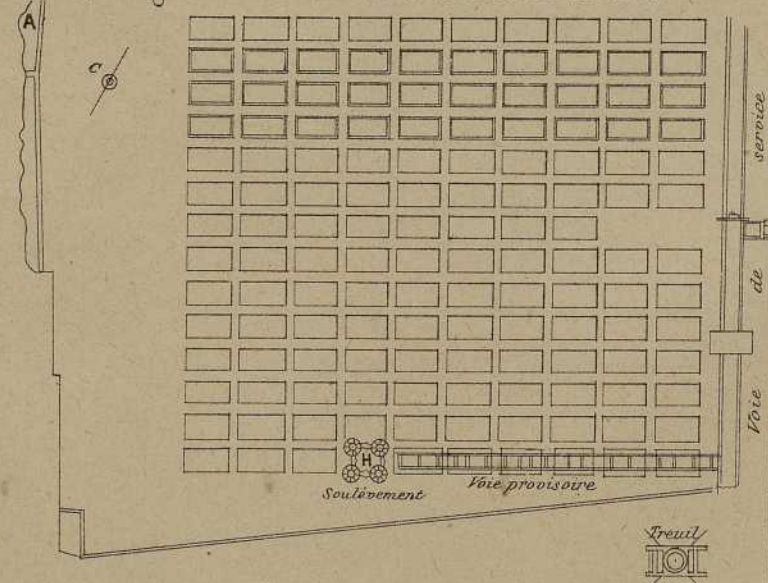


Fig. 15. Plan de l'enracinement de la digue du Nord après la tempête du 17 Novembre 1843.

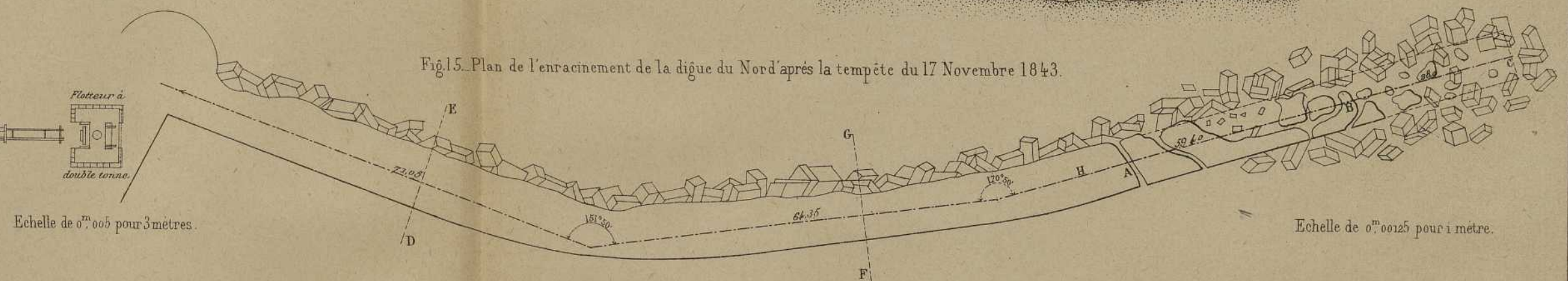


Fig. 16. Profil en long de l'extrémité bouleversée.

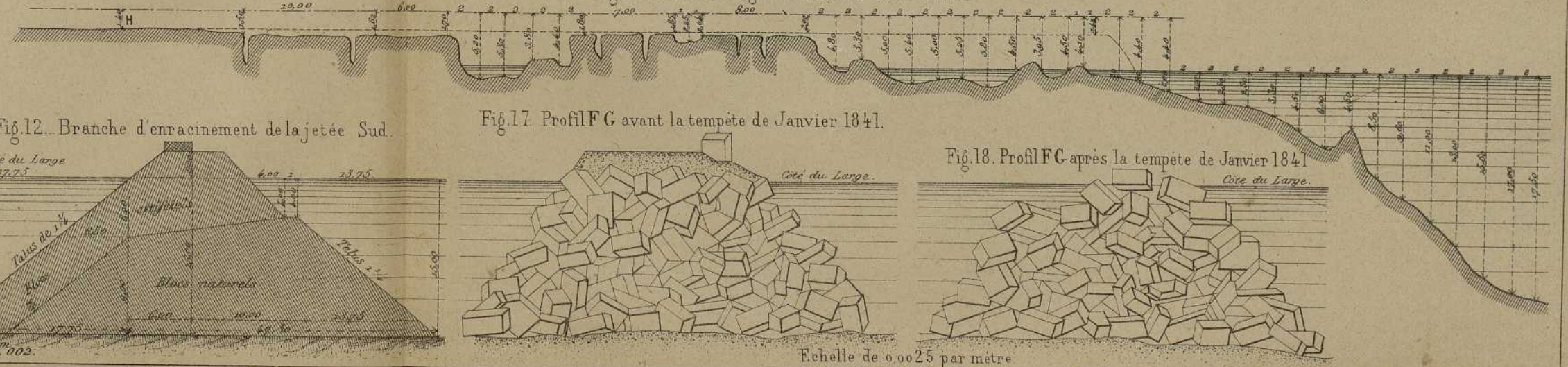


Fig. 11. Branche d'large de la jetée Sud.

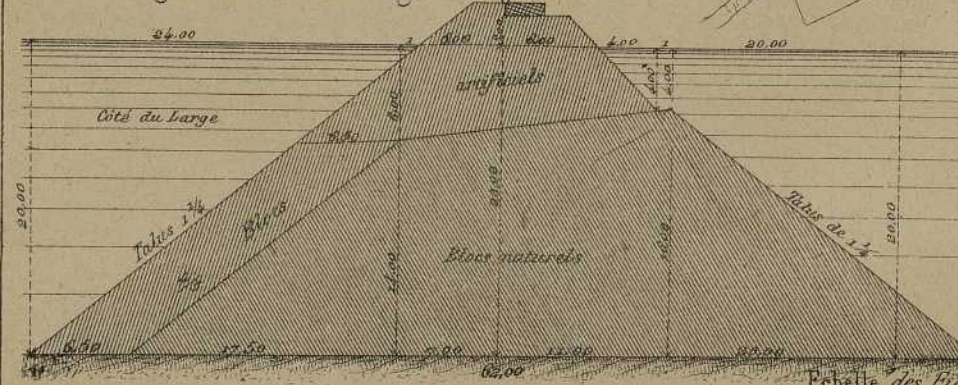


Fig. 12. Branche d'enracinement de la jetée Sud.

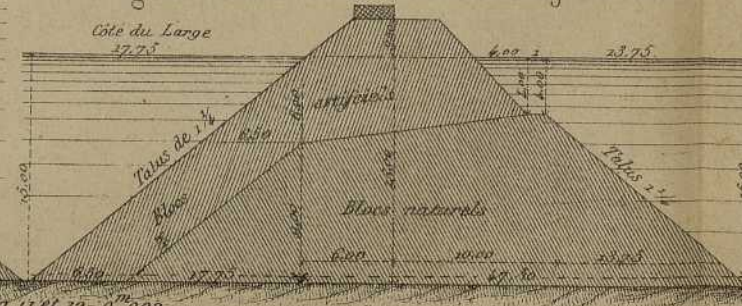


Fig. 17. Profil FG avant la tempête de Janvier 1841.

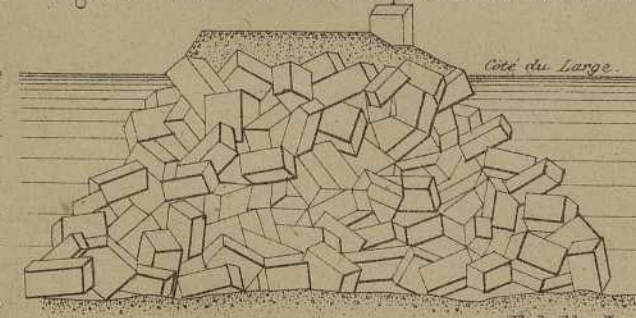
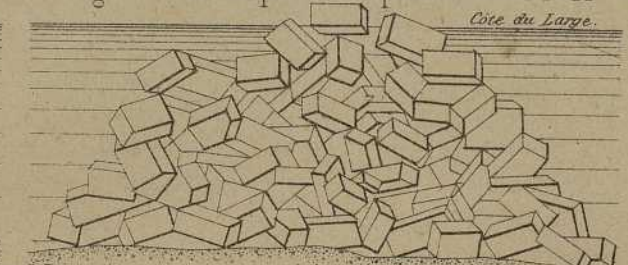


Fig. 18. Profil FG après la tempête de Janvier 1841.



PORT D'ORAN

Fig 2. Profil type adopté après la tempête de 1869

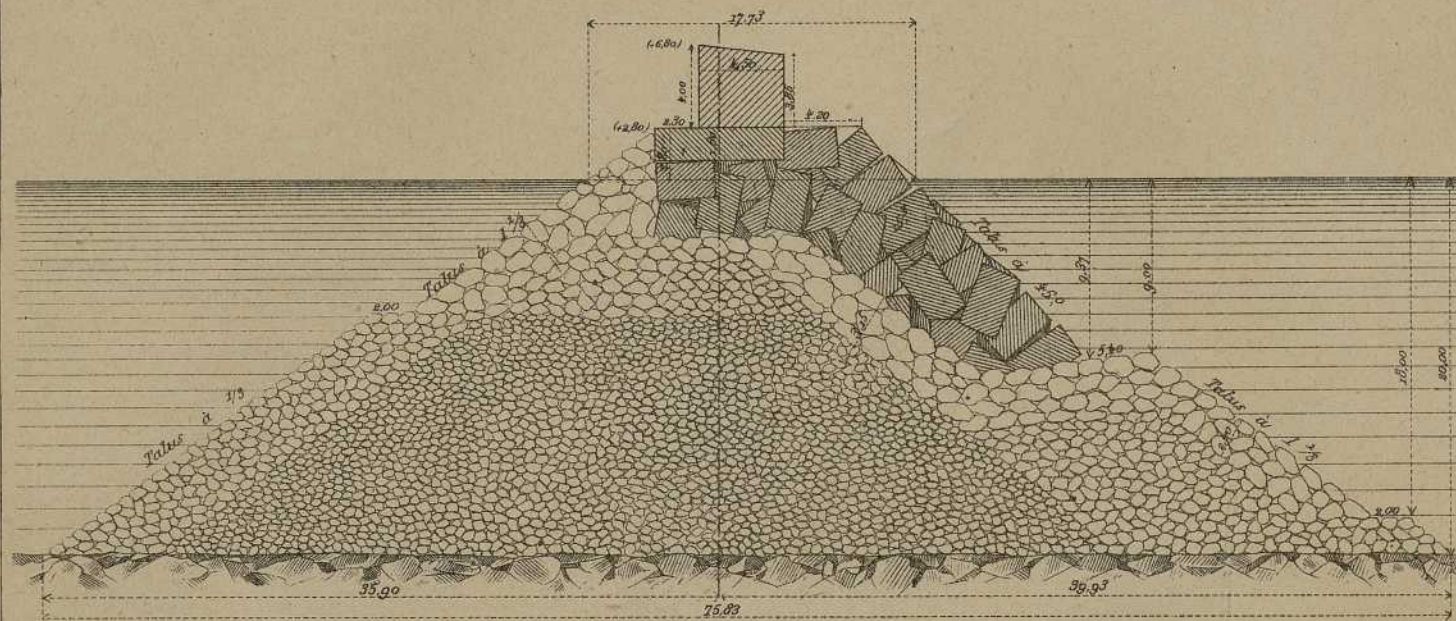


Fig 1. Plan du port

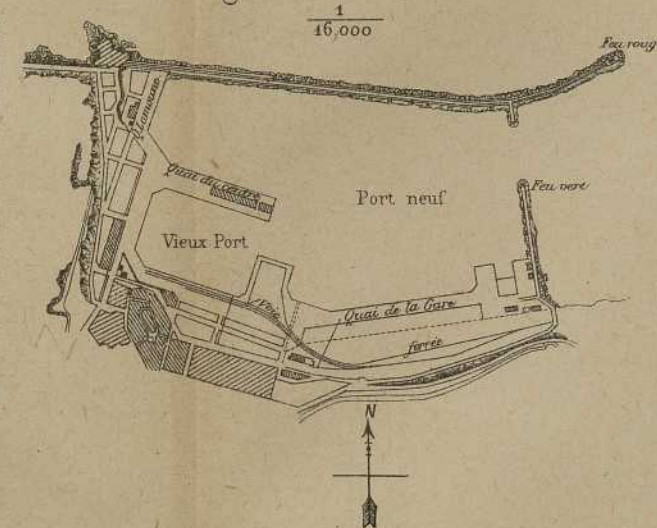


Fig 3. Profil adopté après la tempête de 1876 pour les parties bouleversées de la jetée.

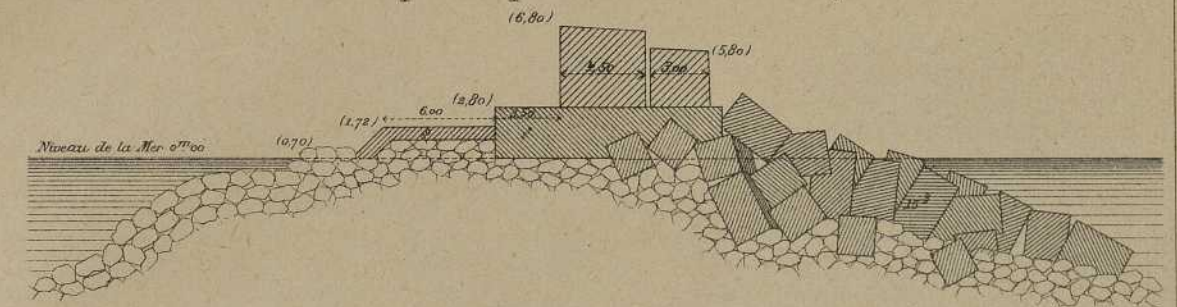
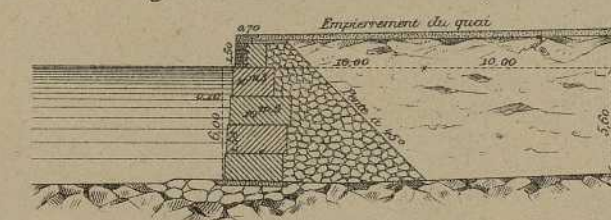


Fig 4. Profil de mur de quai



PORT DE MOSTAGANEM

Fig 2. Jetée Nord

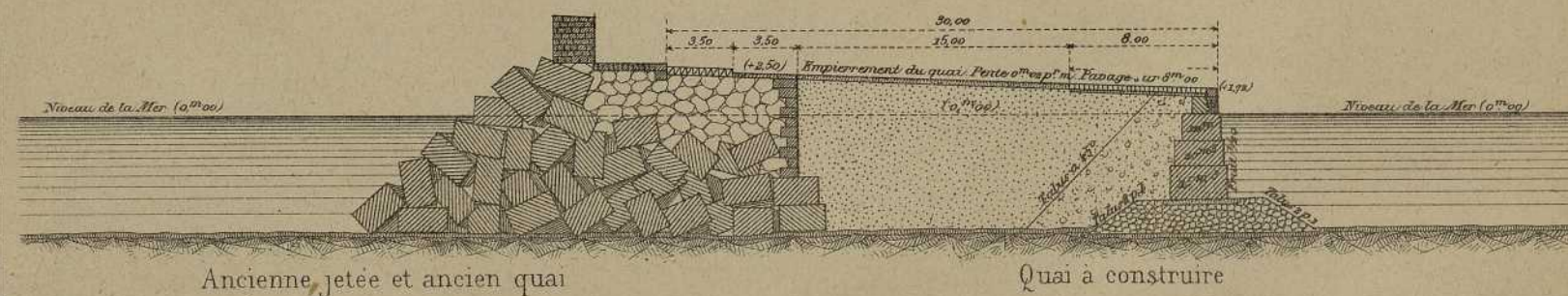
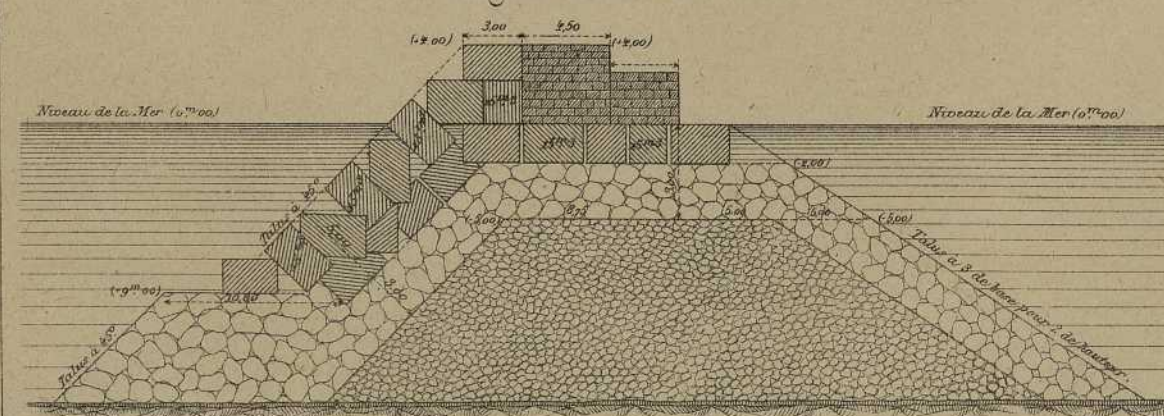
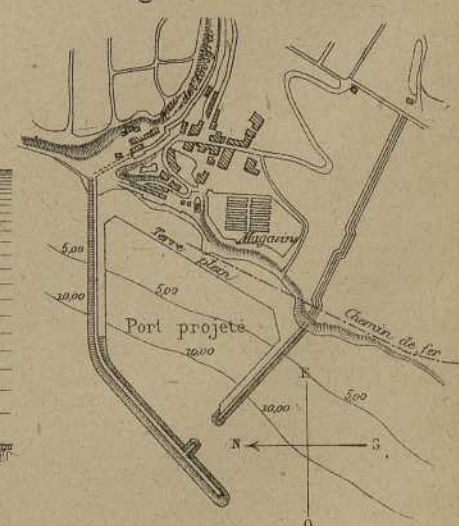


Fig 3. Jetée Nord-Ouest



Echelle 0.0025 p.M. 1/400

Fig 1. Plan du port



PORT DE BÉNISAF

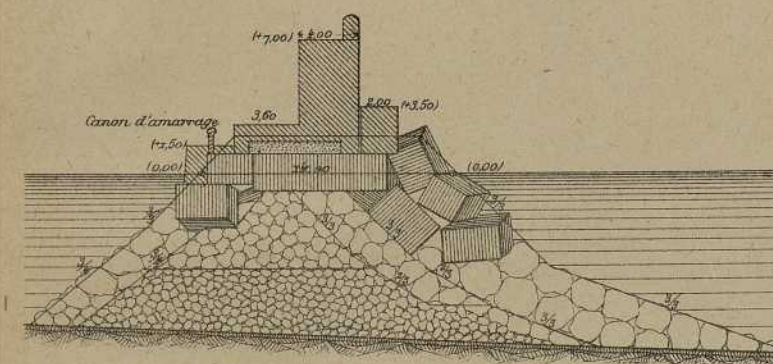
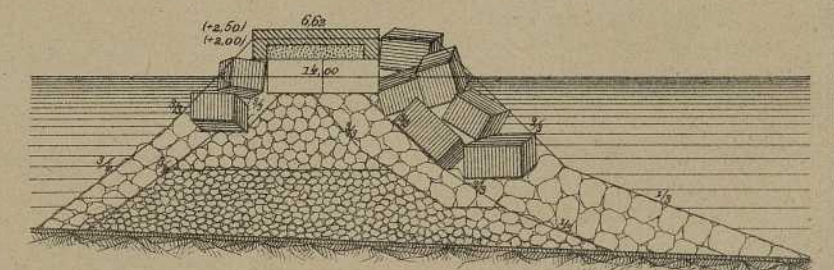
Fig 2. Jetée Nord - 1^{re} PartieFig 3. Jetée Nord - 2^{me} Partie

Fig 4. Jetée Ouest

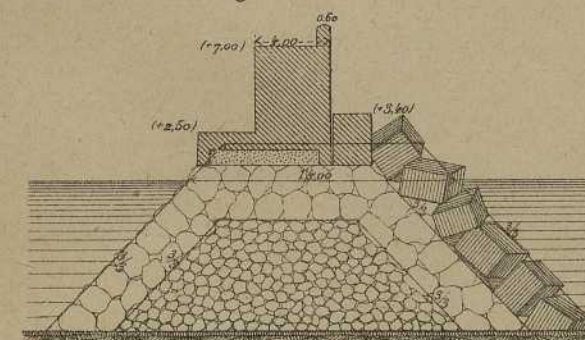


Fig 5. Jetée Est

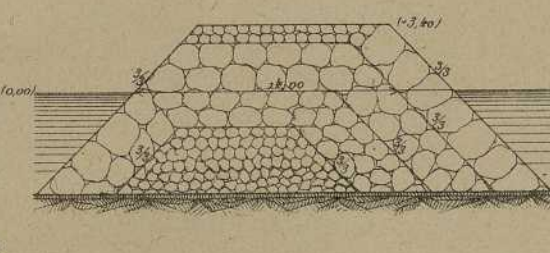
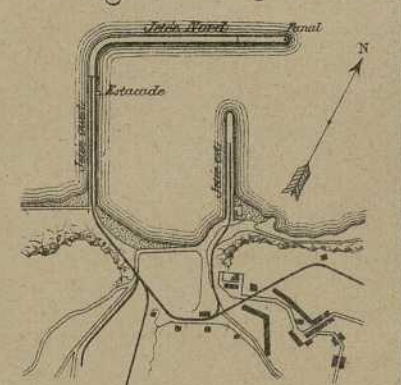


Fig 1. Plan du port

Echelle de 1/20,000 pour le plan
— id — 1/400 pour les sections

Imp. Dufrenoy, 59, rue du Montparnasse Paris.

Digue de Cherbourg. Cônes de de Cessart.

Fig. 1. Manœuvres de la flottaison et de la Remorque d'une Caisse prise sur son chantier de construction.

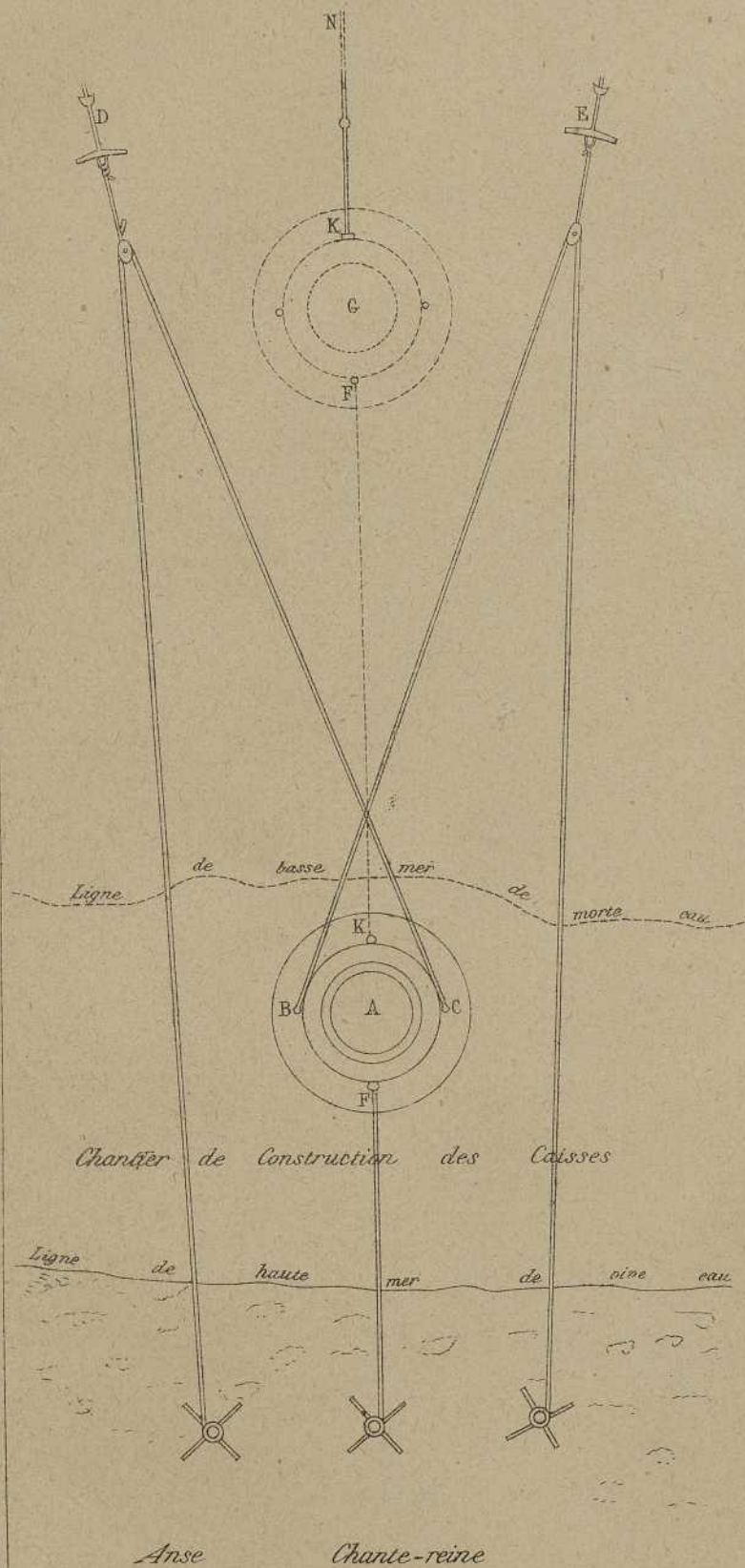


Fig. 2. a. Demi-Coupe du cône sur le chantier.

Fig. 2. b. Demi-Élévation du cône flottant.

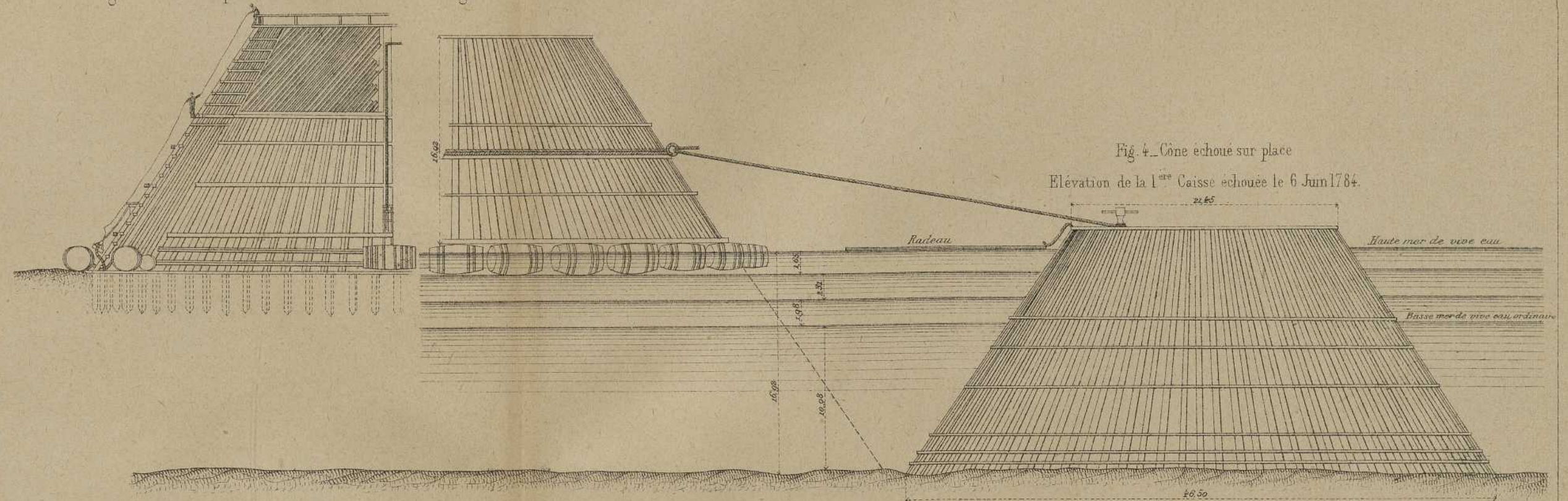


Fig. 3. Plan du cône avec les tonnes de flottaison sur le chantier.

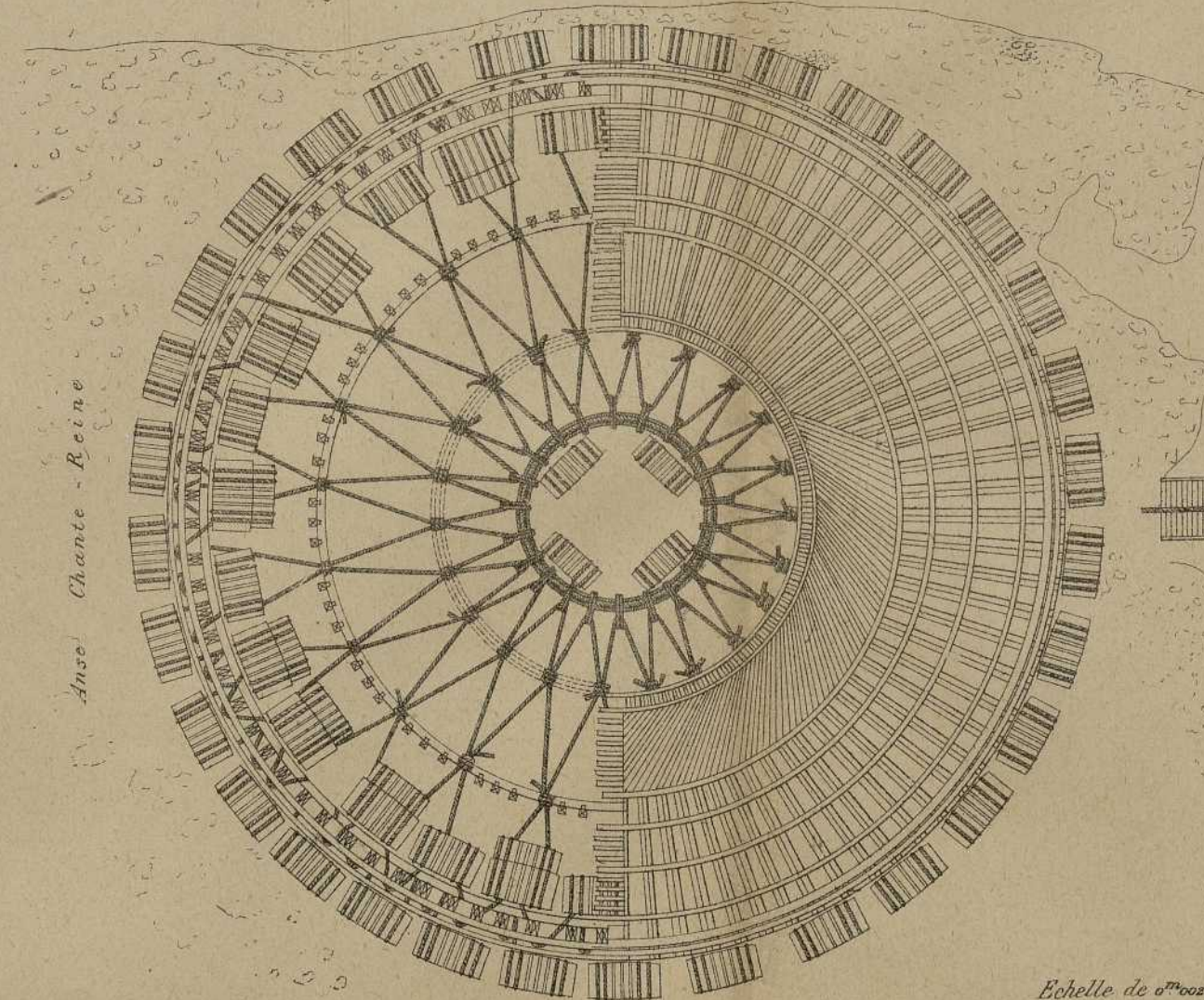
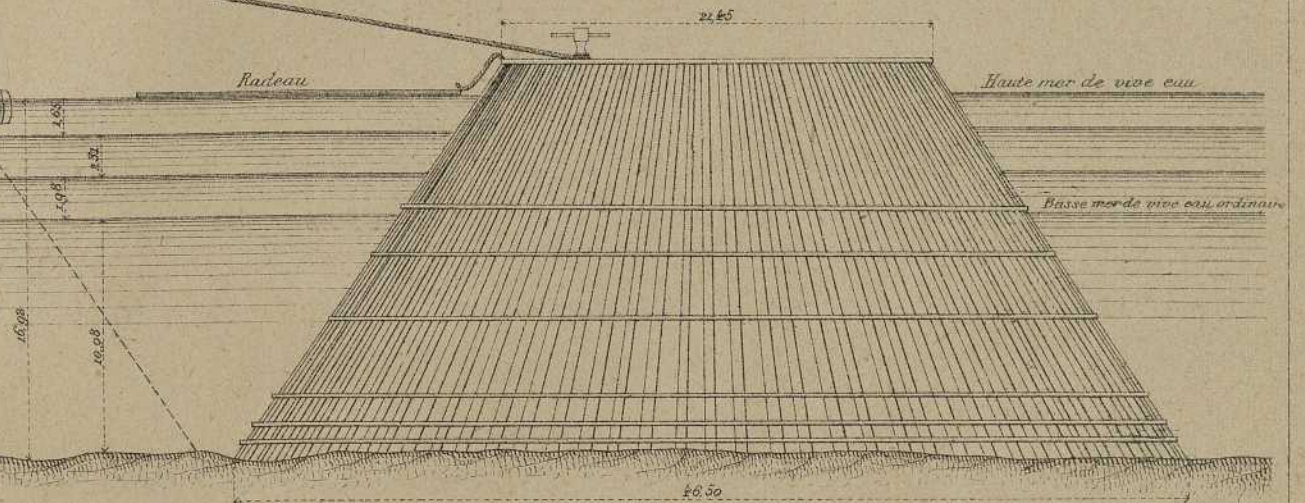
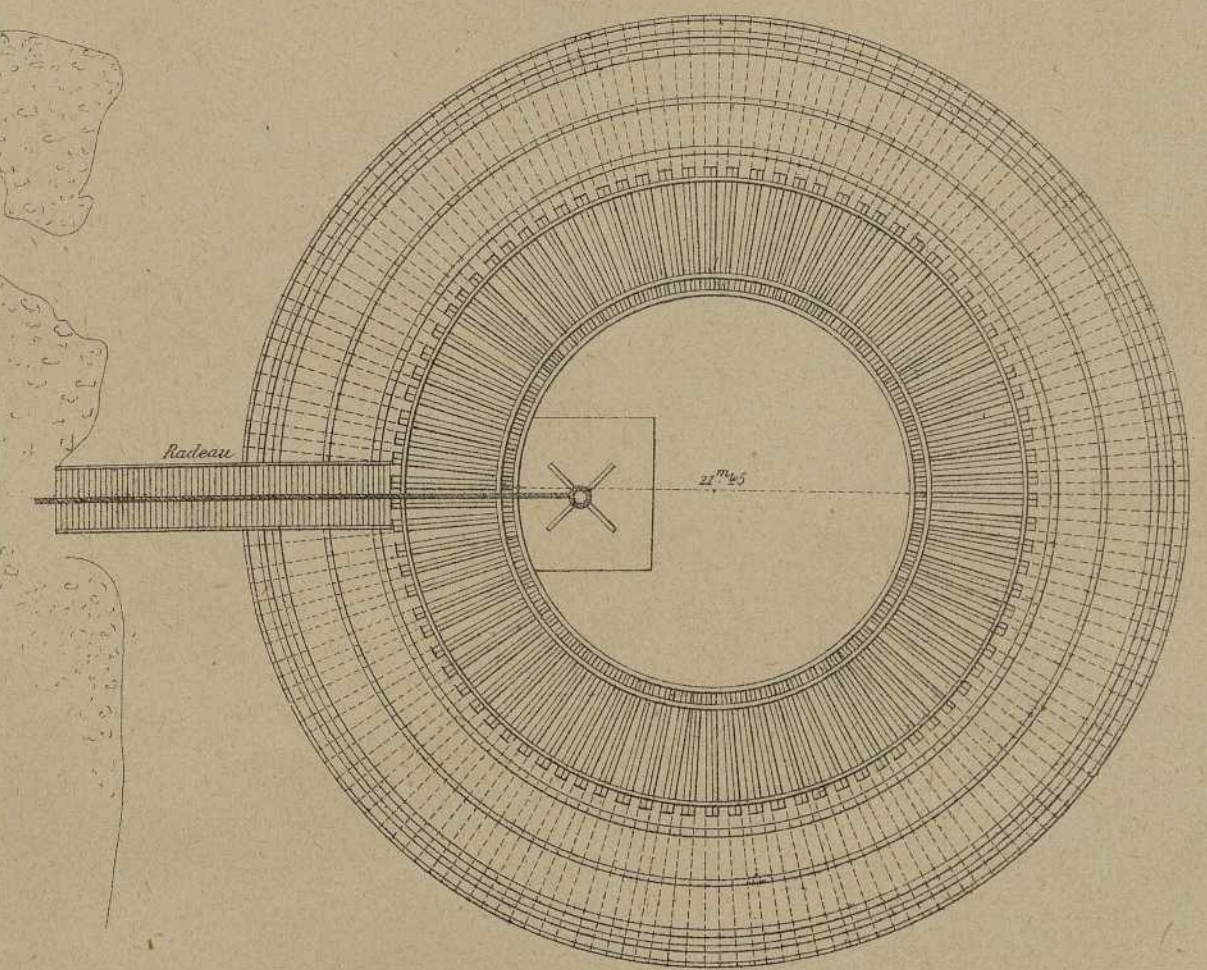
Fig. 4. Cône échoué sur place.
Elévation de la 1^{re} Caisse échouée le 6 Juin 1784.Fig. 5. Plan du 1^{er} Cône échoué à la Passe de l'Est.Echelle de 0^m00265 pour mètre.

Fig.5 - Construction de la Digue -1836

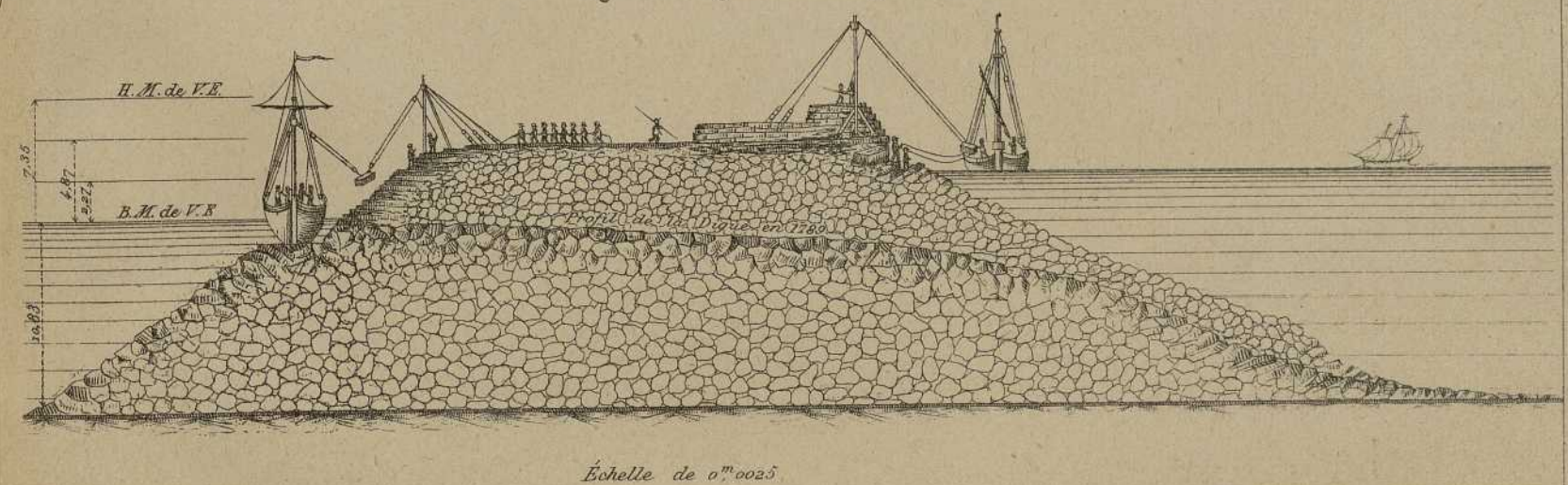
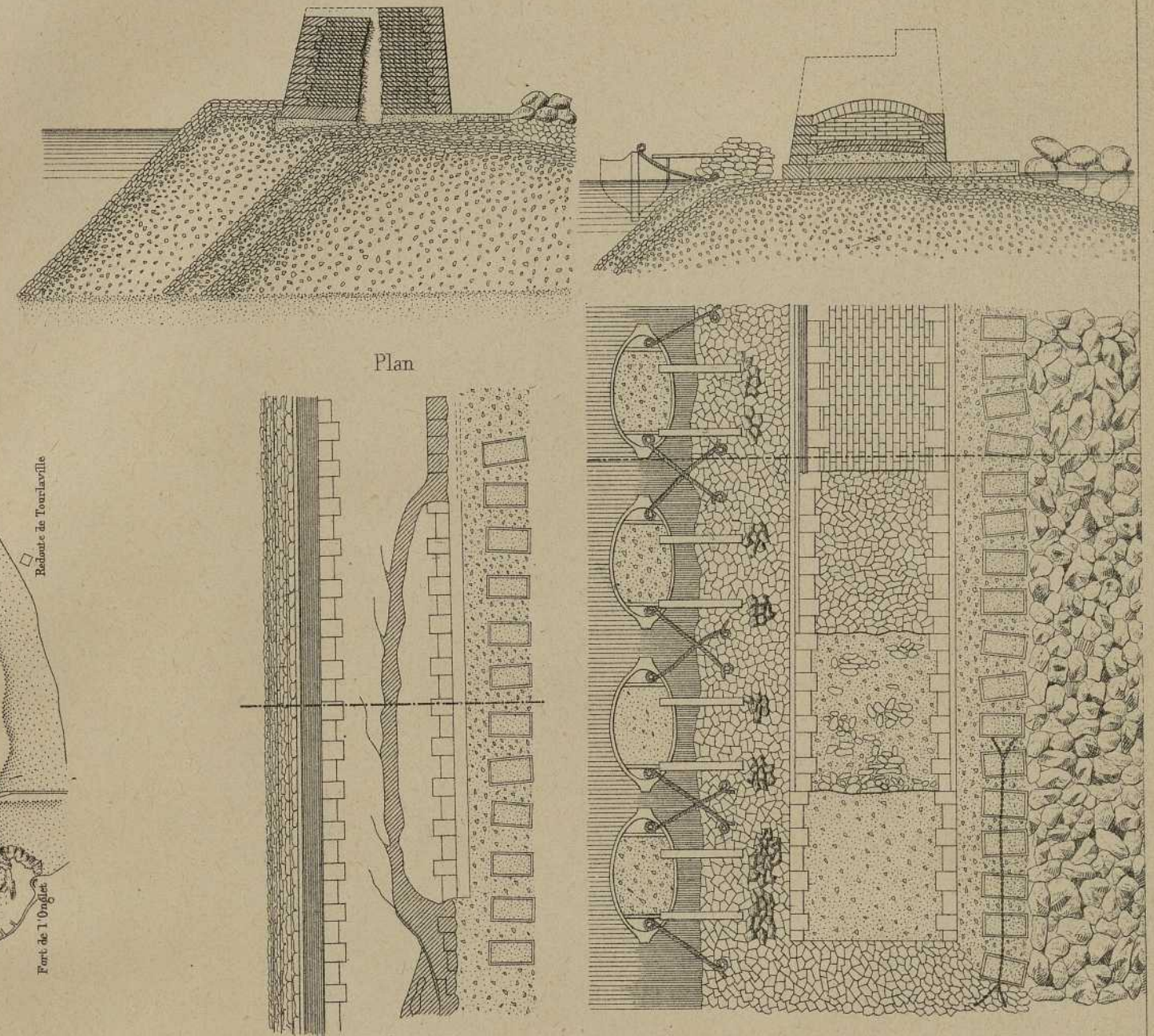


Fig. 3 - Rechargement de la Digue - 1800 - 1811.



Échelle de 0^m.0025

Fig. 1. Coupe transversale de la branche Ouest, et chalands à flot chargés de béton pour l'exécution de la 1^{re} Couche de la muraille, à basse mer de vive eau.

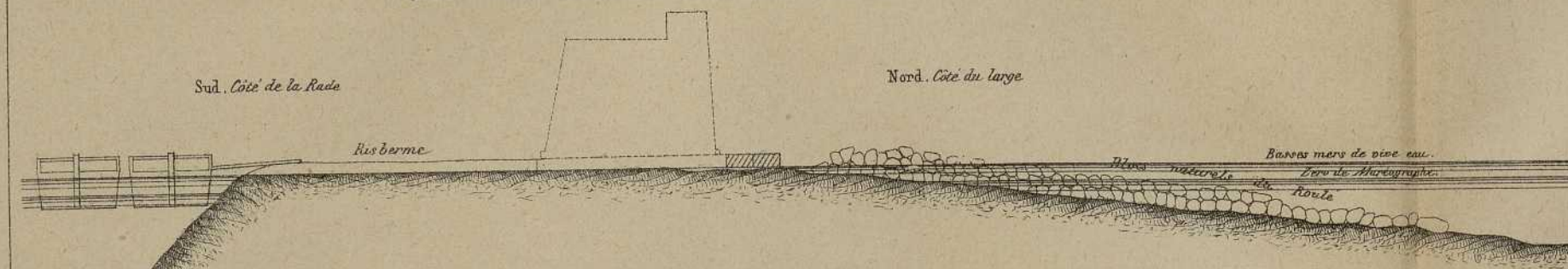


Fig. 2. Coupe transversale de la branche Ouest et chalands échoués chargés de béton pour le remplissage de la 2^e assise, à basse mer de morte eau.

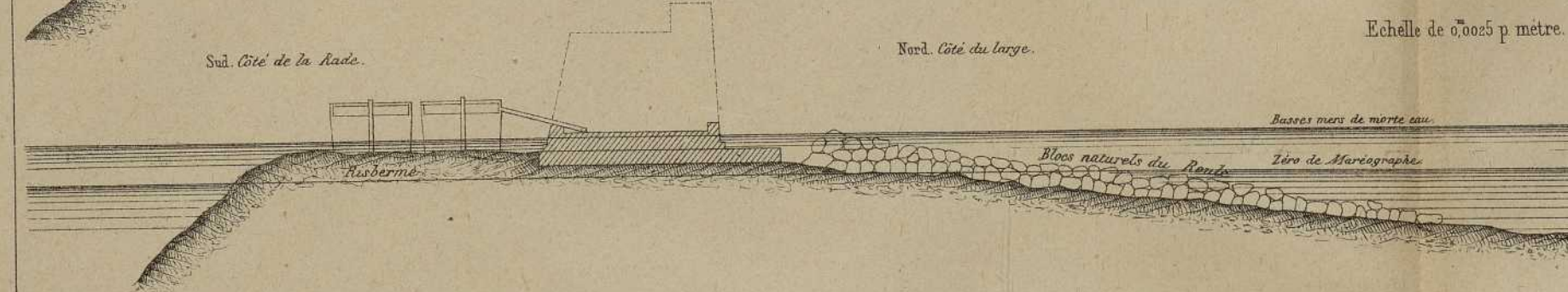


Fig. 3. Chaland à bique déposant des pierres taillées pour l'exhaussement de la muraille, et bateau à blocs opérant son versement sur la partie supérieure du talus nord à haute mer de vive eau.

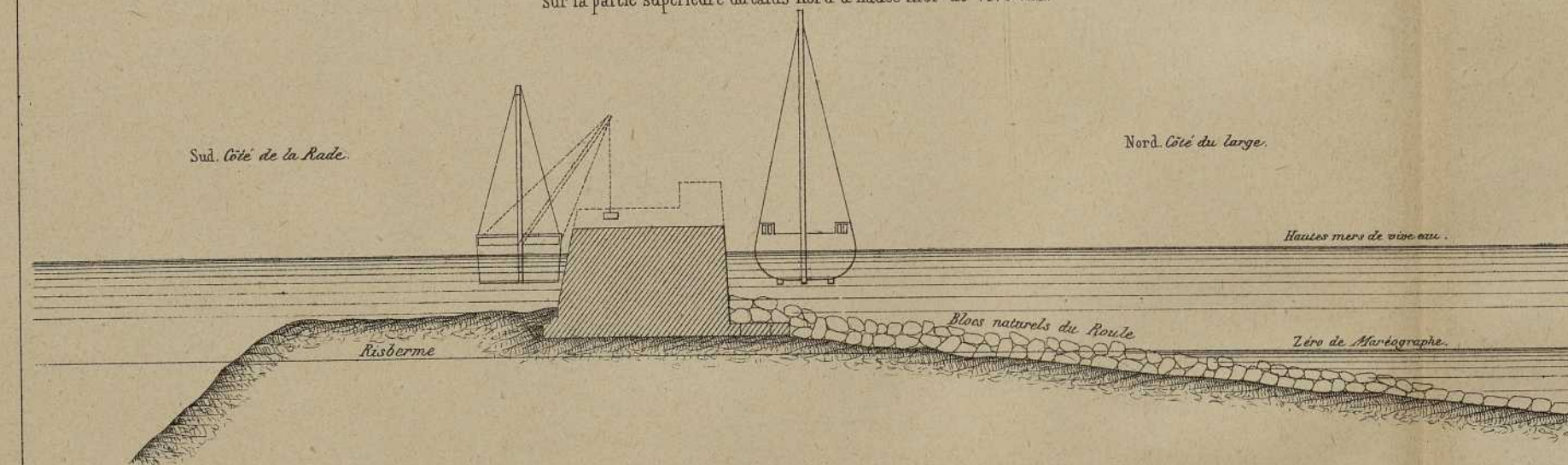
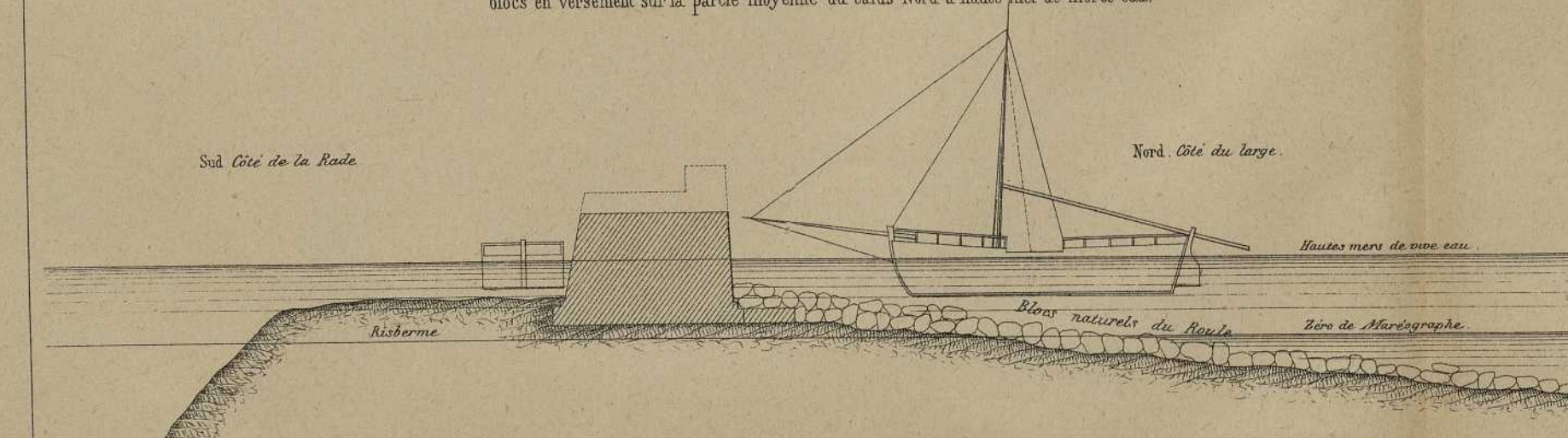


Fig. 4. Chaland chargé de mortier pour l'exhaussement de la muraille et bateau à blocs en versement sur la partie moyenne du talus Nord à haute mer de morte eau.



DIGUE DE CHERBOURG.

Fig. 5. 1^{er} Profil suivi en 1832 dans l'exécution des premiers ouvrages de la branche de l'Est.

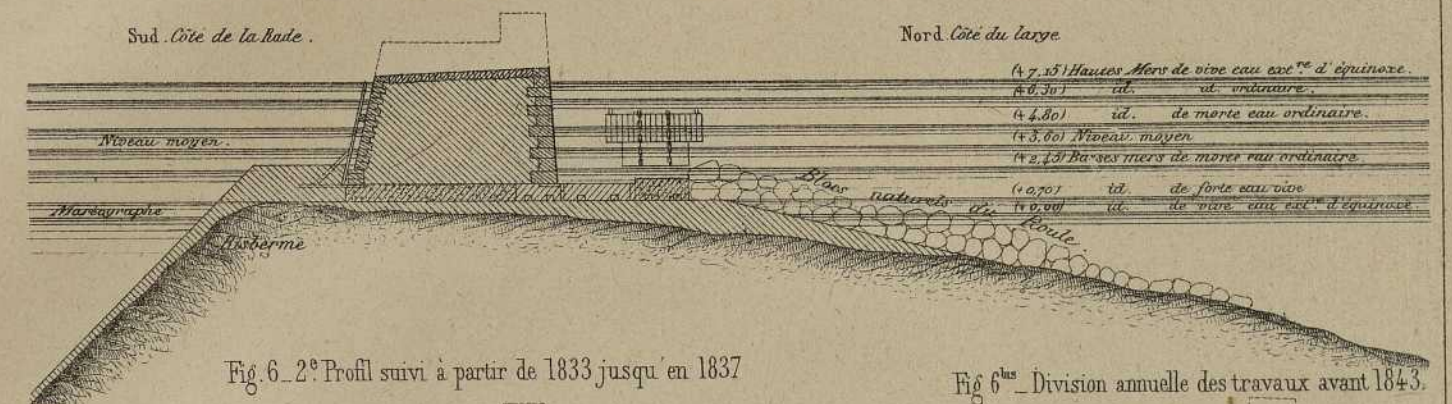


Fig. 6. 2^e Profil suivi à partir de 1833 jusqu'en 1837

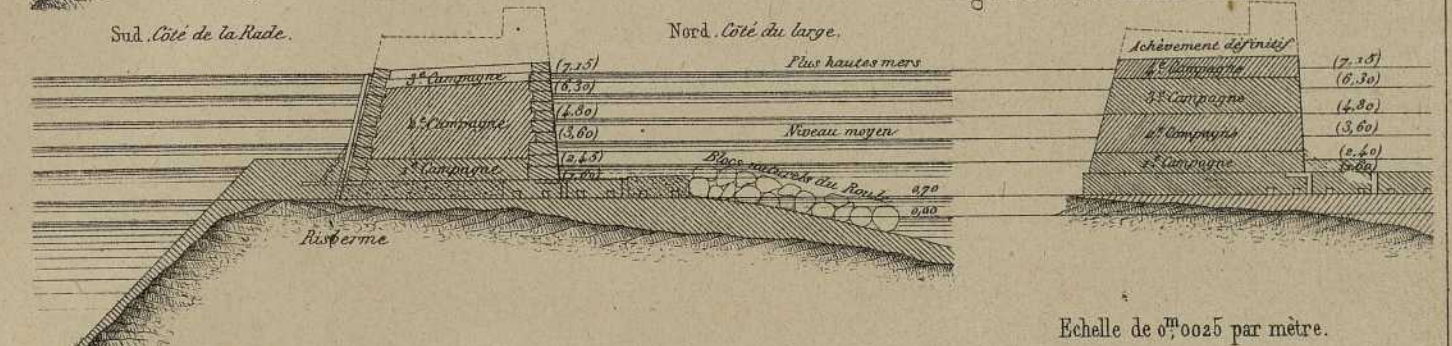


Fig. 6^{bis}. Division annuelle des travaux avant 1843.

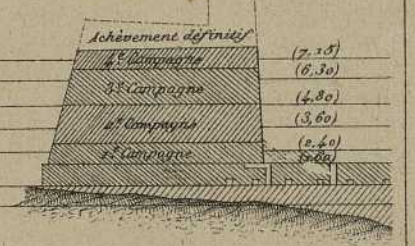


Fig. 7. 3^e Profil suivi pour l'achèvement de la branche de l'Est et pour toute celle de l'Ouest, à partir de 1837.

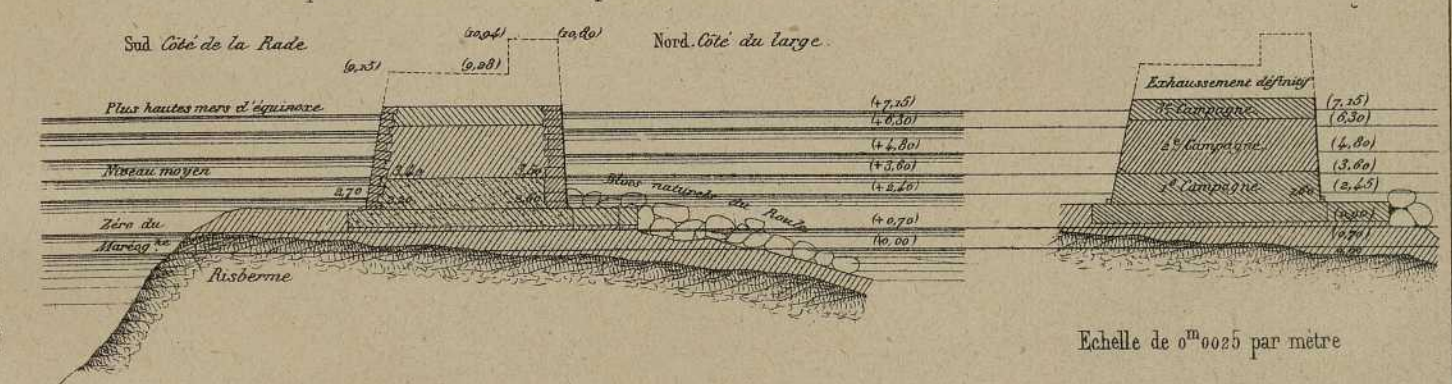


Fig. 7^{bis}. Division annuelle des travaux après 1843.

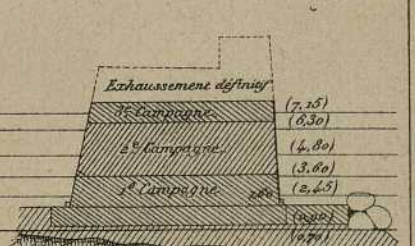
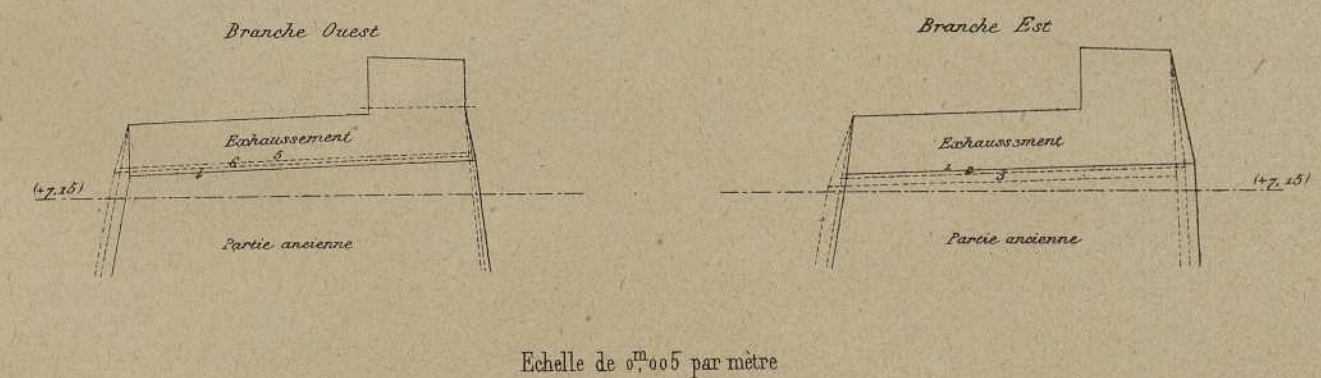


Fig. 8. Profils suivis pour l'exhaussement complet et définitif après les tassements de la partie inférieure.



FORT CHAVAGNAC

Légende.

- a - Remblai de pierres sèches.
 b - Maçonnerie de moellons avec mortier de chaux et ciment.
 c - Maçonnerie de moellons avec mortier de chaux.
 d - Maçonnerie de pierres de taille avec mortier de ciment de Portland.

Coupe suivant AB

Fig 1 - Base sous marine du Fort Chavagnac

Coupe suivant CD.

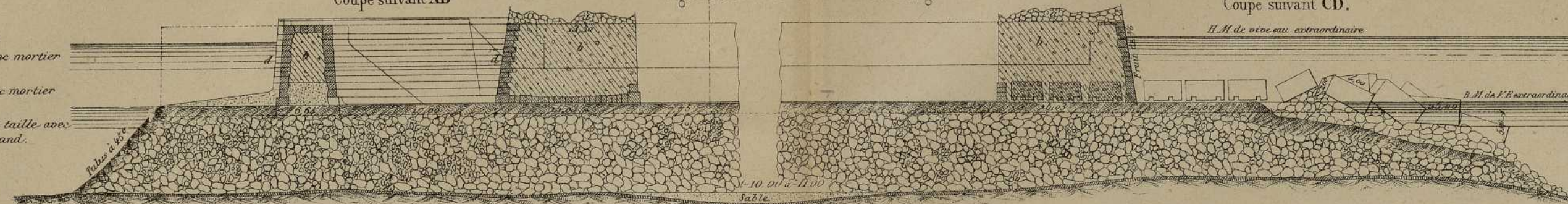


Fig 2 - Plan du Fort

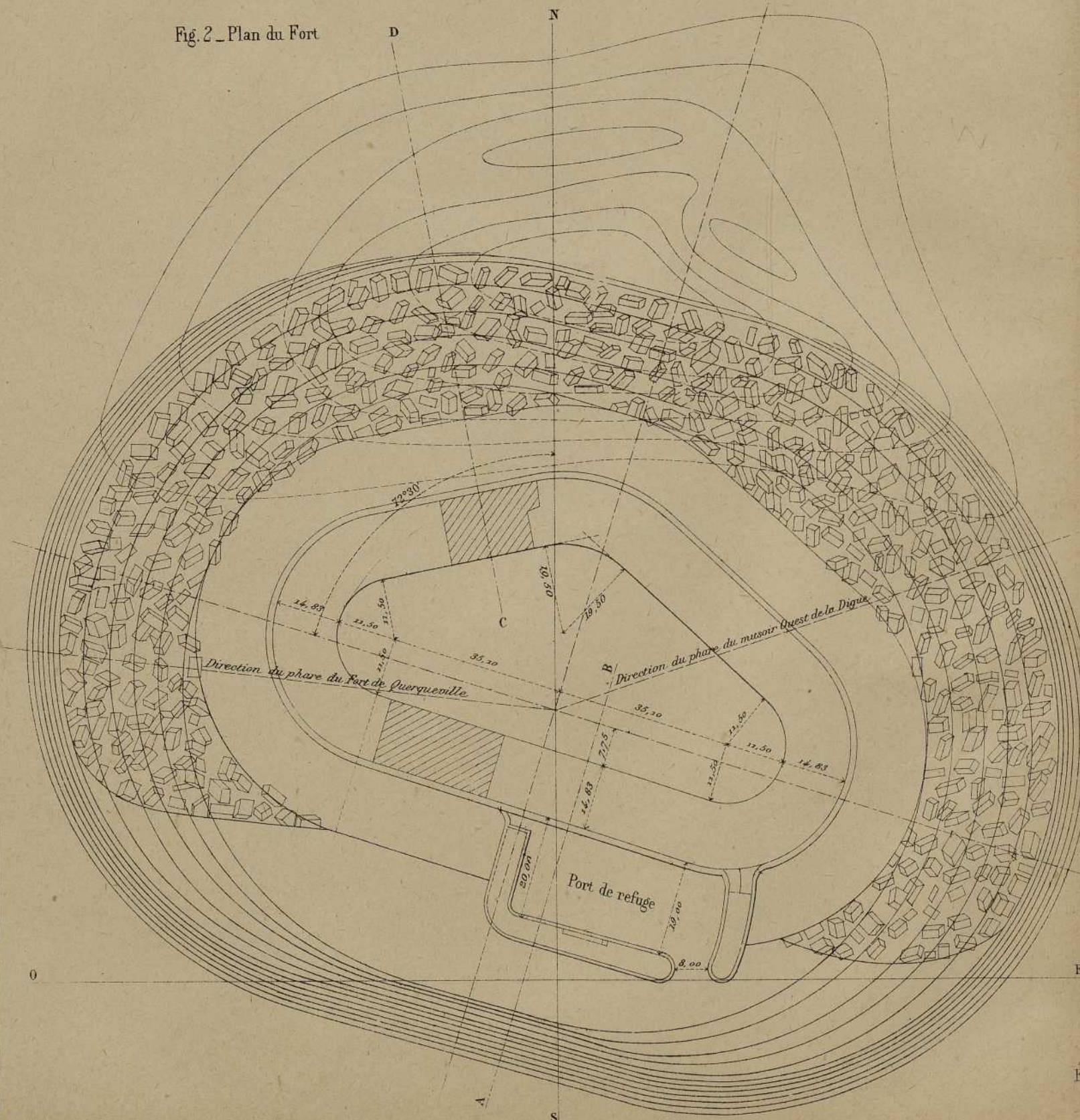
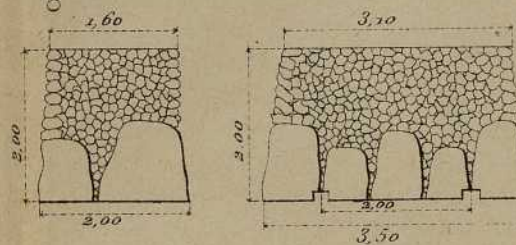


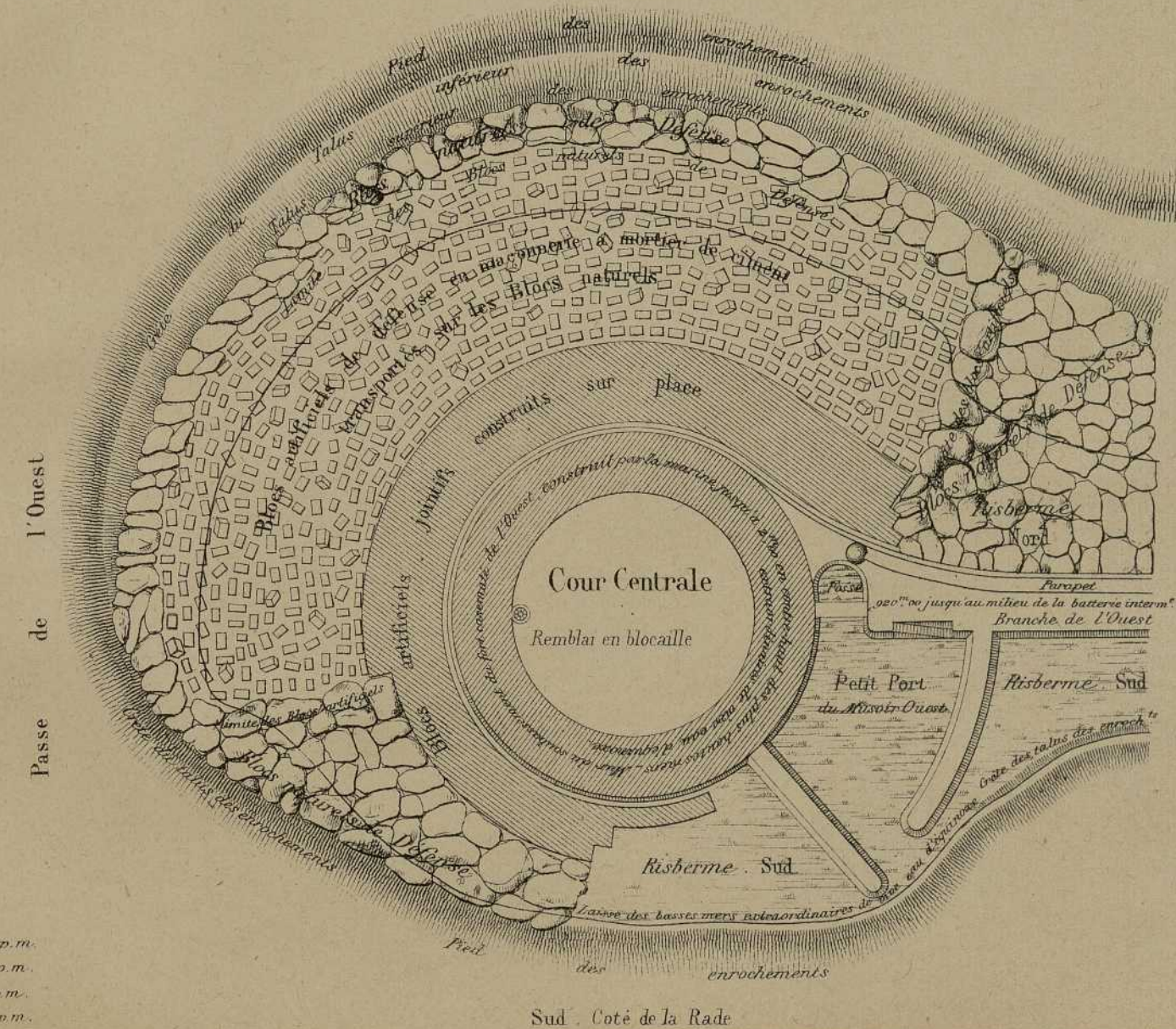
Fig 3 - Blocs de fondation de la Base du Fort



DIGUE DE CHERBOURG.

Fig 4 - Plan général du Musoir Ouest

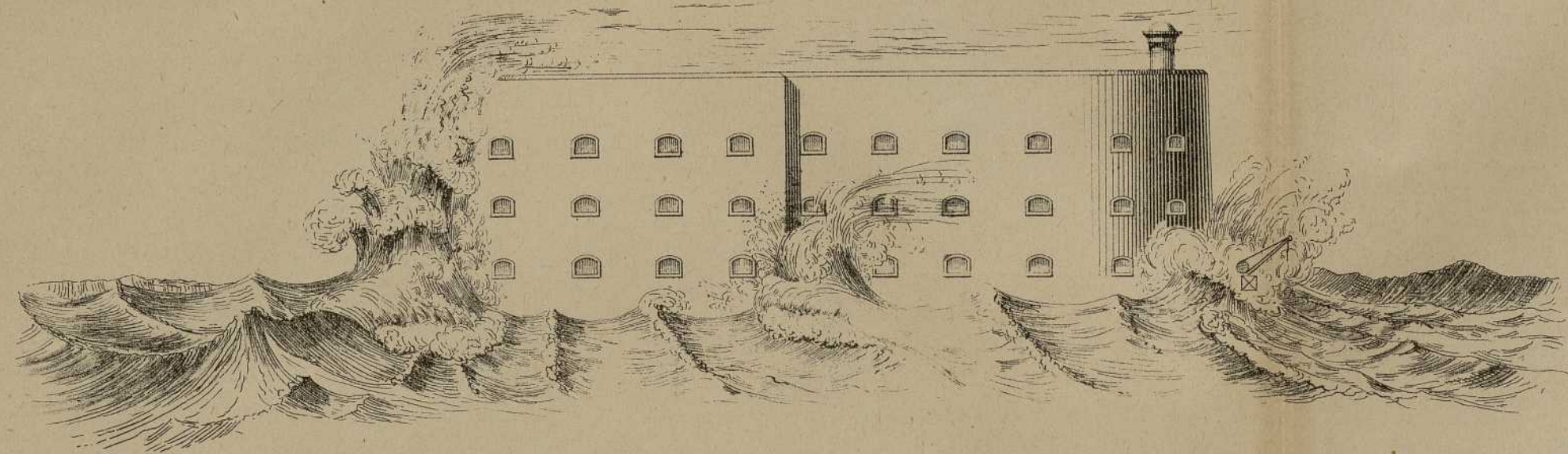
Nord. Côte du Large.



Echelle

- De la Fig. 1. 0.0002 p. m.
 De la Fig. 2. 0.0001 p. m.
 De la Fig. 3. 0.0001 p. m.
 De la Fig. 4. 0.0008 p. m.

Fig. 1 — Elevation — Aspect du Fort Boyard pendant les tempêtes du 7, 8 et 9 Octobre 1857



FORT BOYARD

Fig. 2 — Plan.

Echelle de 0,002 p. mètre

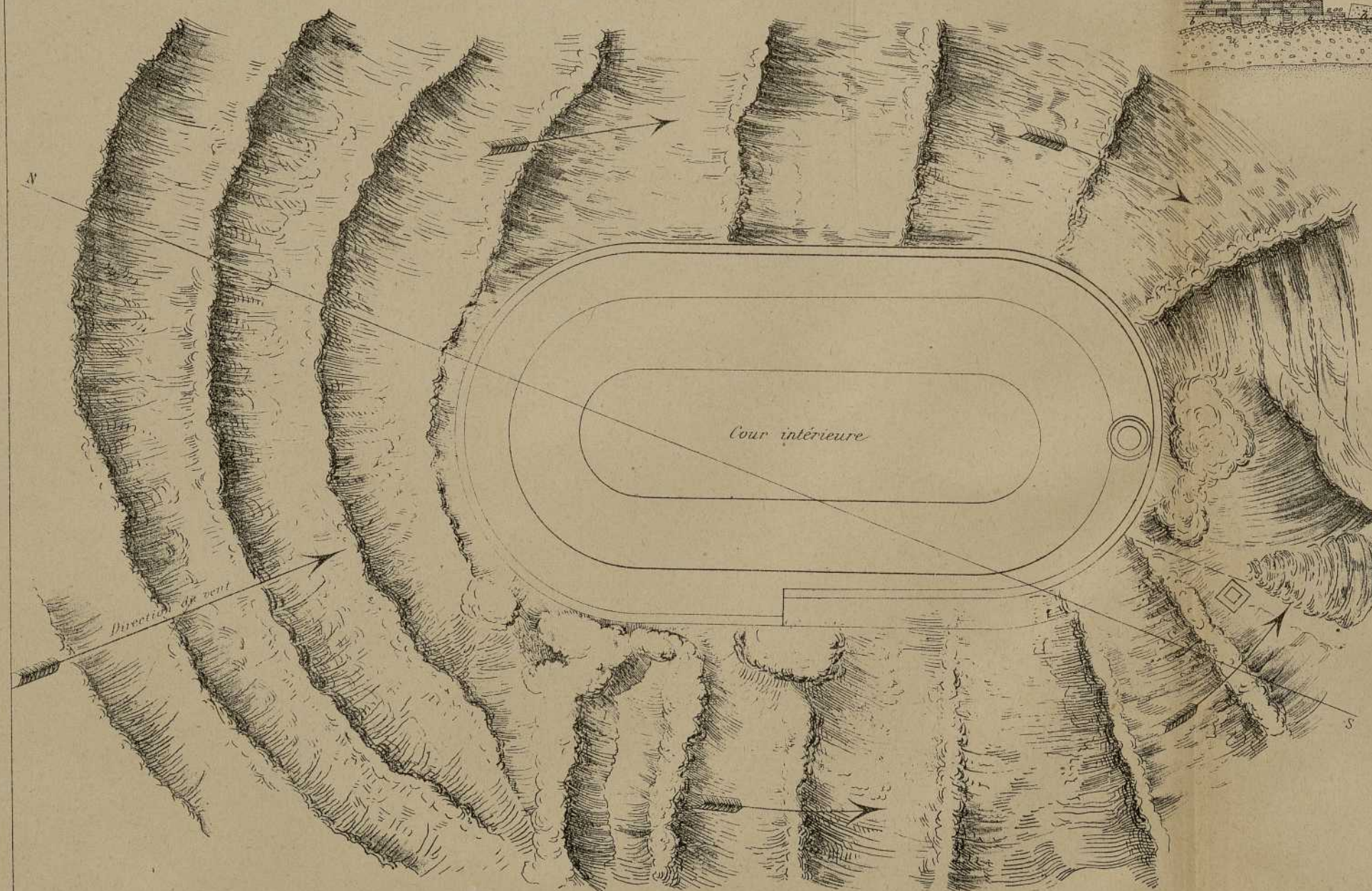


Fig. 4 — Coupe des fondations du fort Boyard dans l'extrémité sud.

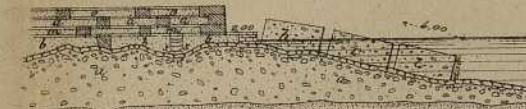
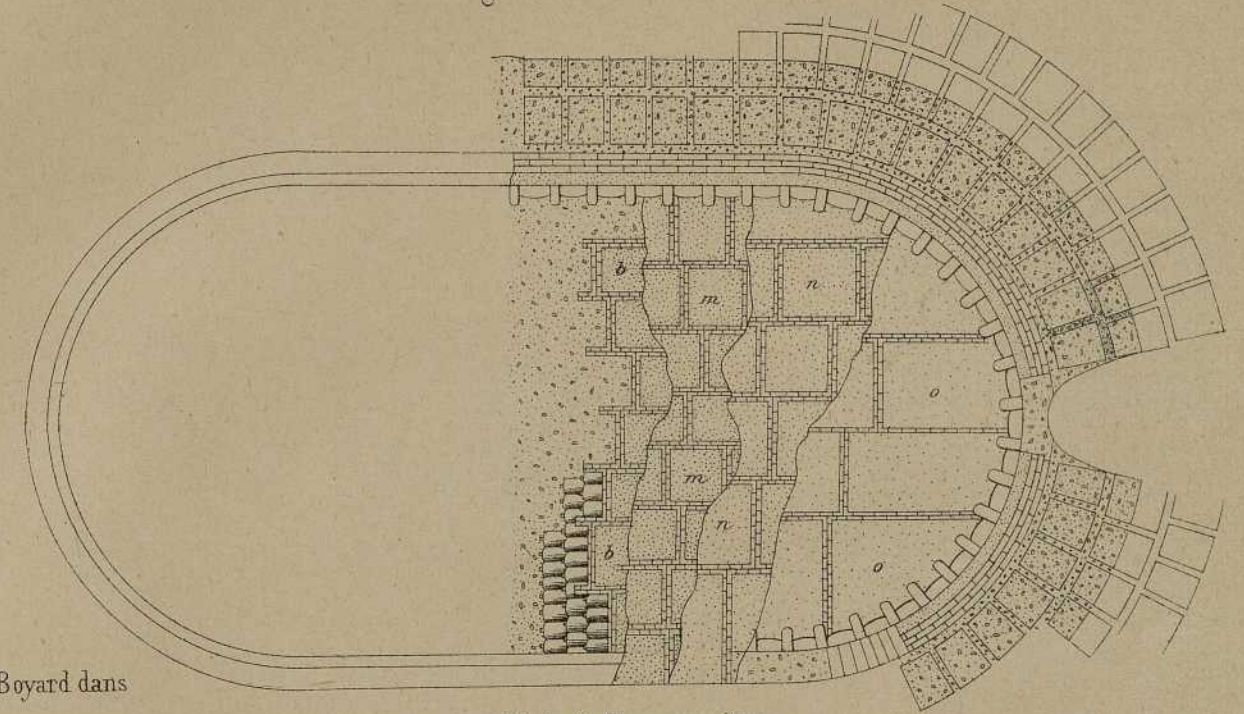


Fig. 3 — Plan des Fondations



Echelle de 0,002 pour mètre

Fig. 5 — Coupe suivant AB du plan Fig. 6. (Echelle de 0,002 p. mètre)

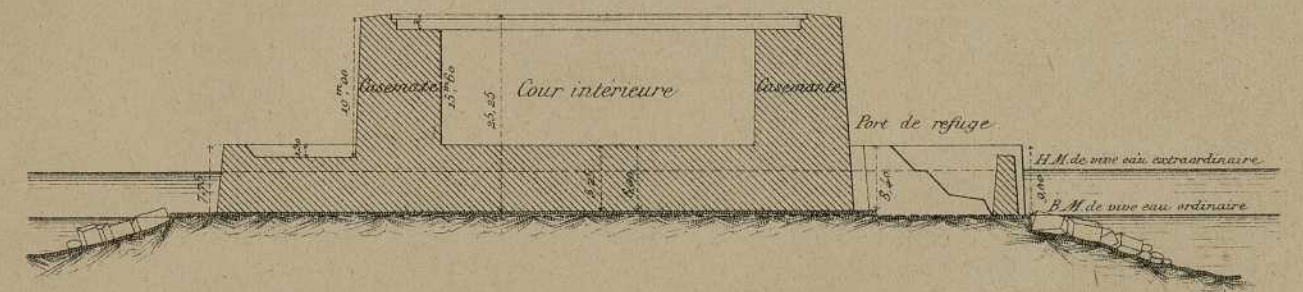
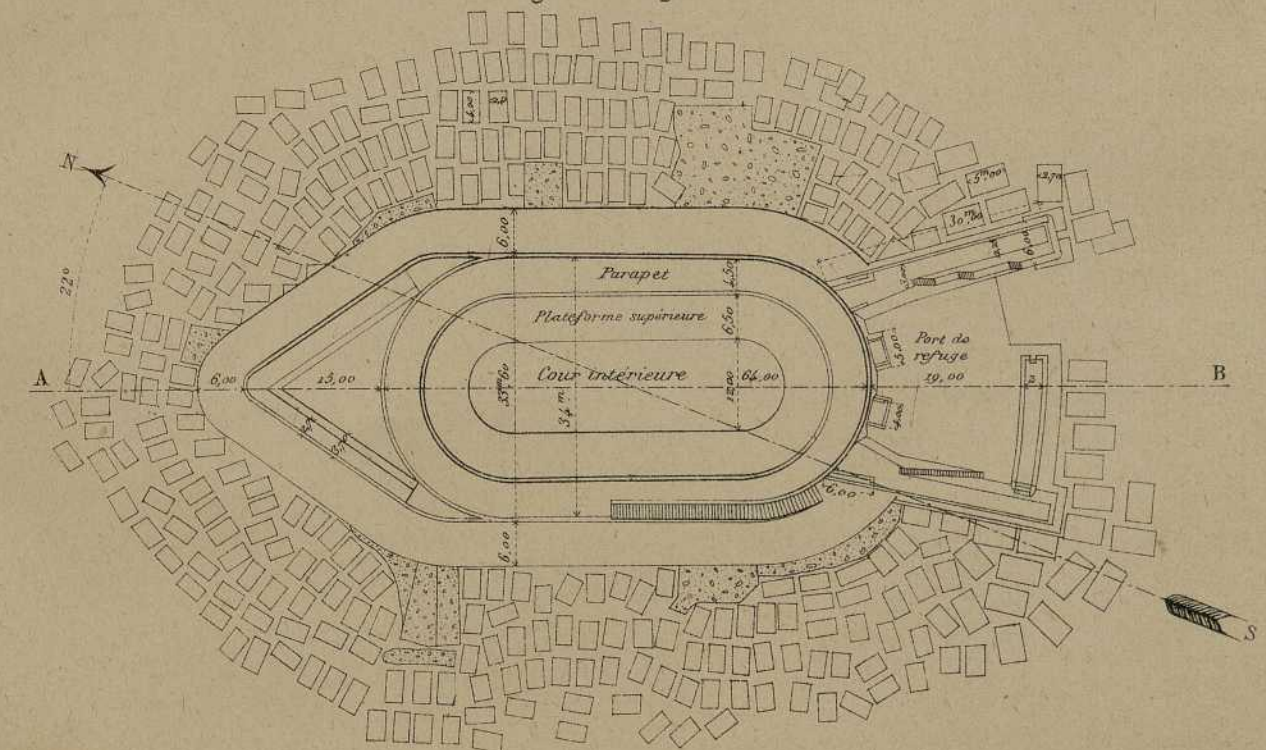
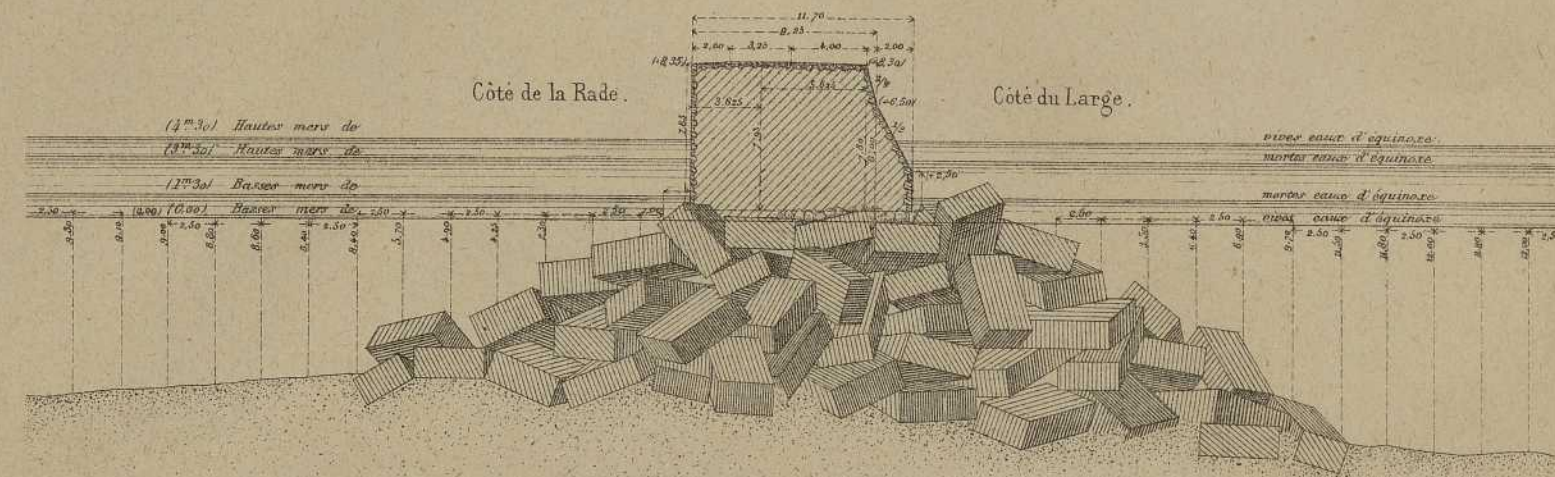


Fig. 6 — Plan général



ST JEAN-DE-LUZ = Fermeture de la Rade

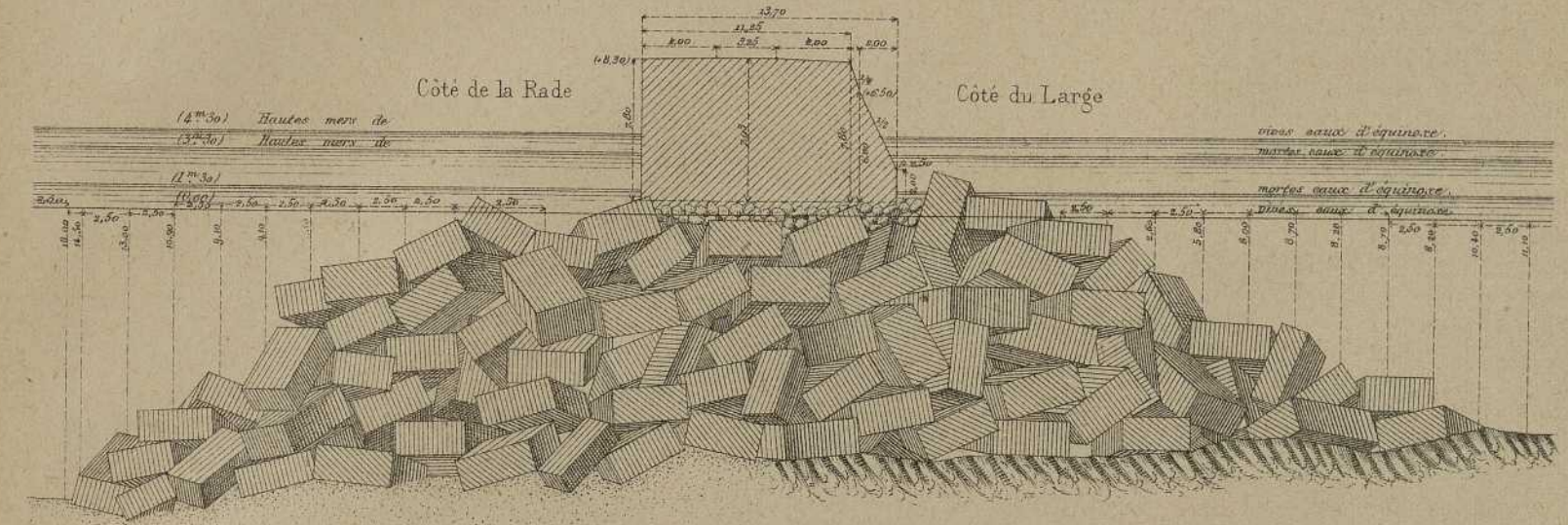
Profil en travers - Partie Est.

Surface du Profil : 83^m95.

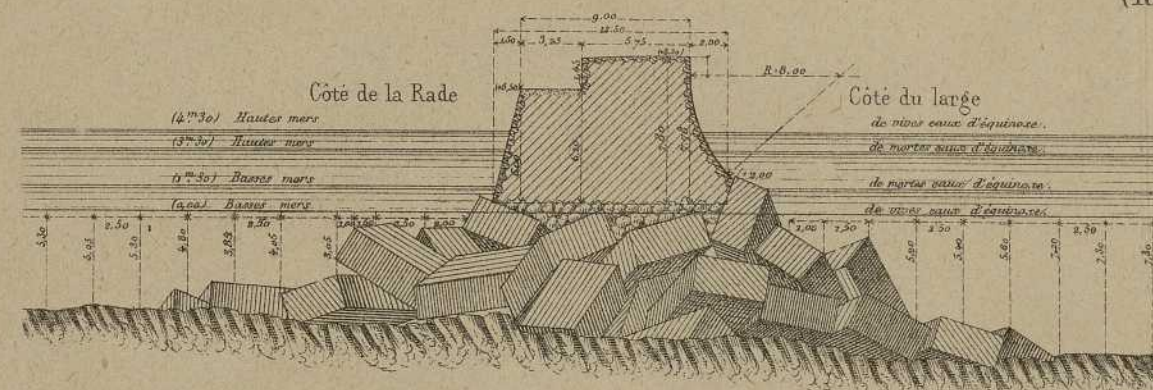
Digue d'Artha

(1872-1889)

Profil en travers - Partie Ouest

Surface du Profil : 99^m59

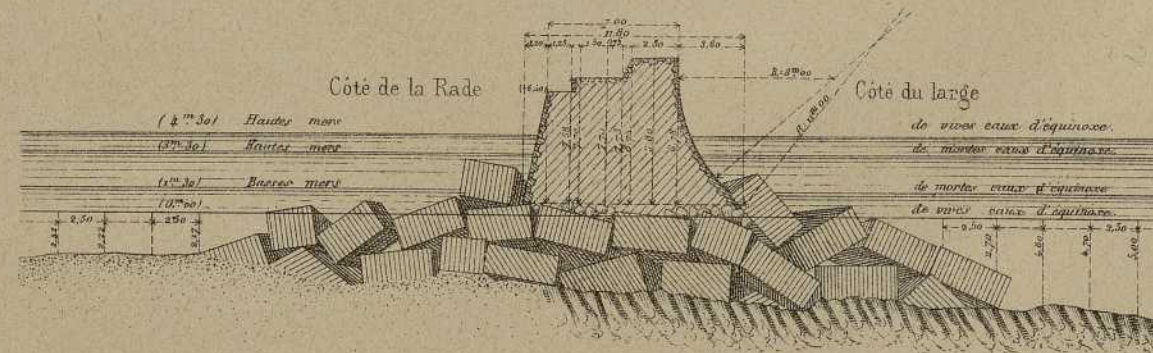
Profil suivant ab.

Surface du Profil : 77^m54

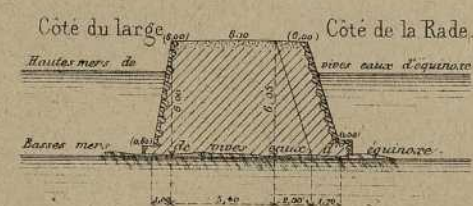
Digue de Socoa

(1864-1876)

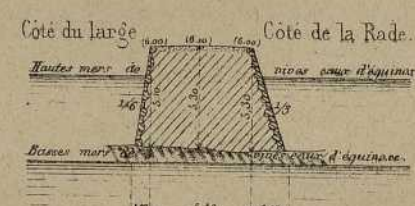
Profil suivant cd.

Surface du Profil : 62^m81

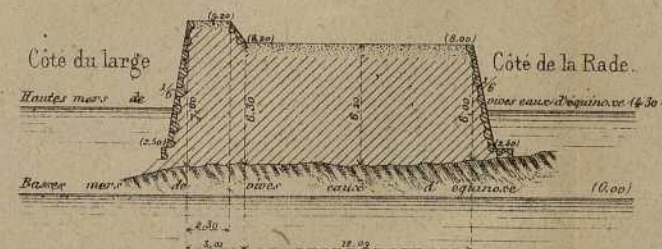
Profil suivant ef.



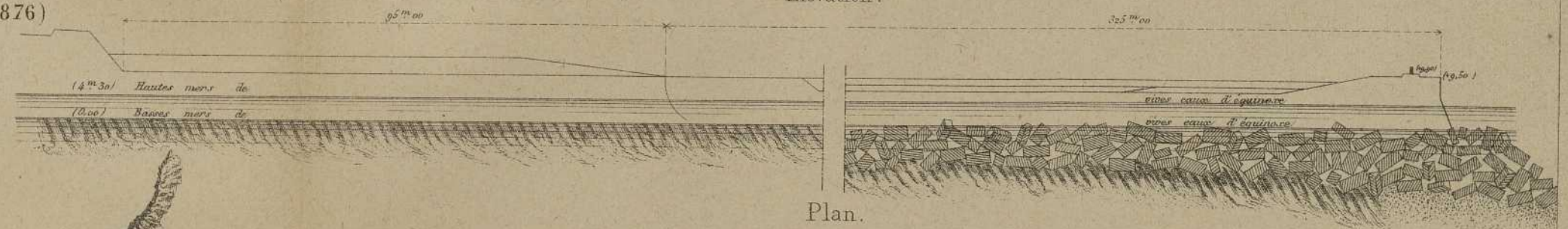
Profil suivant cd.



Profil suivant ab.



Elevation.



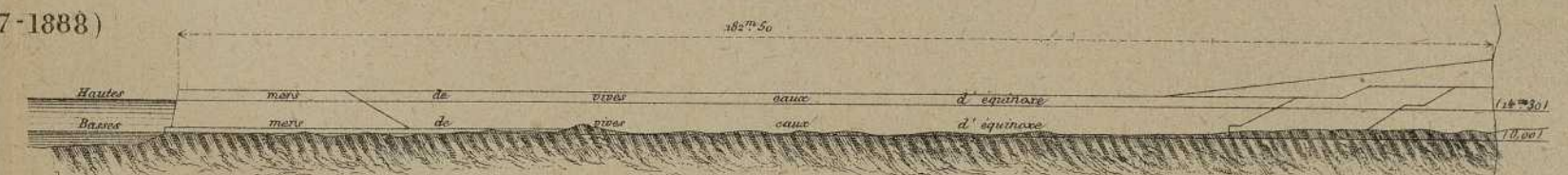
Plan.

Digue ancienne - (1838)

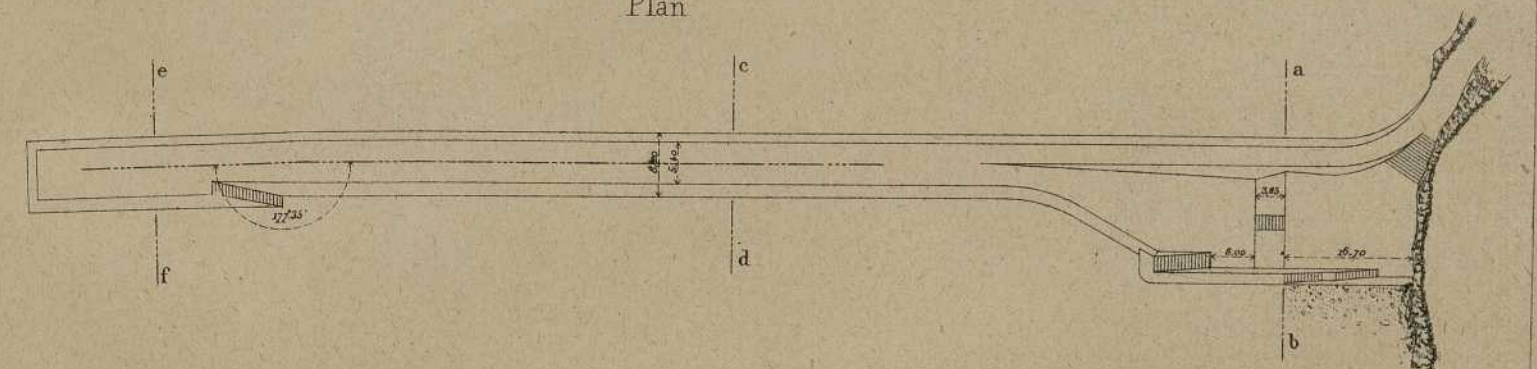
Digue de St^e Barbe

(1877-1888)

Elevation.



Plan.



DIGUES ANGLAISES.

Fig. 1. Plymouth.

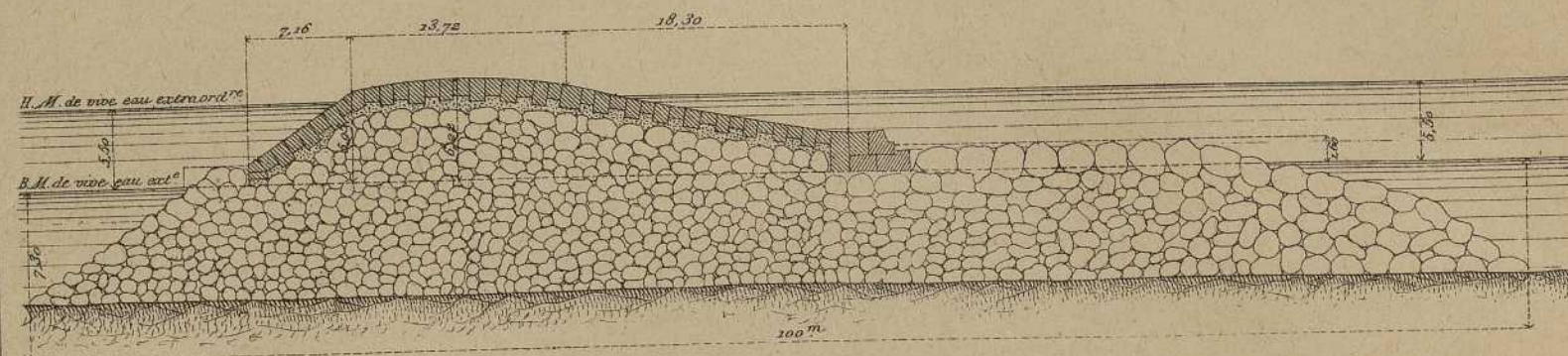


Fig. 2. Holyhead.

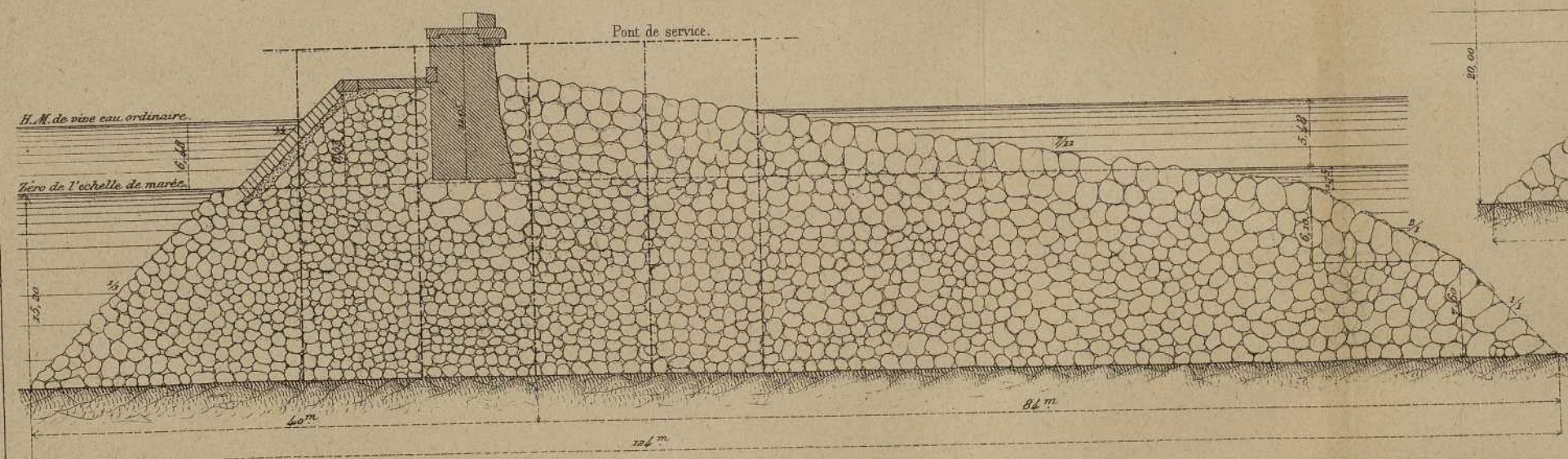
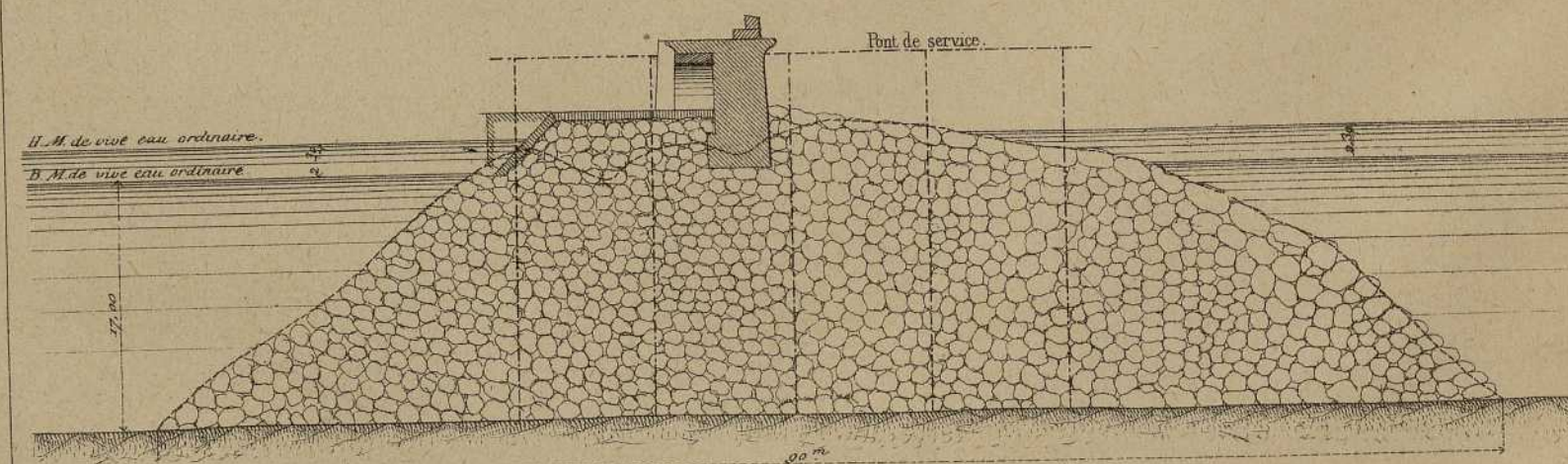


Fig. 3. Portland.



Echelle de 0,002 par mètre.

Fig. 4. Auriigny. (1^{er} Profil sur 122^m à partir de l'origine.)

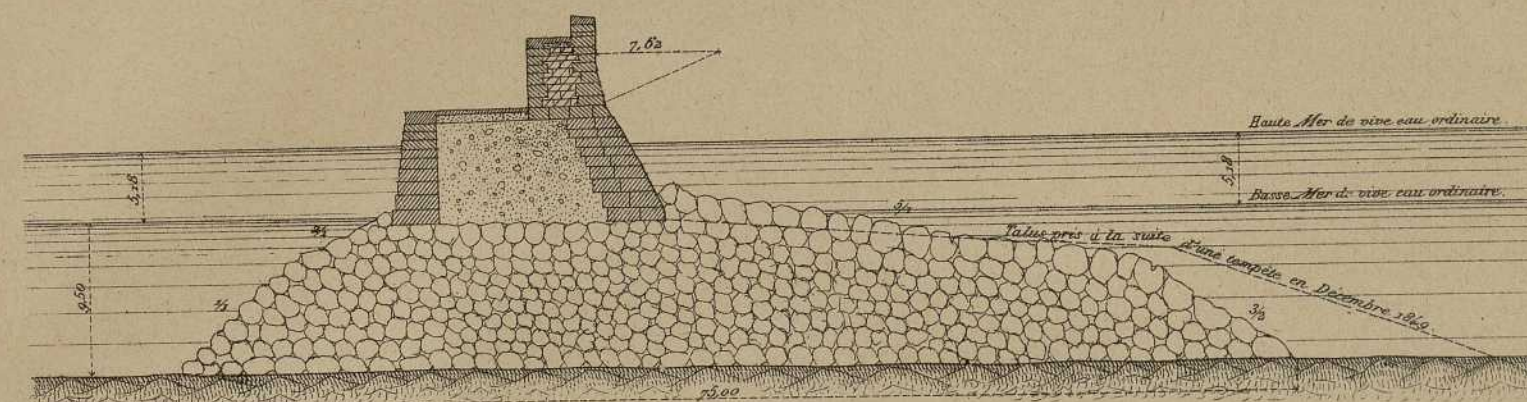


Fig. 5. Auriigny. (2^e Profil Profondeur de 20^m00)

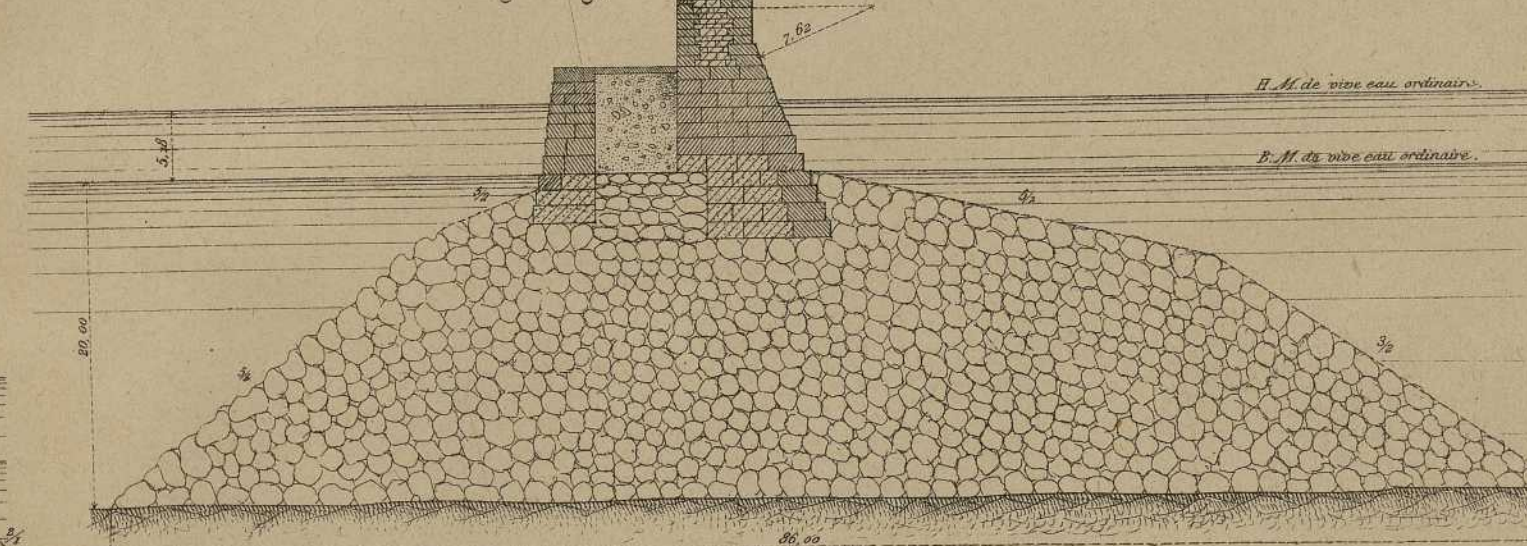


Fig. 6. Jersey.

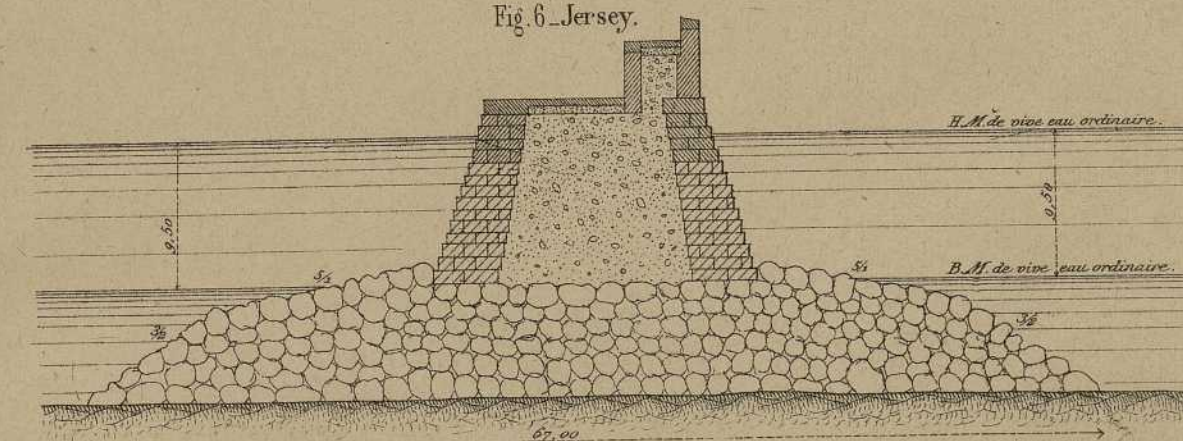
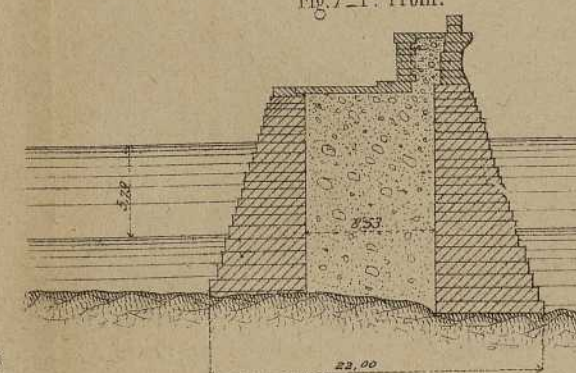


Fig. 7. 1^{er} Profil.



Douvres.
Fig. 8. 2^e Profil.

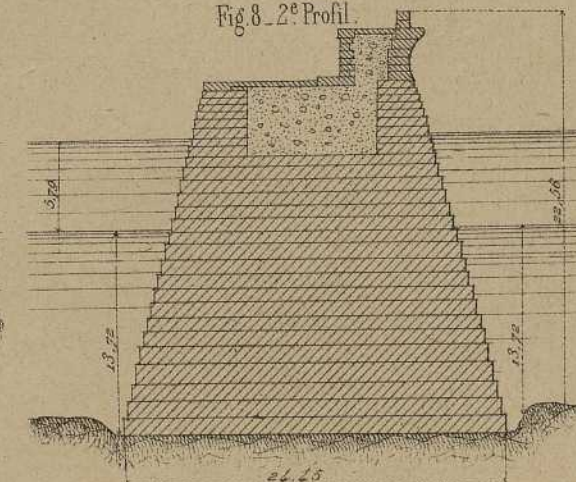
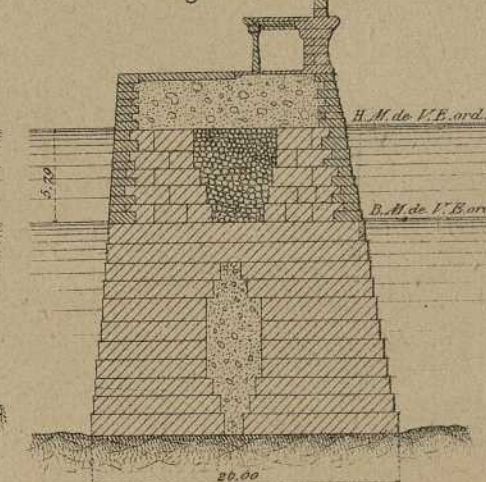


Fig. 9. Profil adopté



Jetées à l'embouchure de la Tyne.

Sections transversales de la jetée Nord.

Fig. 2 à 716 mètres de l'origine.

Profondeur au-dessous des basses mers 8 mètres.

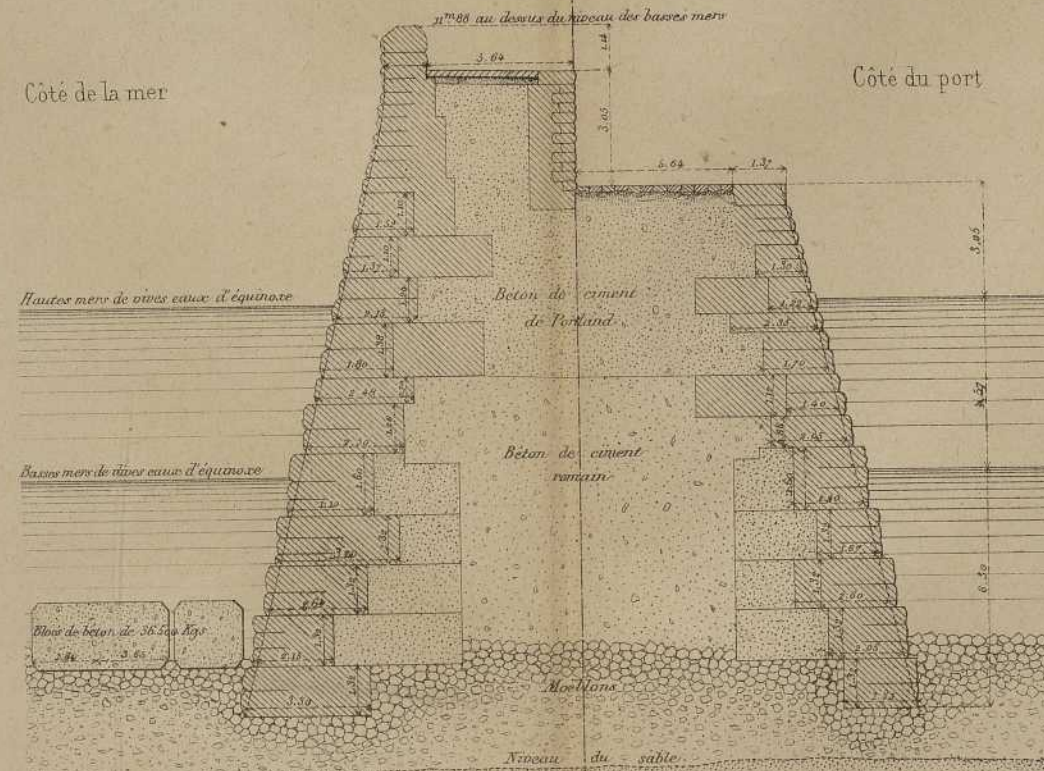
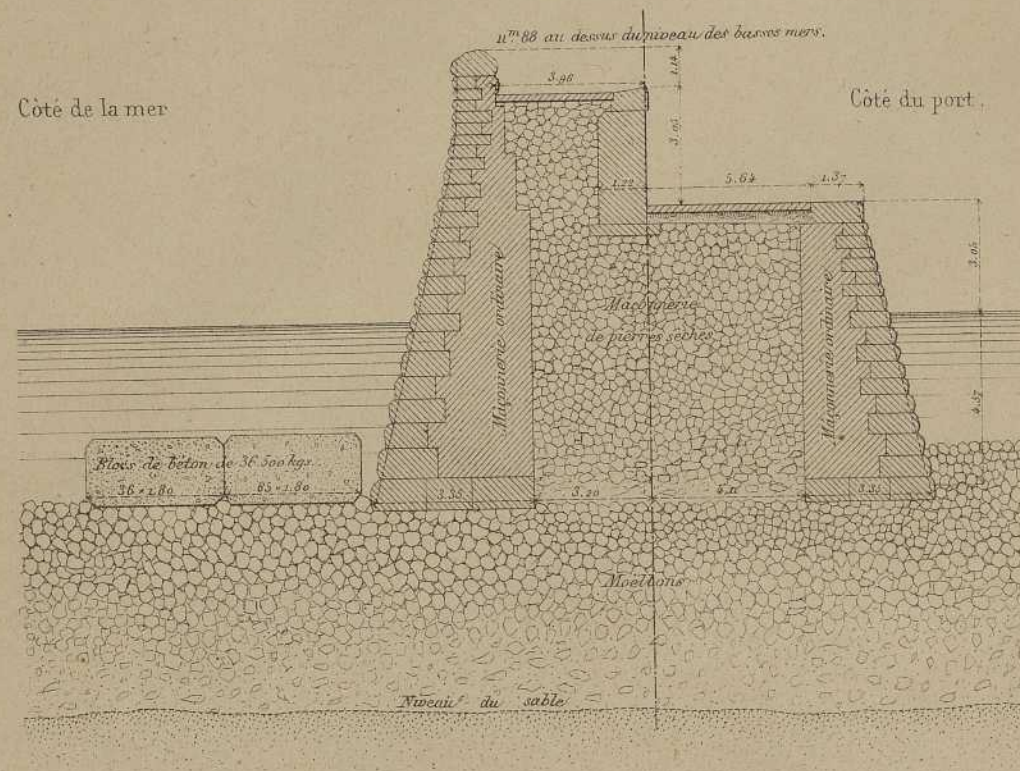
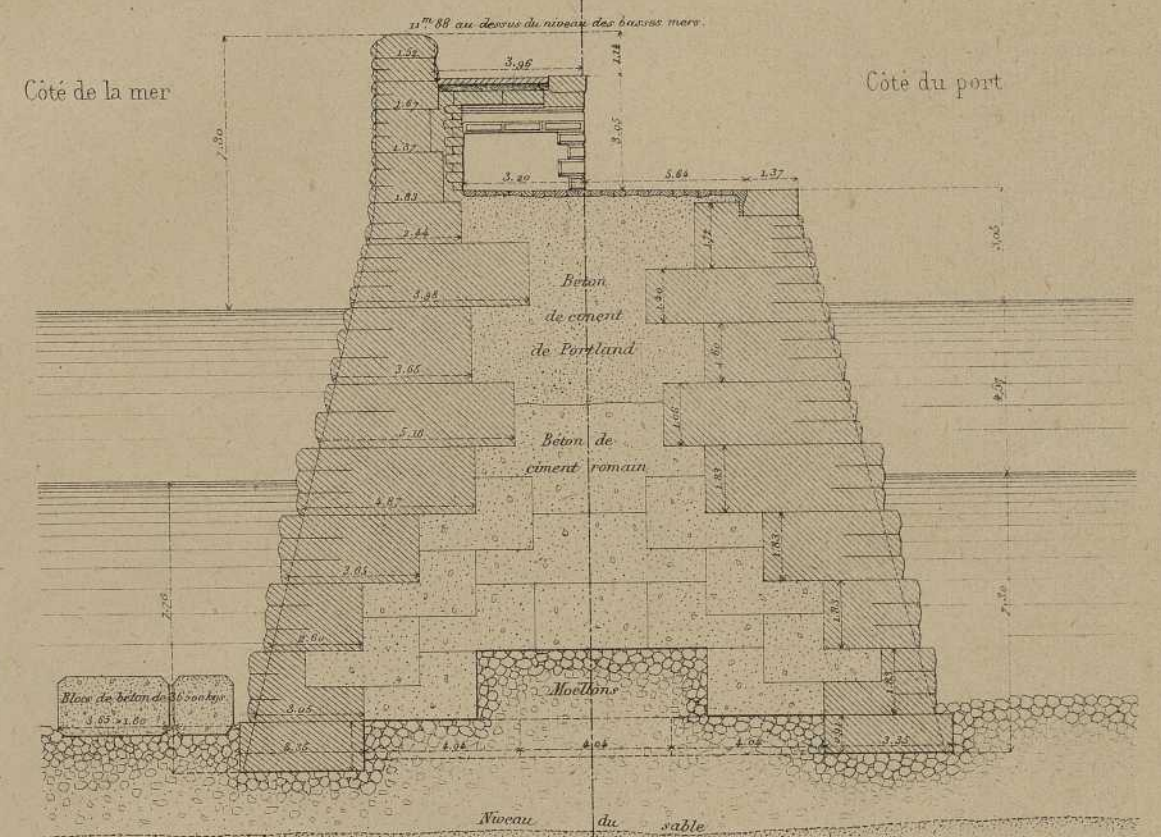


Fig. 3 à 815 mètres de l'origine
Profondeur au-dessous des basses mers 9 mètres



Sections transversales de la jetée Sud

Fig. 5 à 1341 mètres de l'origine.

Profondeur au-dessous des basses mers 6 m 70

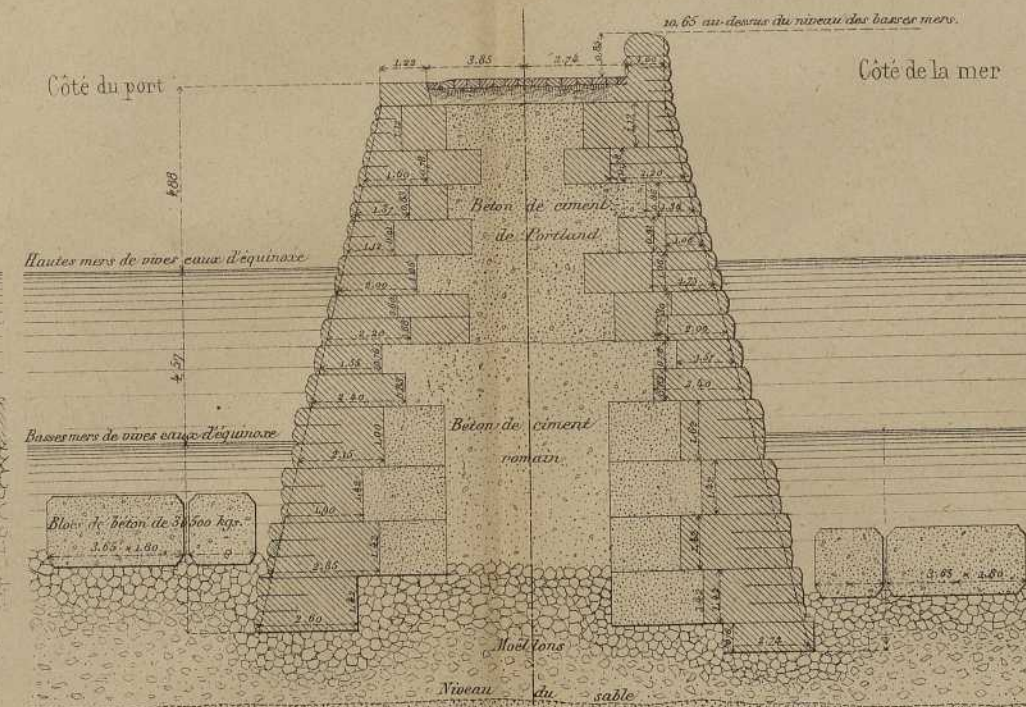
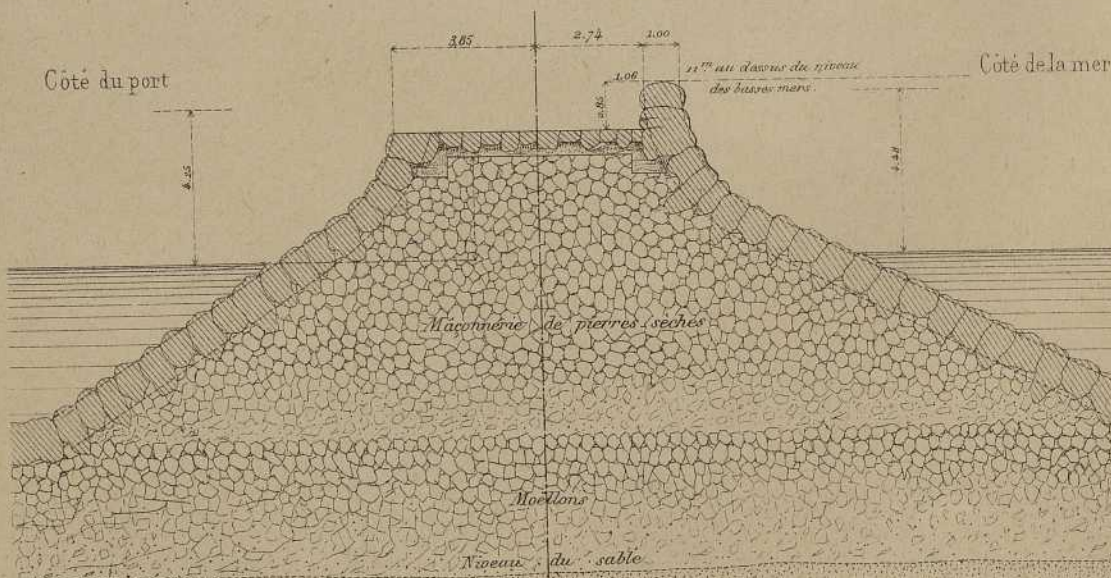
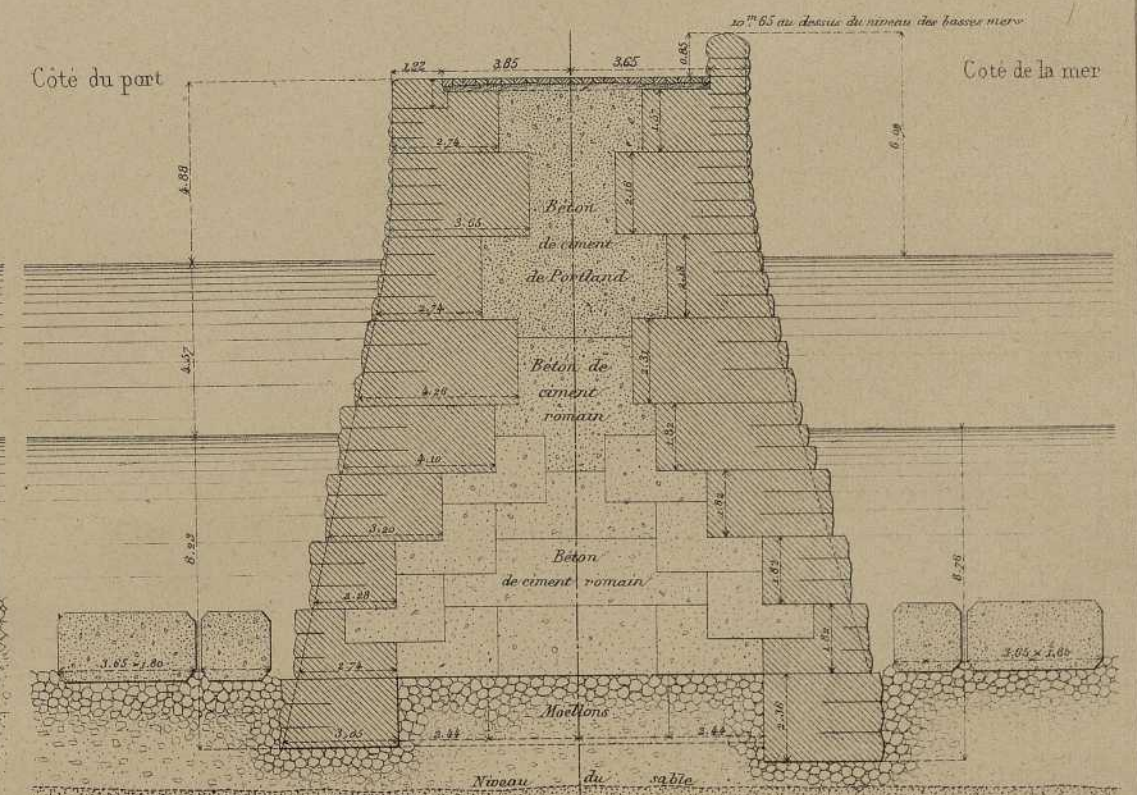


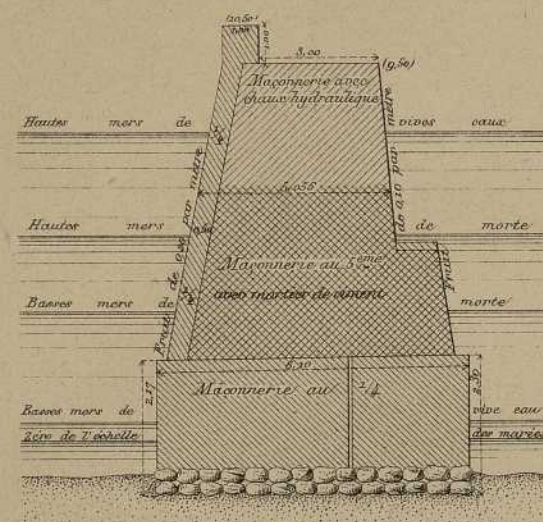
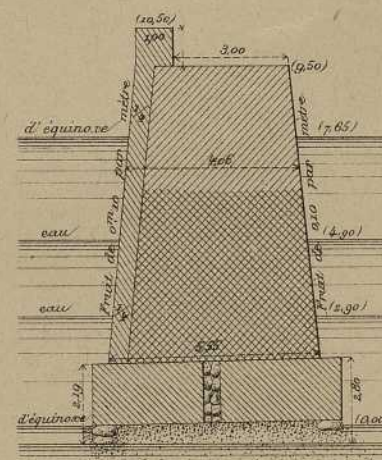
Fig. 6 à 1493 mètres de l'origine

Profondeur au-dessous des basses mers 10 mètres



Echelle de 0.005 pour mètre (1/200)

ILE D'Ouessant — Port d'Arland.

Fig. 3.
Coupe suivant AB.Fig. 4.
Coupe suivant CD.

Nota : Le plan de comparaison coïncide avec le niveau des basses mers.

Fig. 1. — Elevation du môle et de la cale.

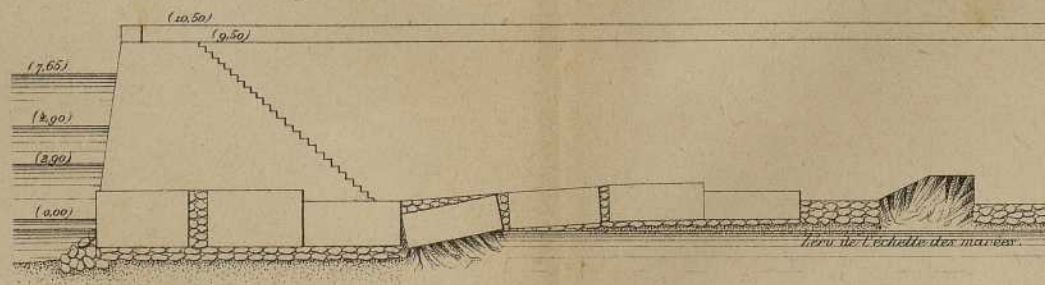
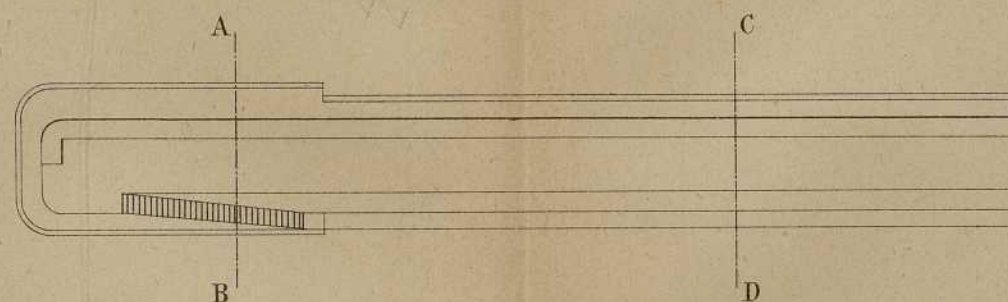
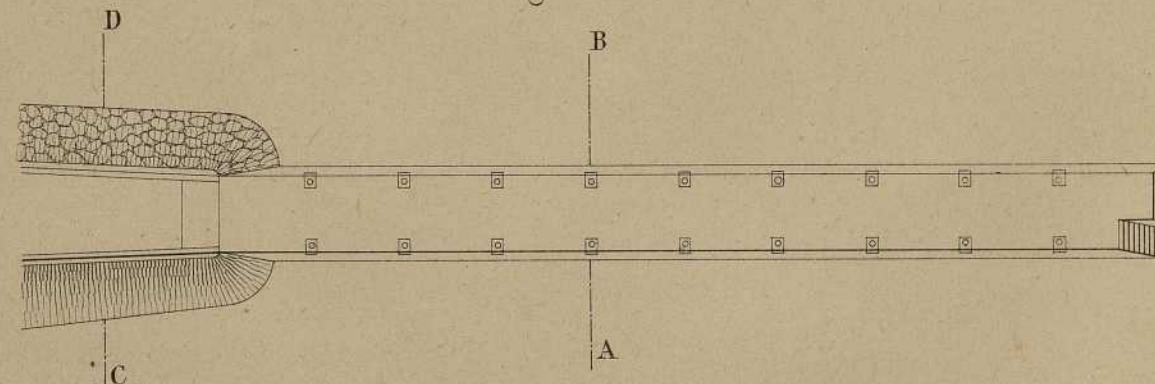
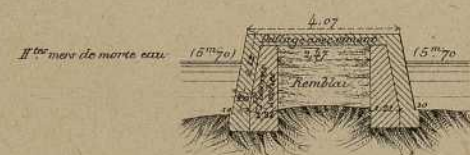
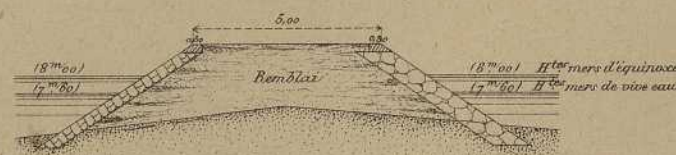


Fig. 2. — Plan.



PLOUGASTEL — Cale du Caro.

Fig. 5. — Plan.

Fig. 6.
Coupe suivant AB.Fig. 7.
Coupe suivant CD.Nota : Le plan de comparaison coïncide avec le zéro de l'échelle des marées du port de Brest.
(0^m.50 au dessous des basses mers réelles.)Echelle { des figures 1, 2, 5 ; 0.0025 pour mètre 4.50.
des figures 3, 4, 6, 7, 8, 9, 10 ; 0.005 p. m. 200.

PORT DE BOULOGNE.

Fig. 8. Profil de la branche Sud-Ouest de la digue Carnot.

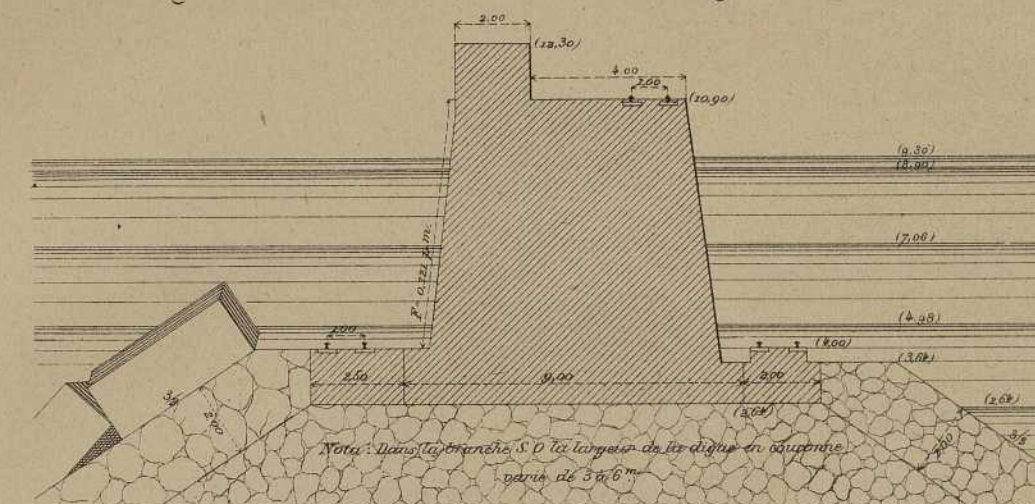


Fig. 9. Profil dans le raccordement en courbe des deux branches.

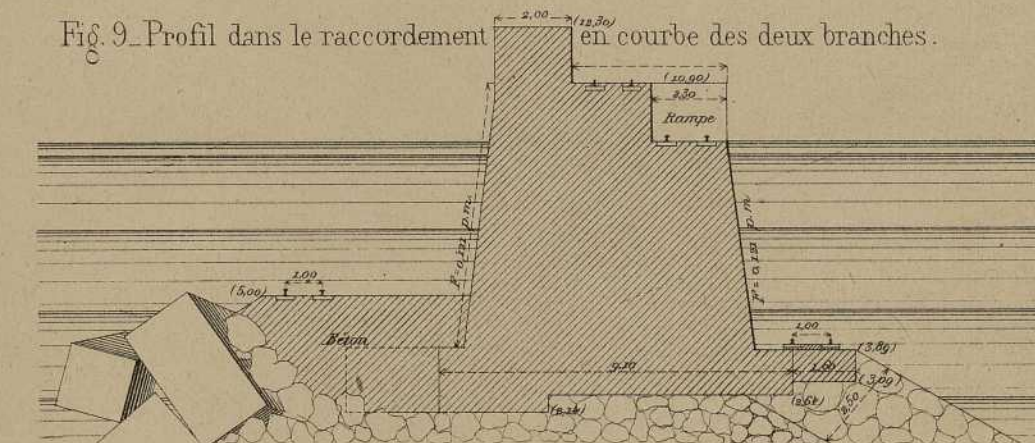
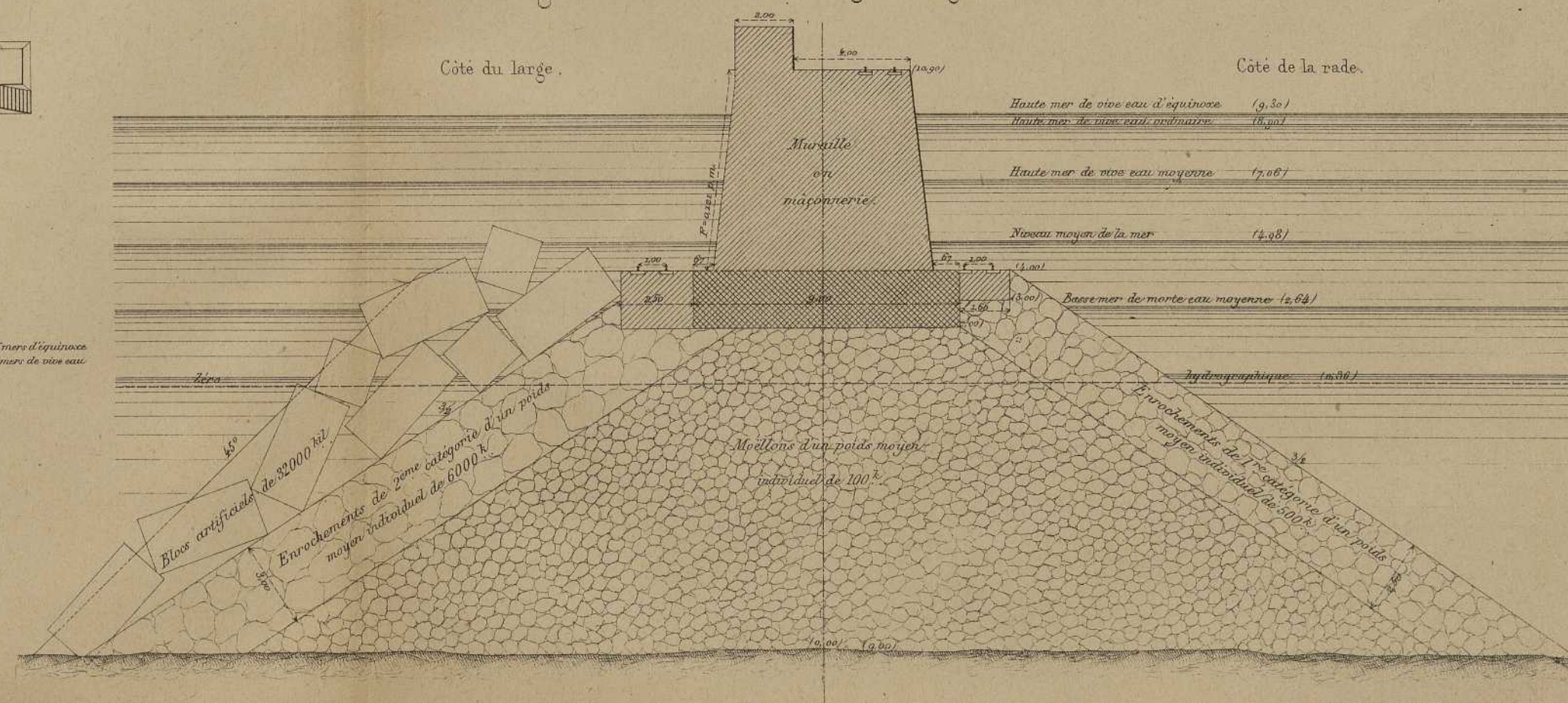


Fig. 10. Profil de la branche du large de la digue Carnot.



DIGUES FRANÇAISES.

Océan

Fig. 1 - Cherbourg.

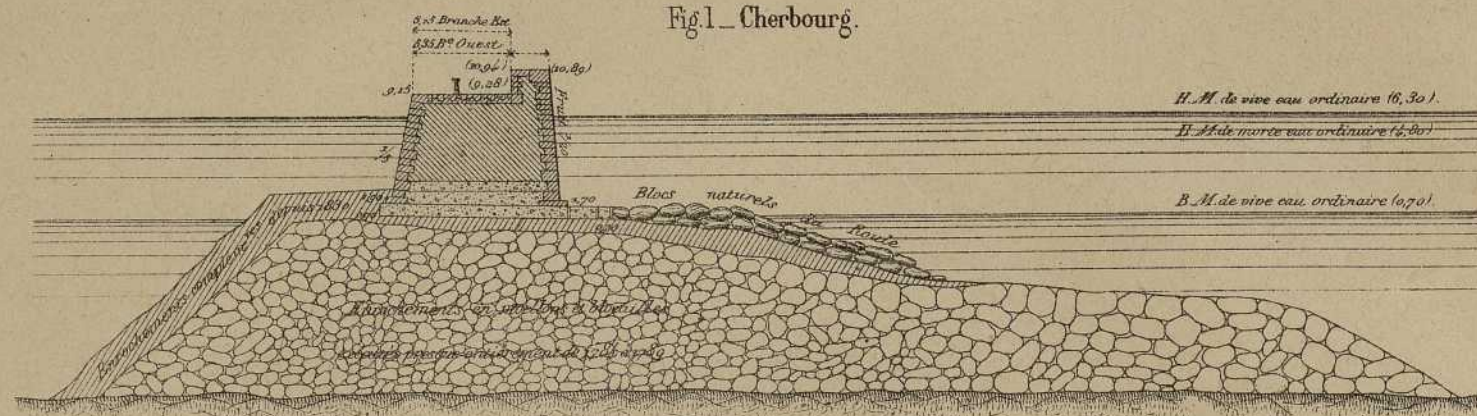


Fig. 4 - Cette.

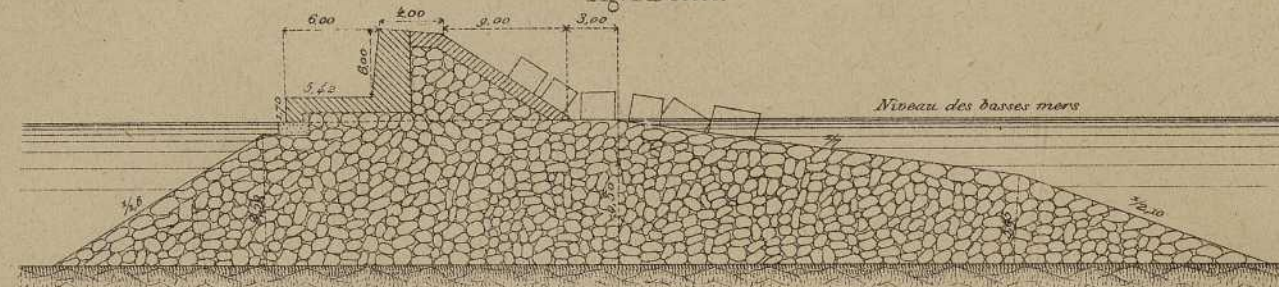


Fig. 5 - Cette. Musoirs.

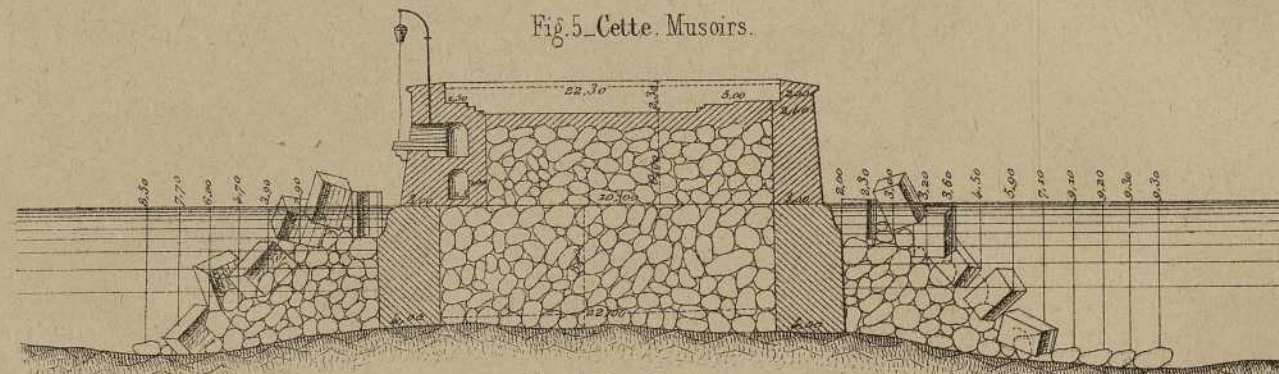


Fig. 6 - Port Vendres.

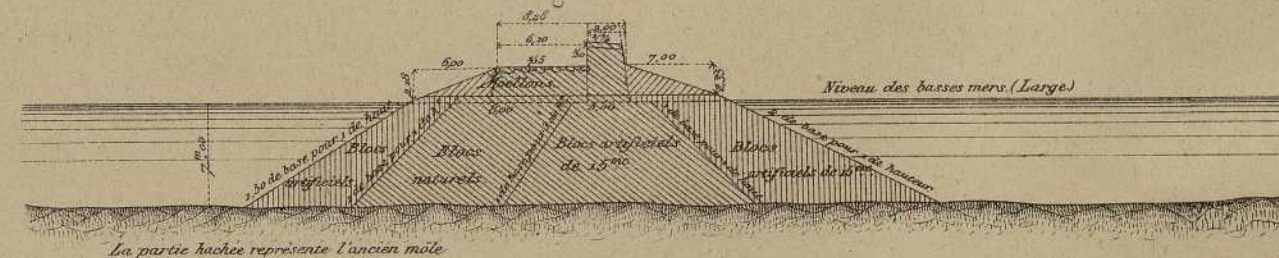


Fig. 7 - Oran.

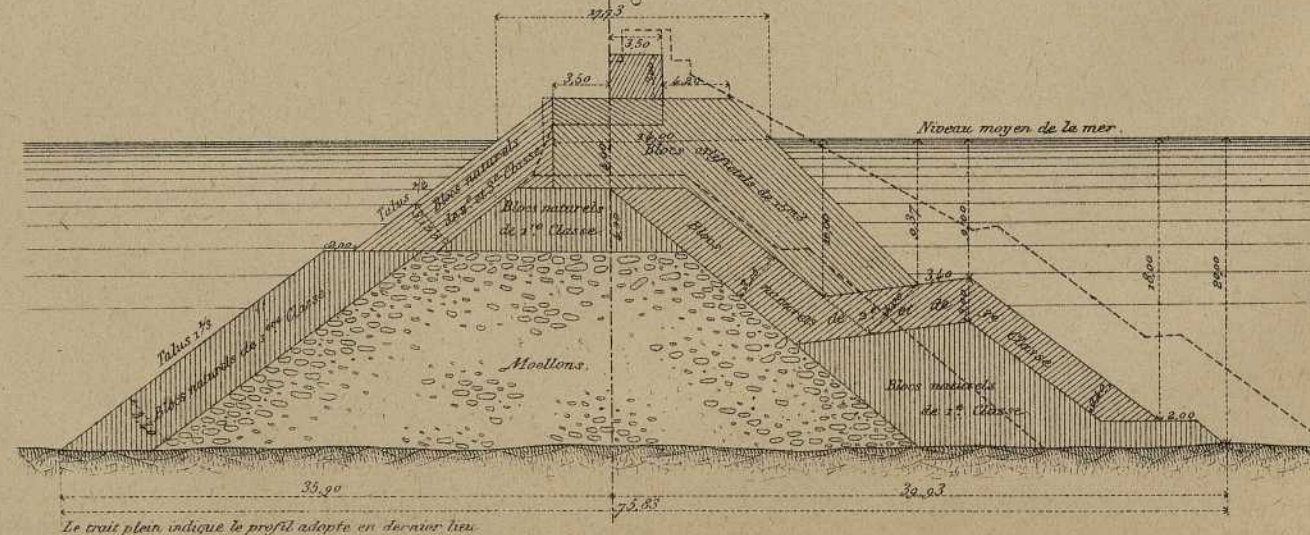
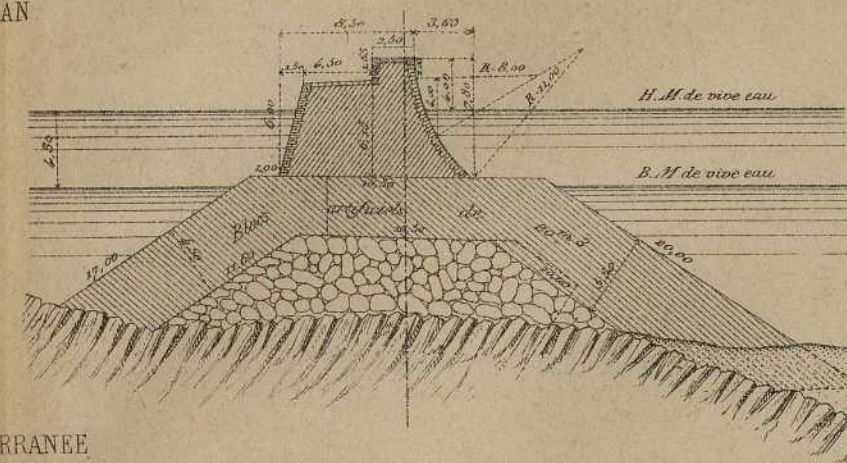


Fig. 2 - Profil adopté primitivement.



St. Jean de Luz.

Fig. 3 - Profil Brémontier.

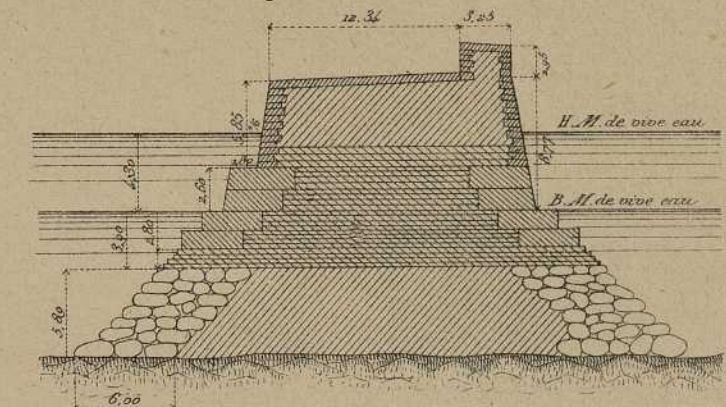


Fig. 8 - Alger.

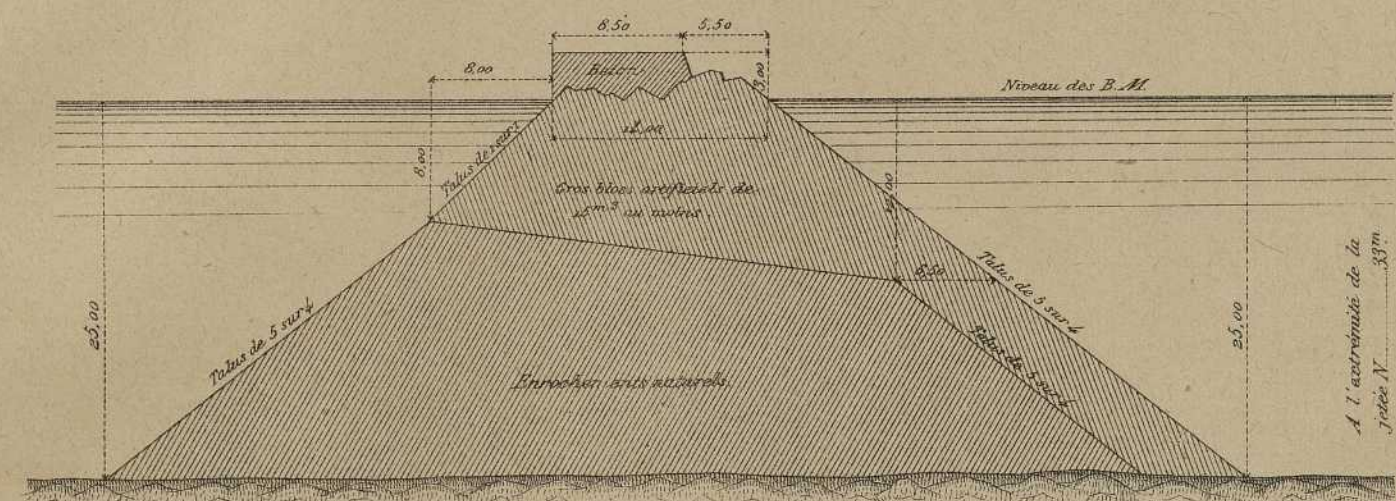


Fig. 9 - Marseille. (Digue de la Joliette).

Les hachures verticales représentent les enrochements versés par les bateaux; les hachures horizontales, ceux versés par les wagons.

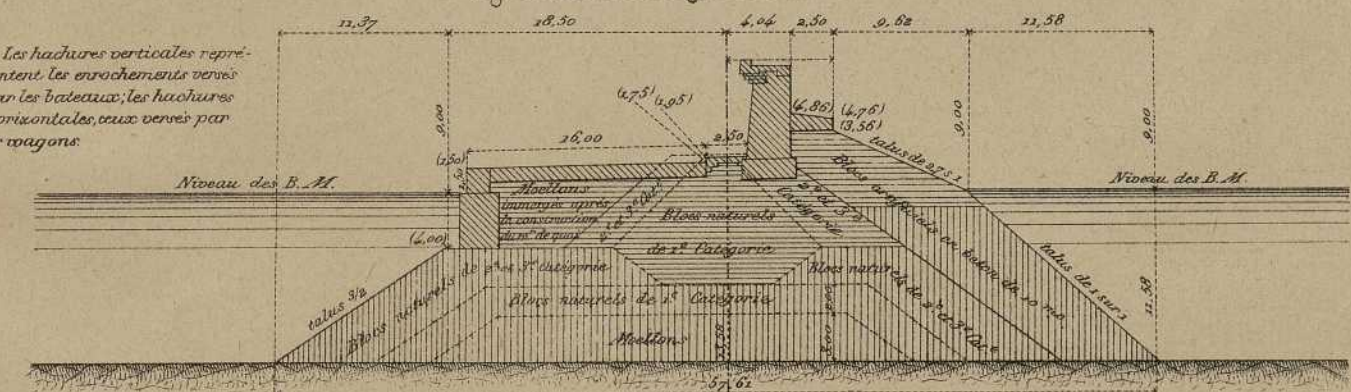
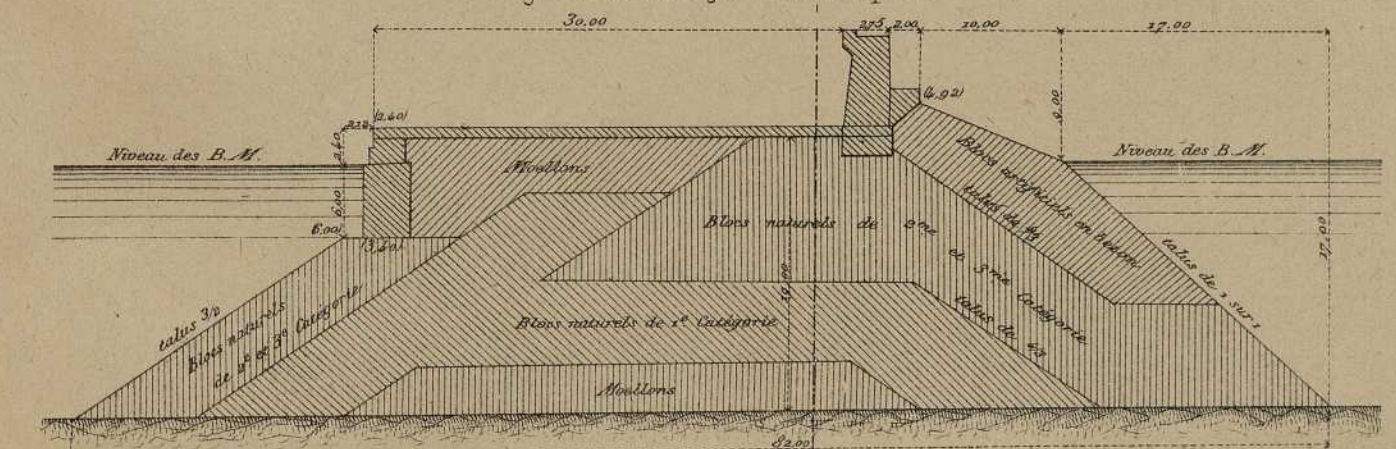


Fig. 10 - Marseille. Digue du bassin Napoléon.



Echelle de 0.002 p.m.

PORT DE WICKLOW

Fig. 2. — Elévation de la jetée en construction.

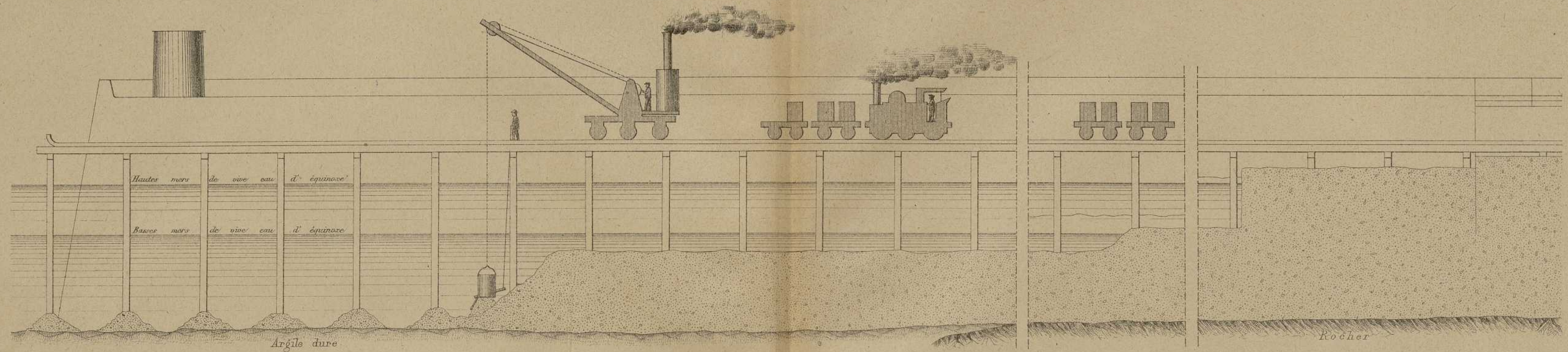
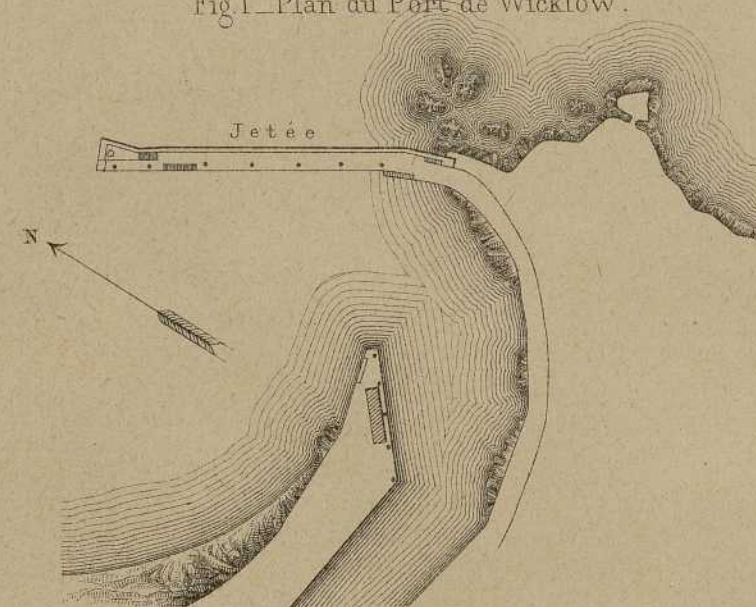


Fig. 1. Plan du Port de Wicklow.



Coupes montrant les profils réalisés successivement.

Fig. 3

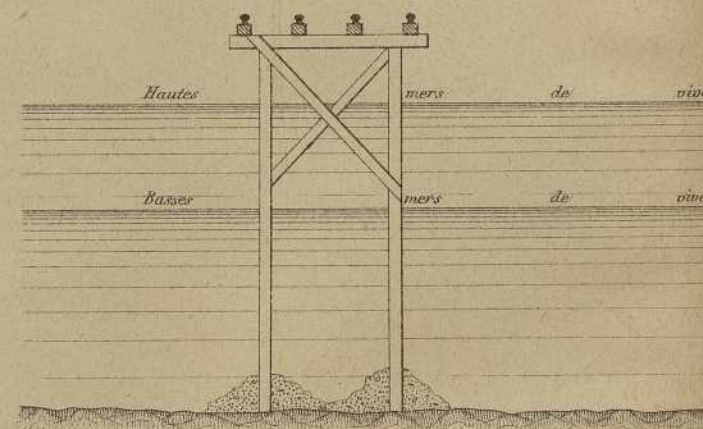


Fig. 4

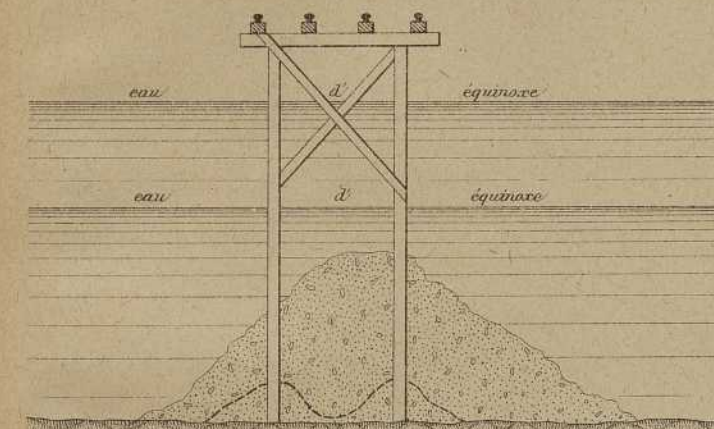


Fig. 5

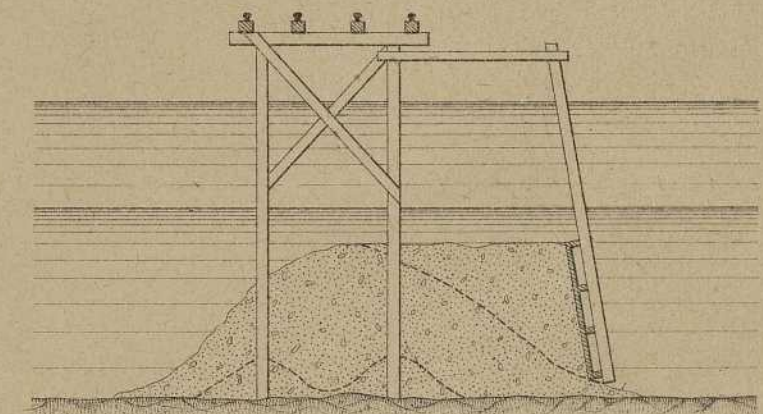


Fig. 6

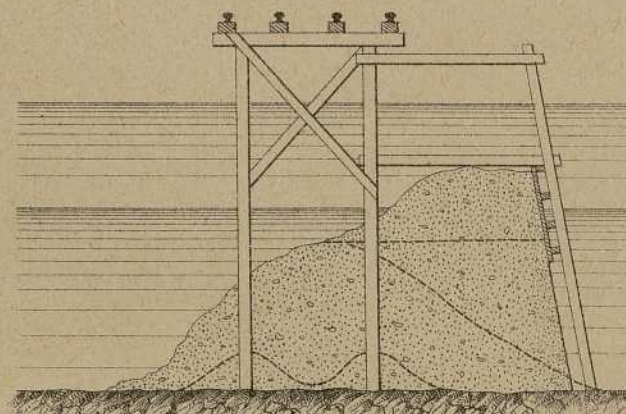


Fig. 7

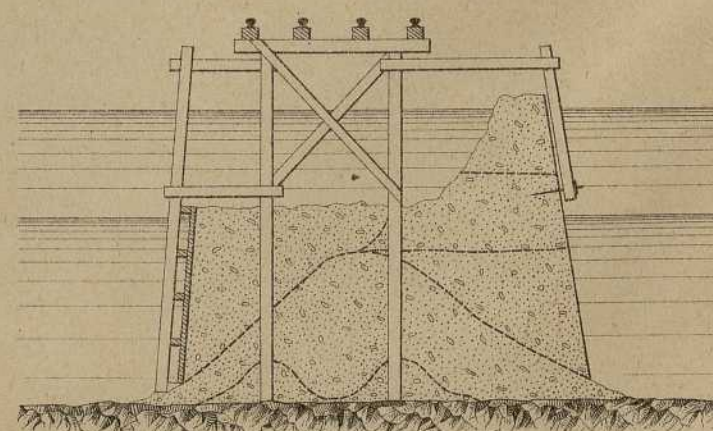


Fig. 8

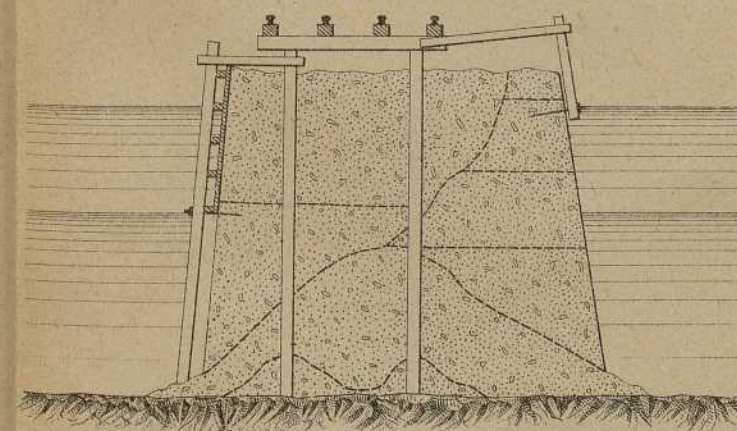
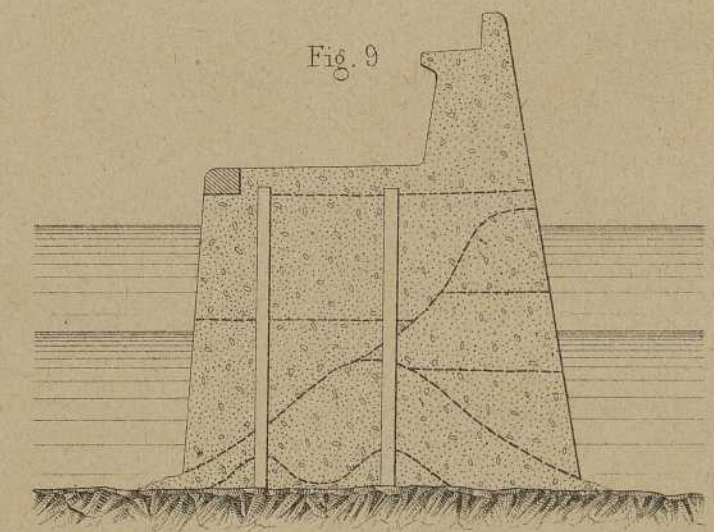


Fig. 9



Brise-lames flottant de la Ciotat.

Fig. 4.—Élévation latérale d'une section.

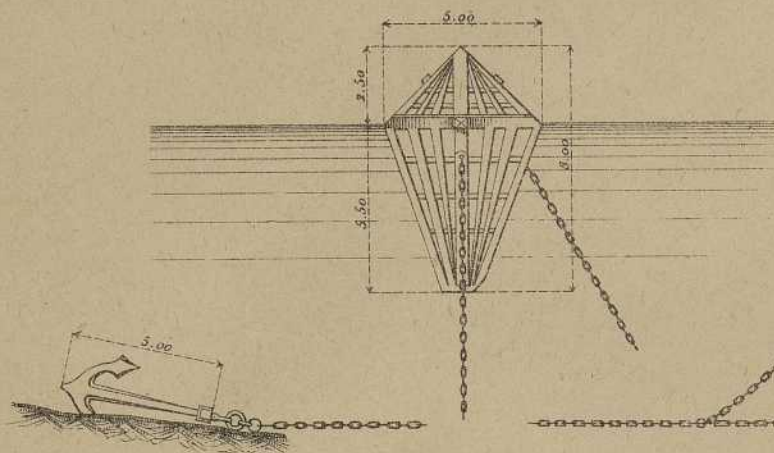


Fig.1.—Rade de la Ciotat.

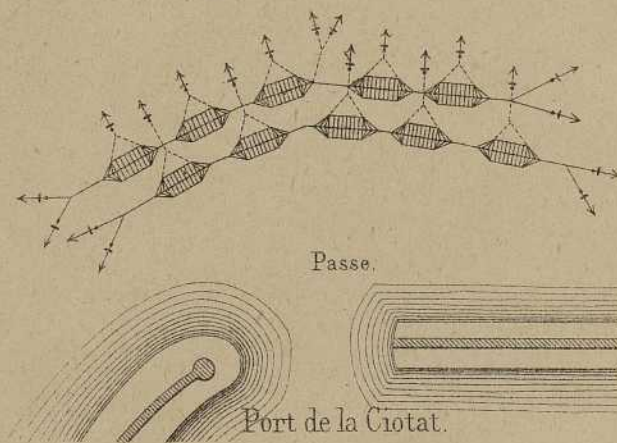


Fig. 2.—Élévation longitudinale des sections.

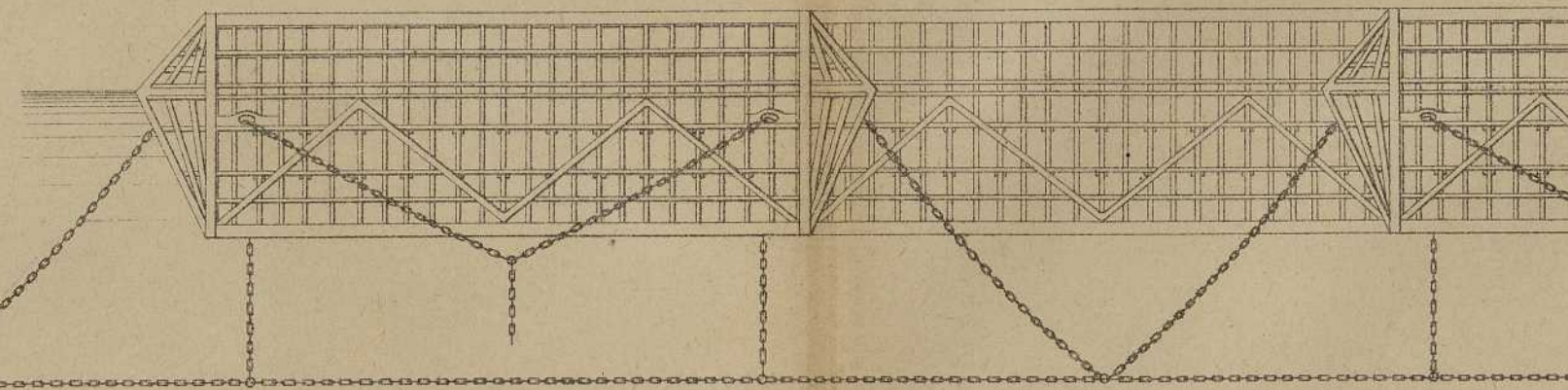


Fig. 3.

Plan des sections.

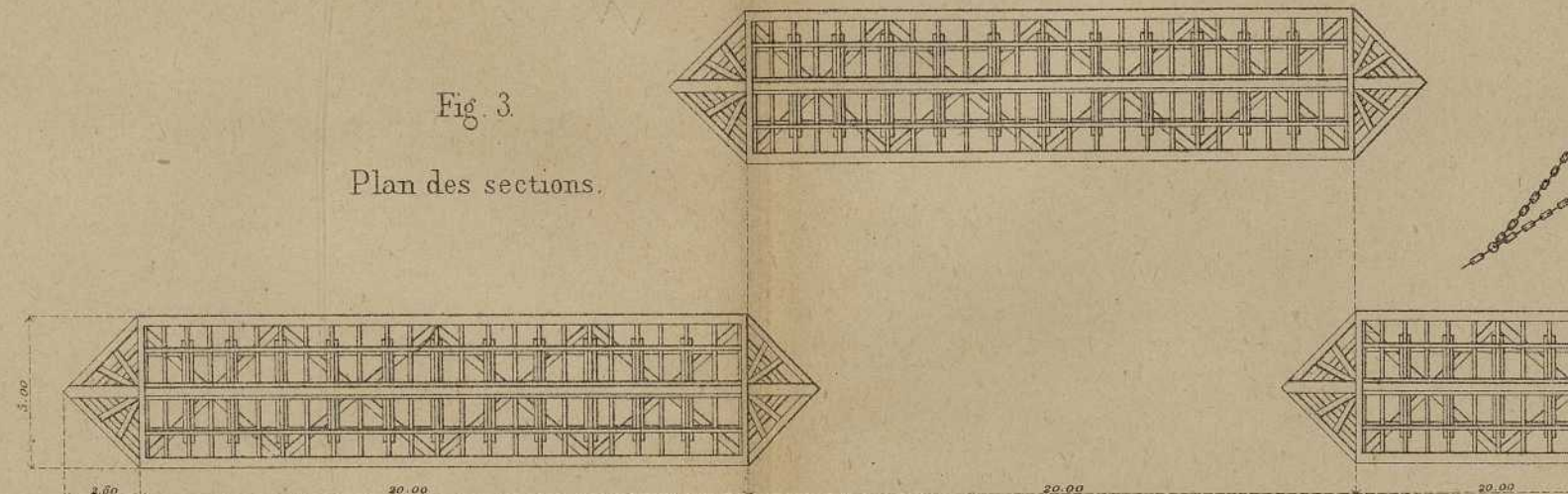


Fig. 5.—Vue perspective d'une section

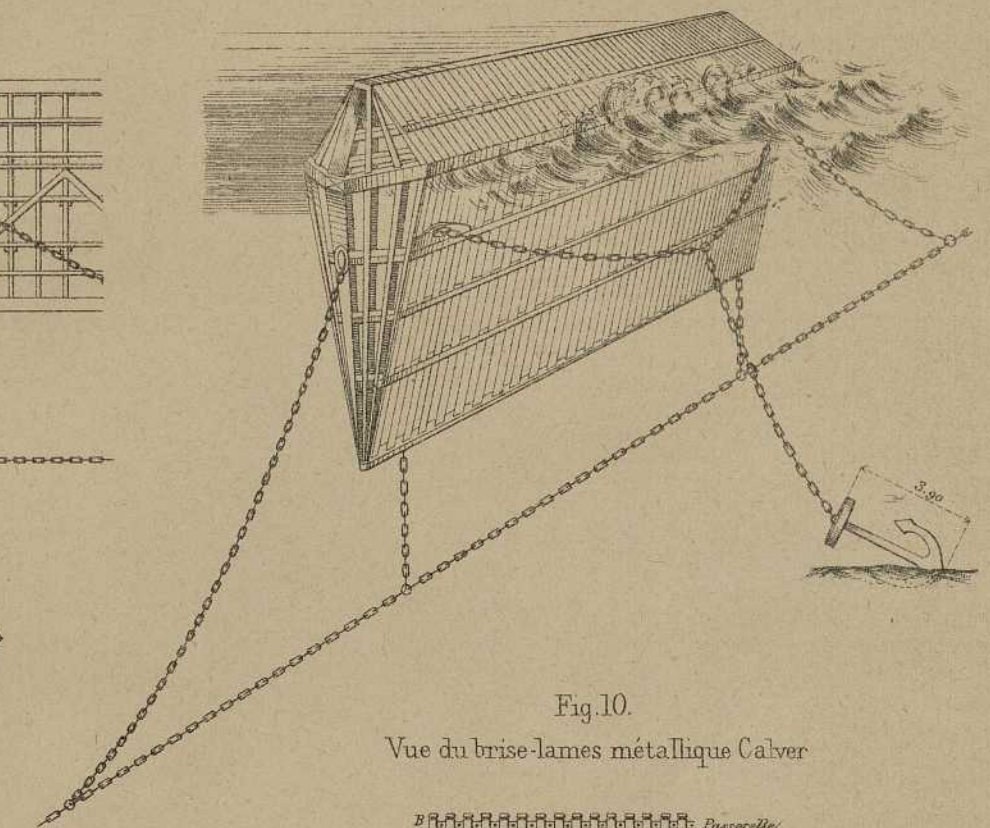
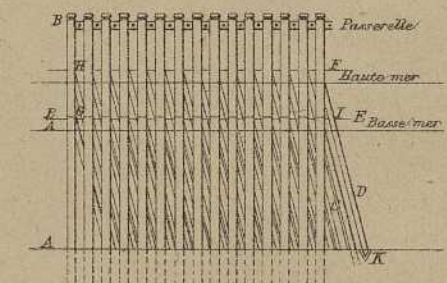


Fig.10.
Vue du brise-lames métallique Calver



Brise-lames à persiennes de Bennett Hays.

Fig. 6—Coupe transversale suivant AB.

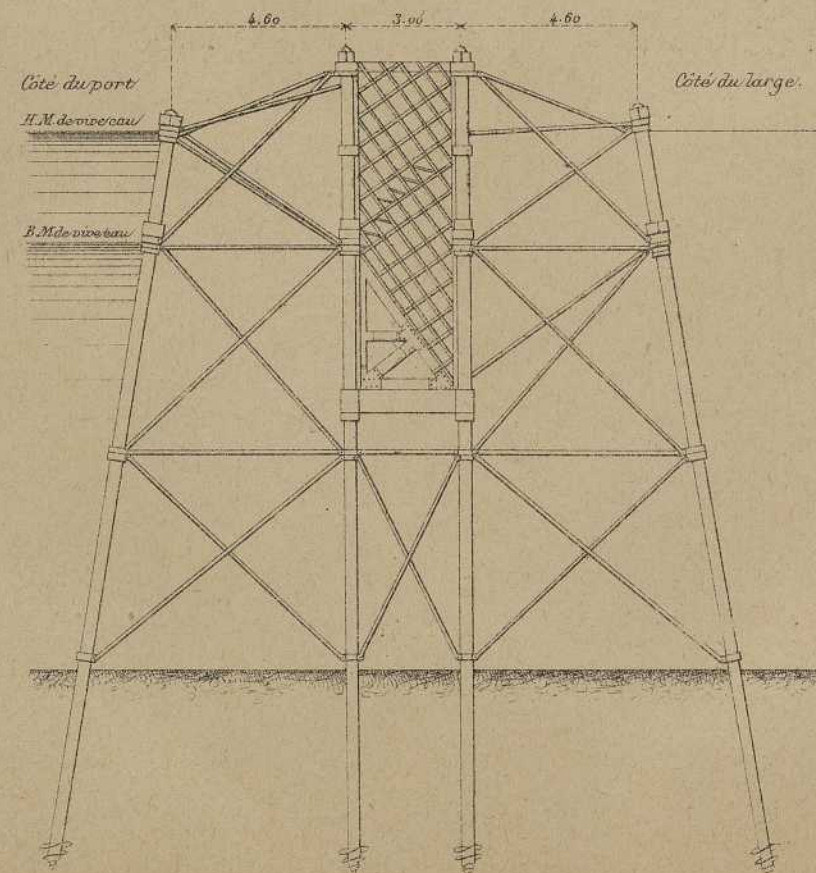
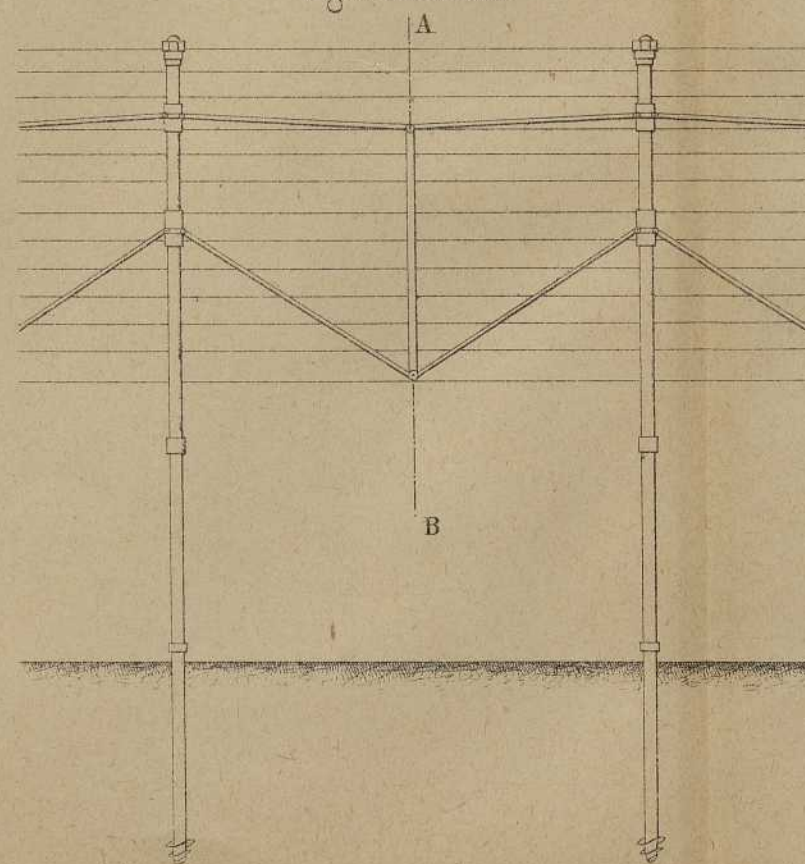


Fig. 7. Elévation.



Brise-lames métallique Calver.

Fig. 8

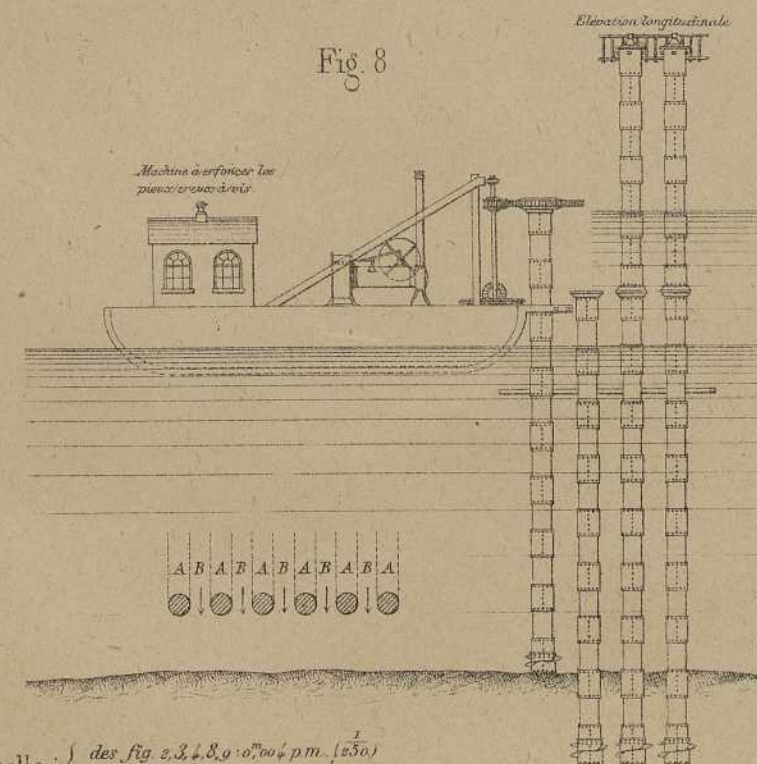
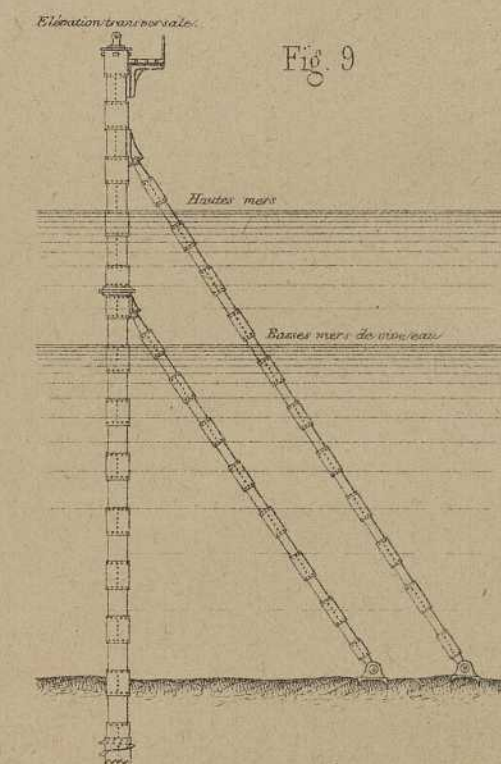
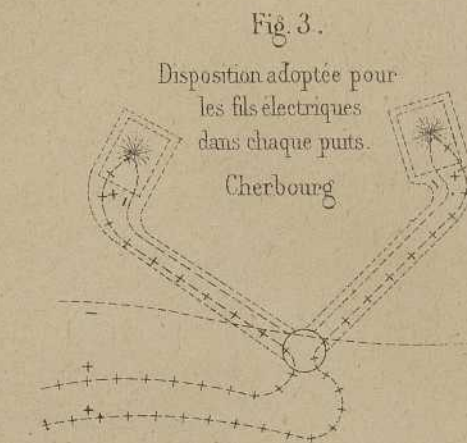
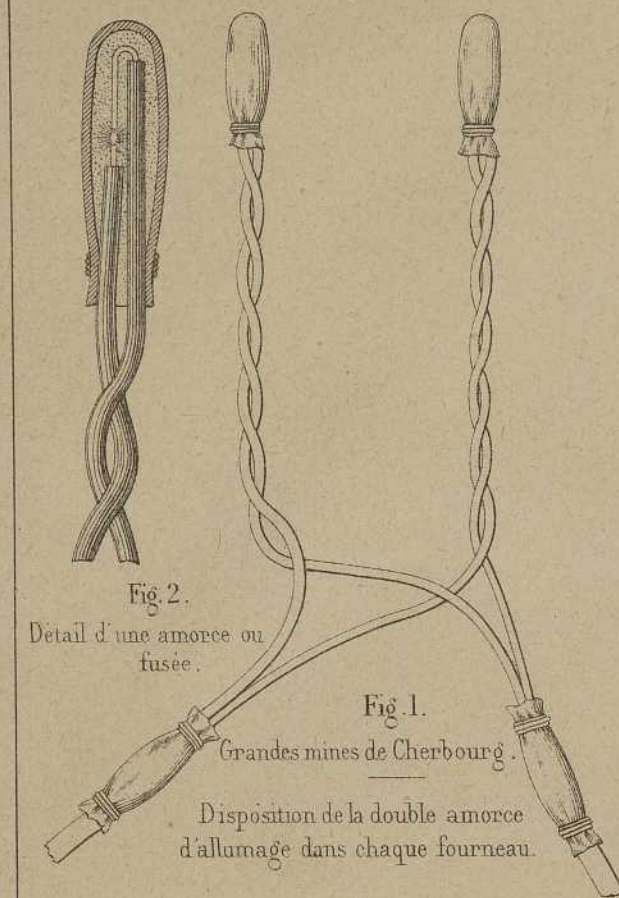


Fig. 9



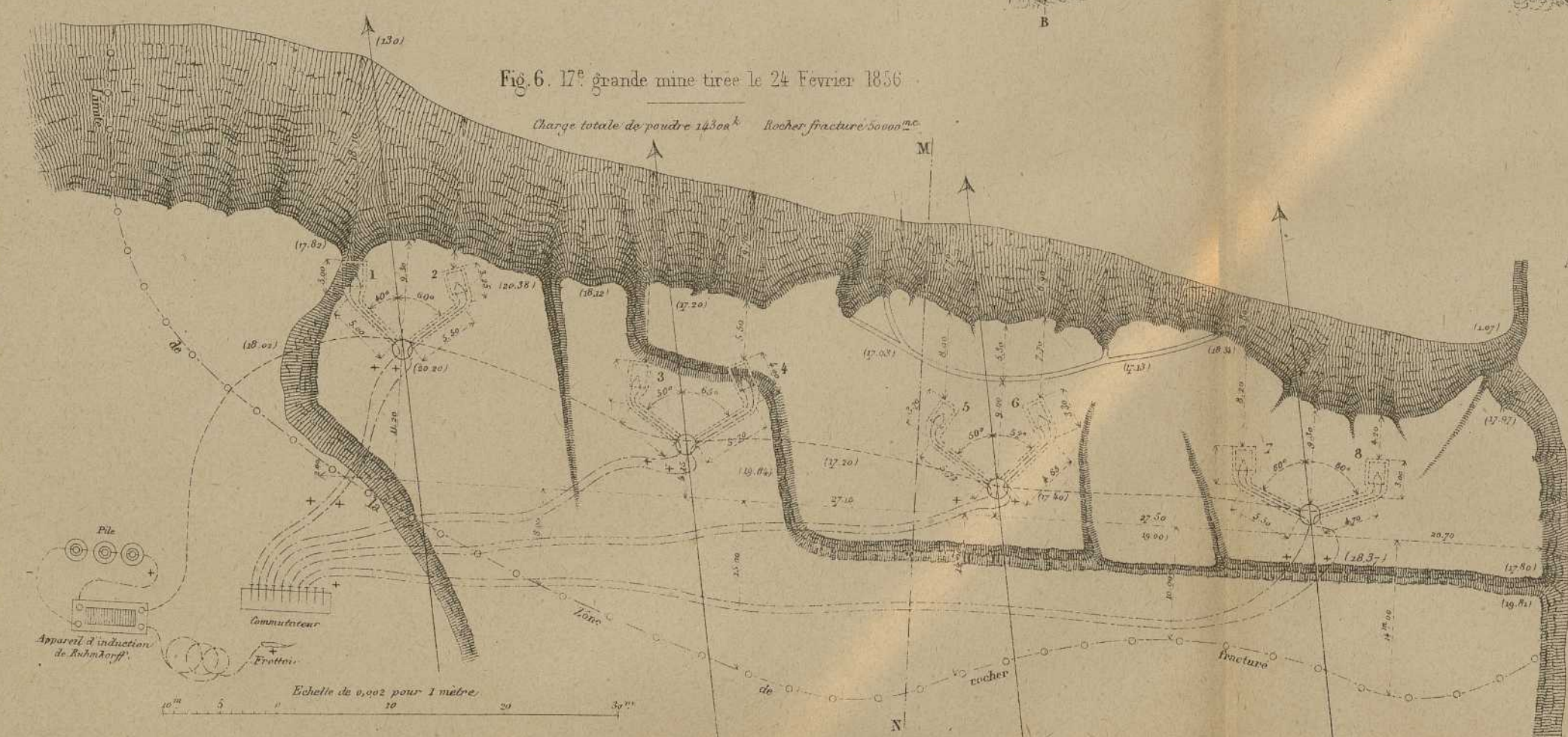
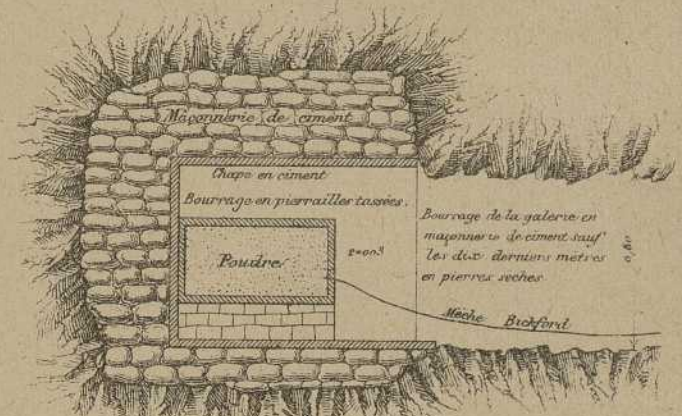
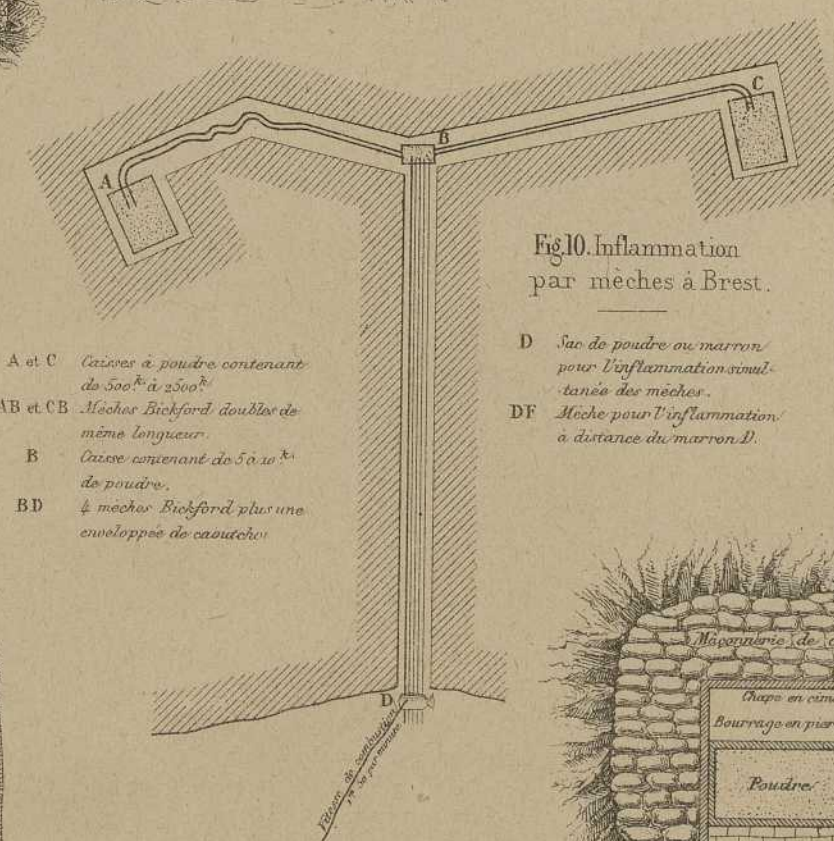
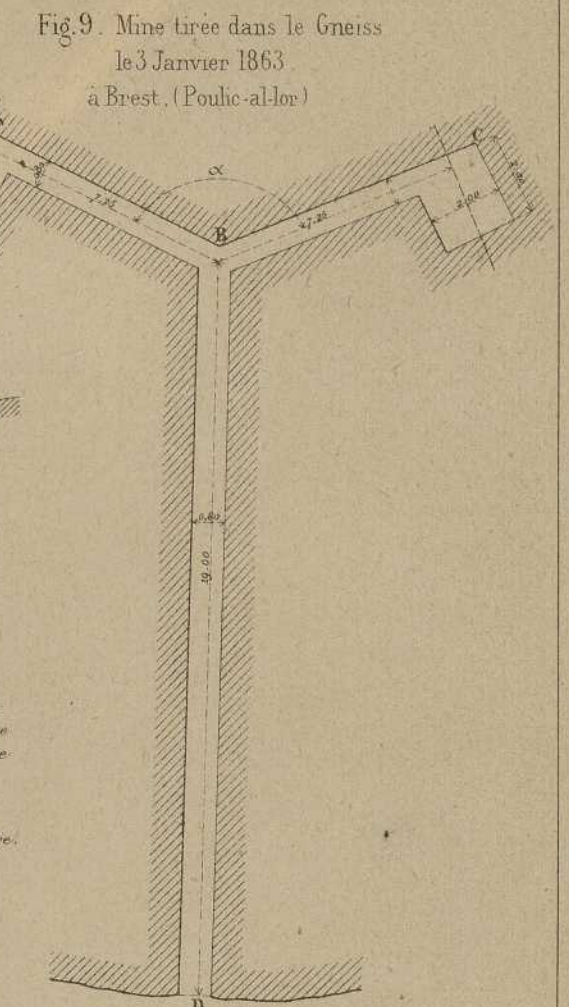
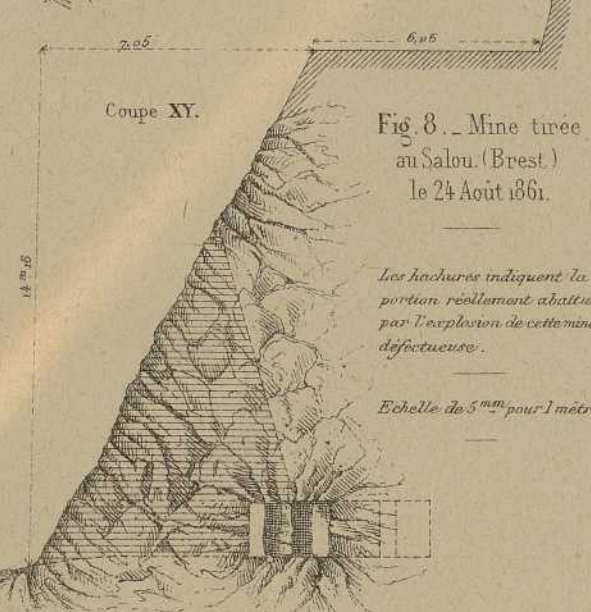
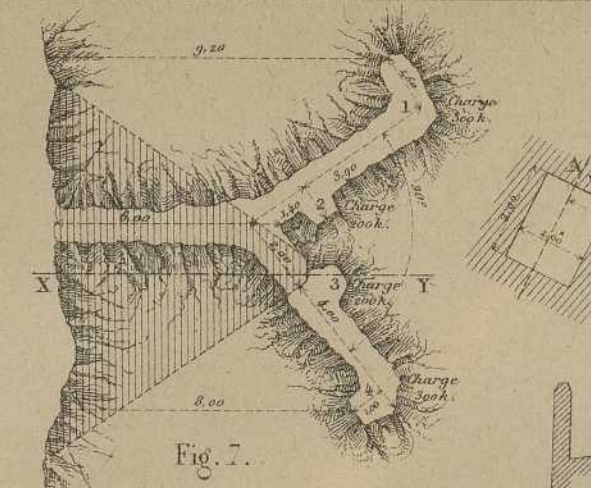
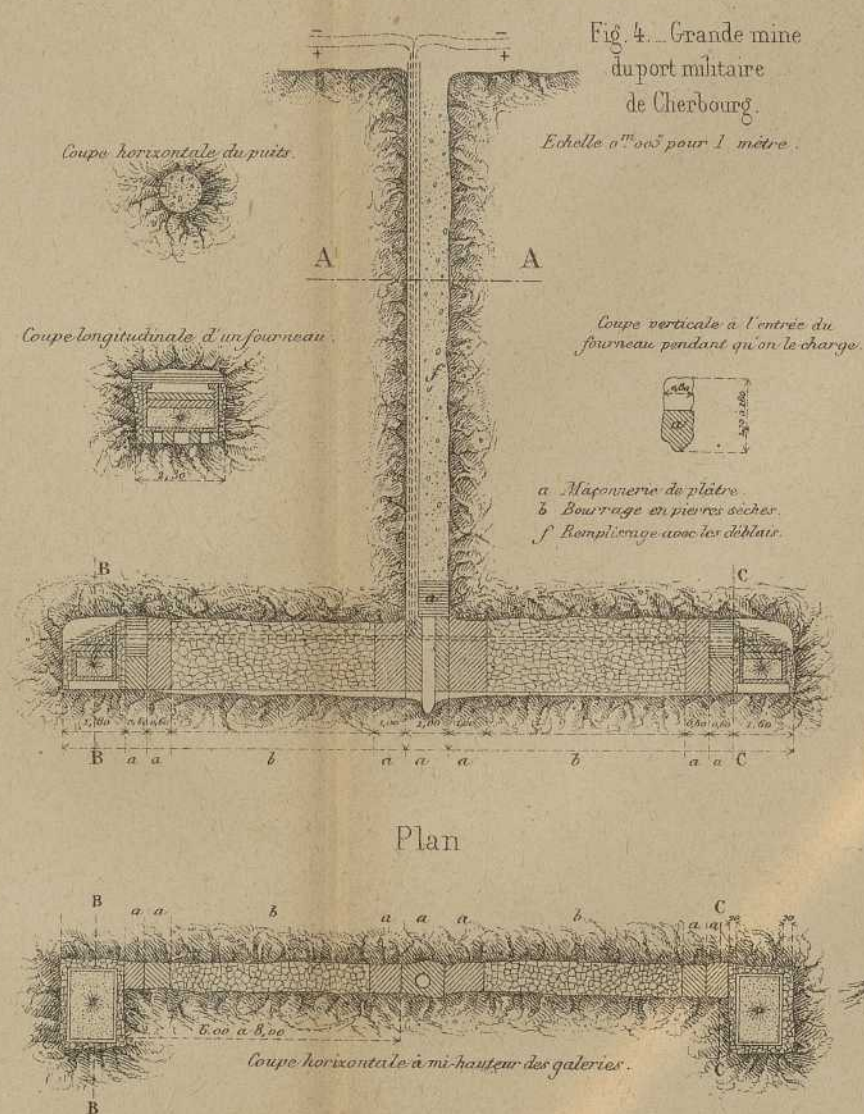
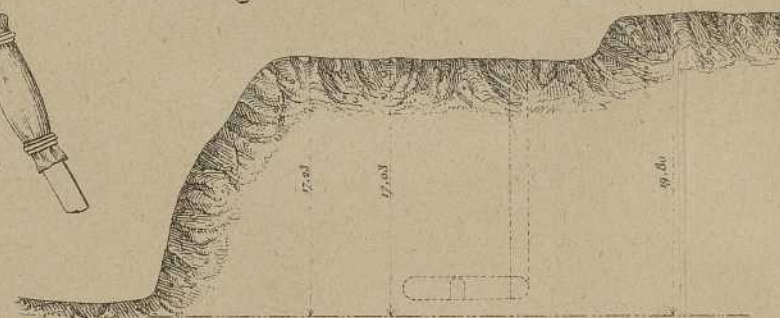
Echelle : $\left\{ \begin{array}{l} \text{des fig. 2, 3, 4, 8, 9 : } 0^{\text{m}} 004 \text{ p.m. } (\frac{1}{250}) \\ \text{des fig. 6 et 7 : } 0^{\text{m}} 005 \text{ p.m. } (\frac{1}{200}) \end{array} \right.$





Grandes mines pour le creusement dans le rocher de l'arrière bassin du port militaire de Cherbourg.

Fig. 5. Coupe suivant M.N. du plan.



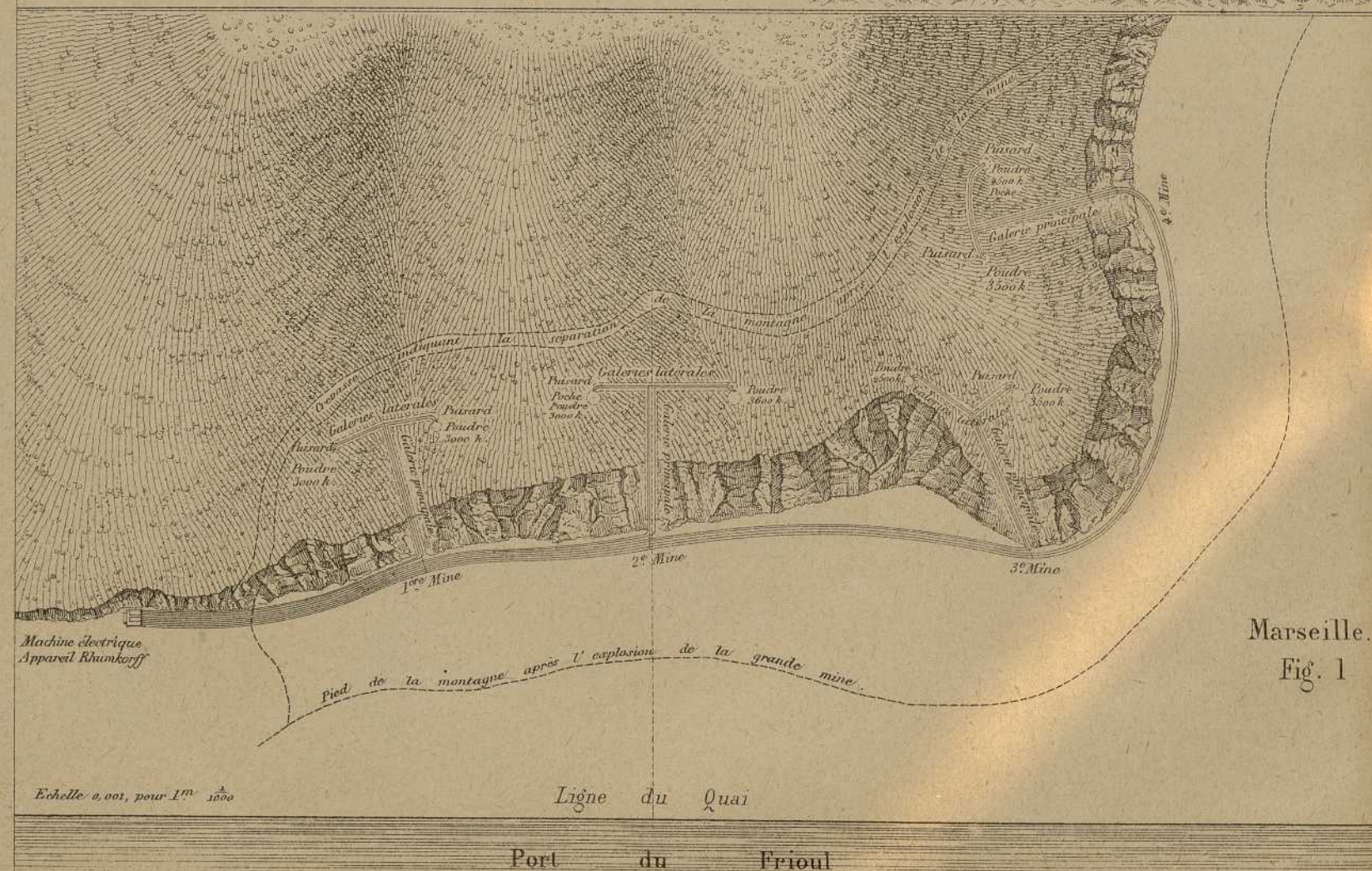
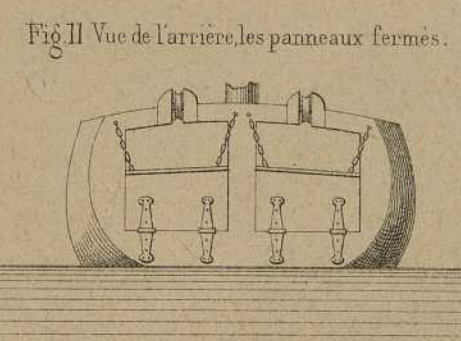
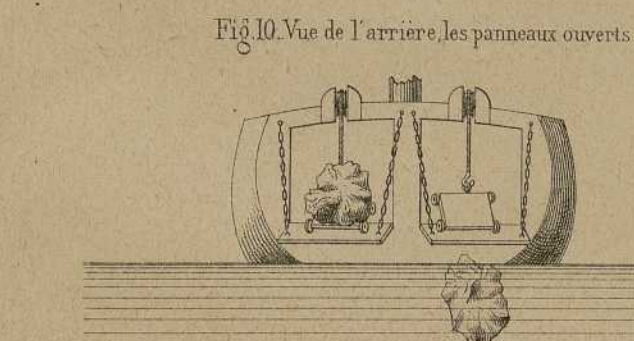
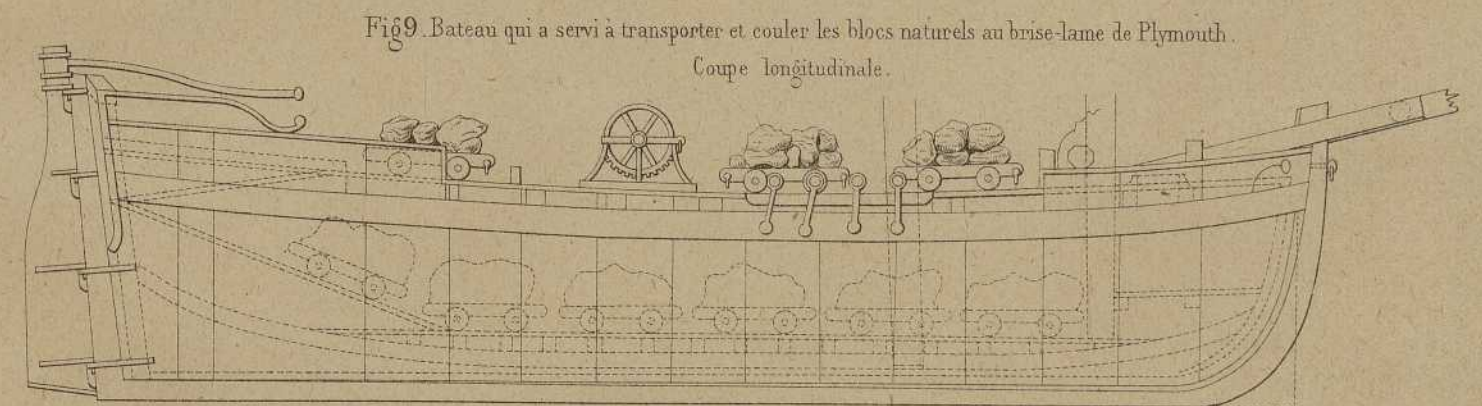
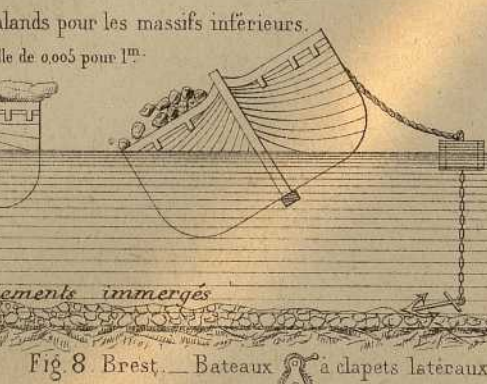
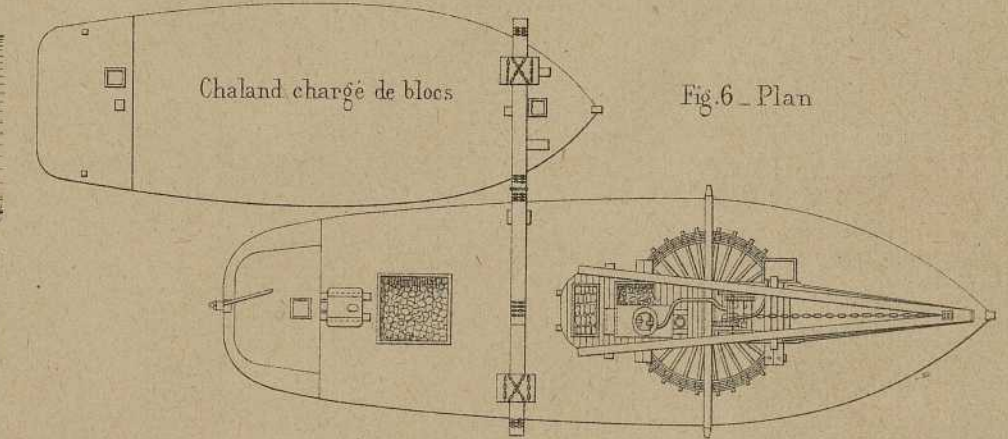
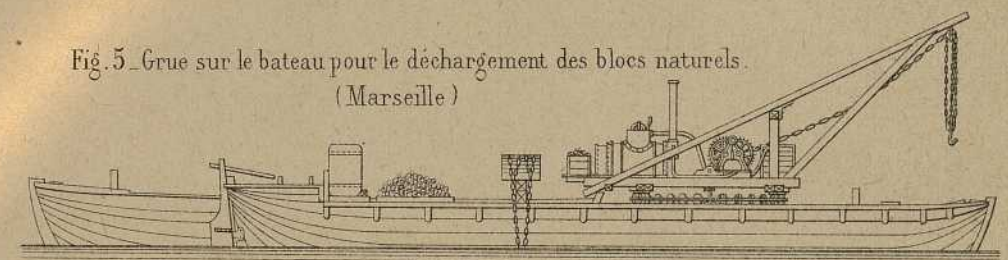
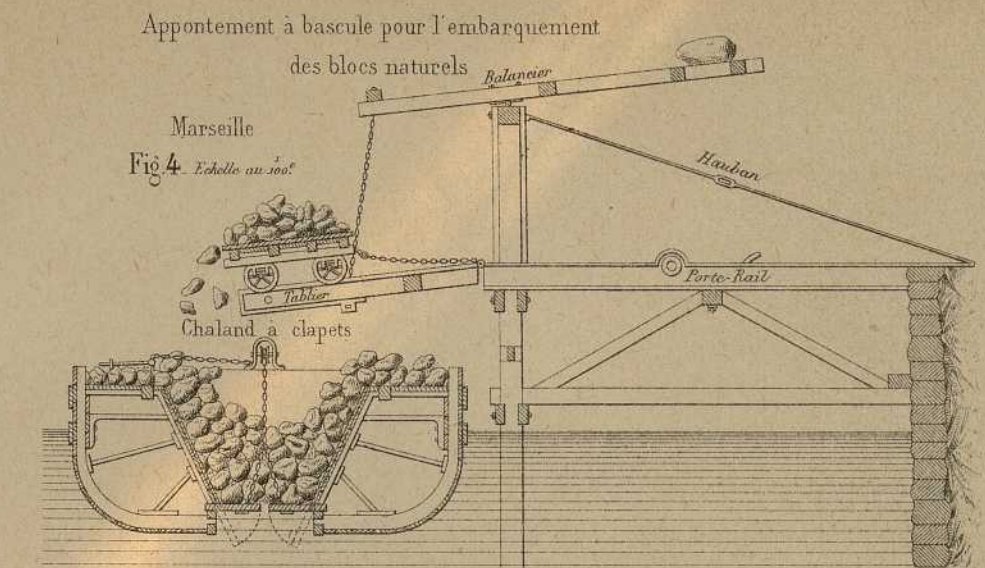
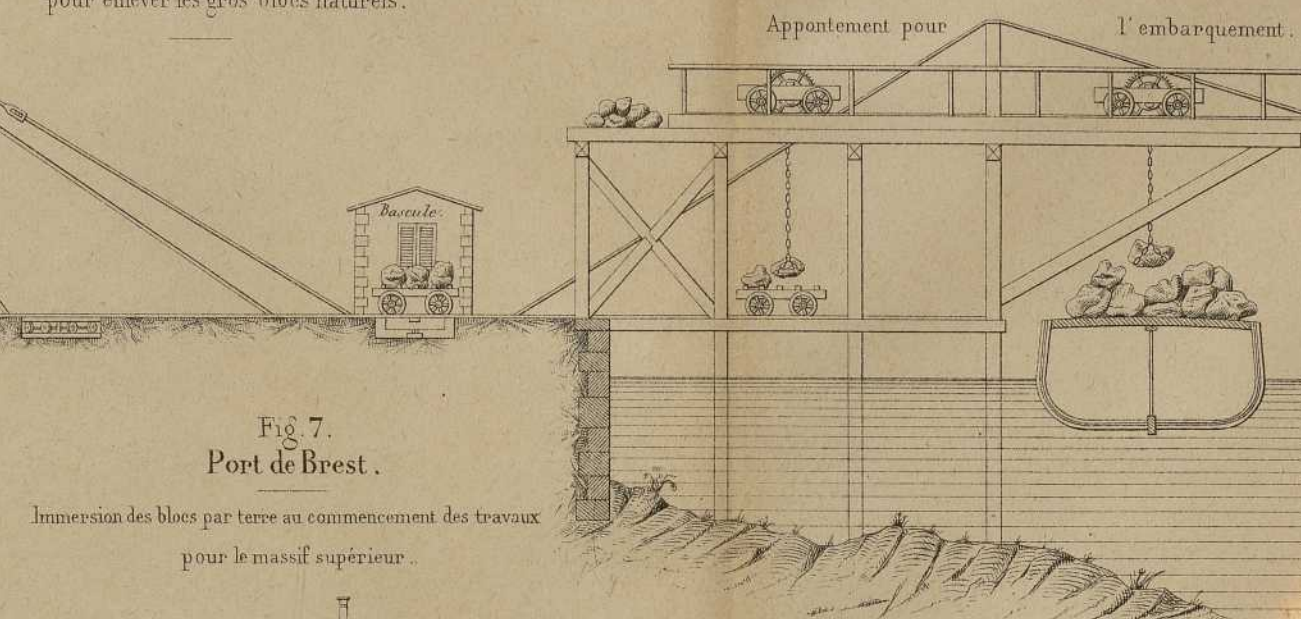
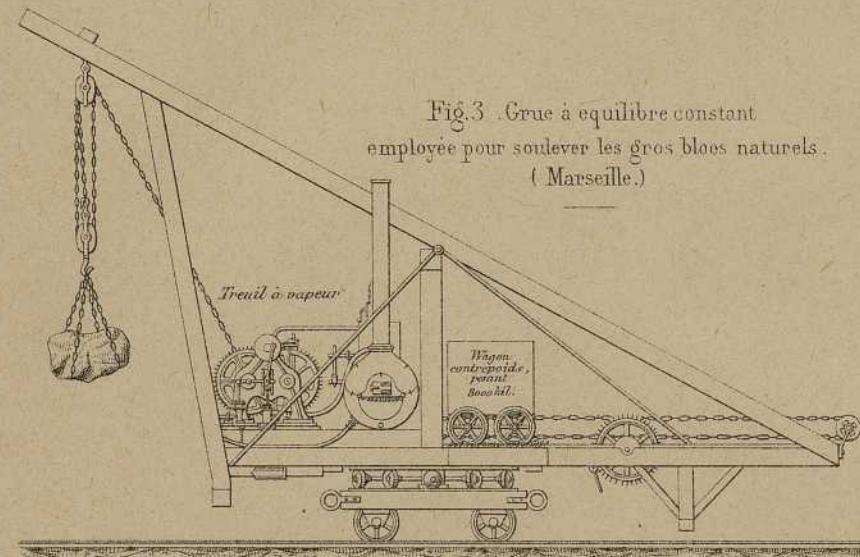
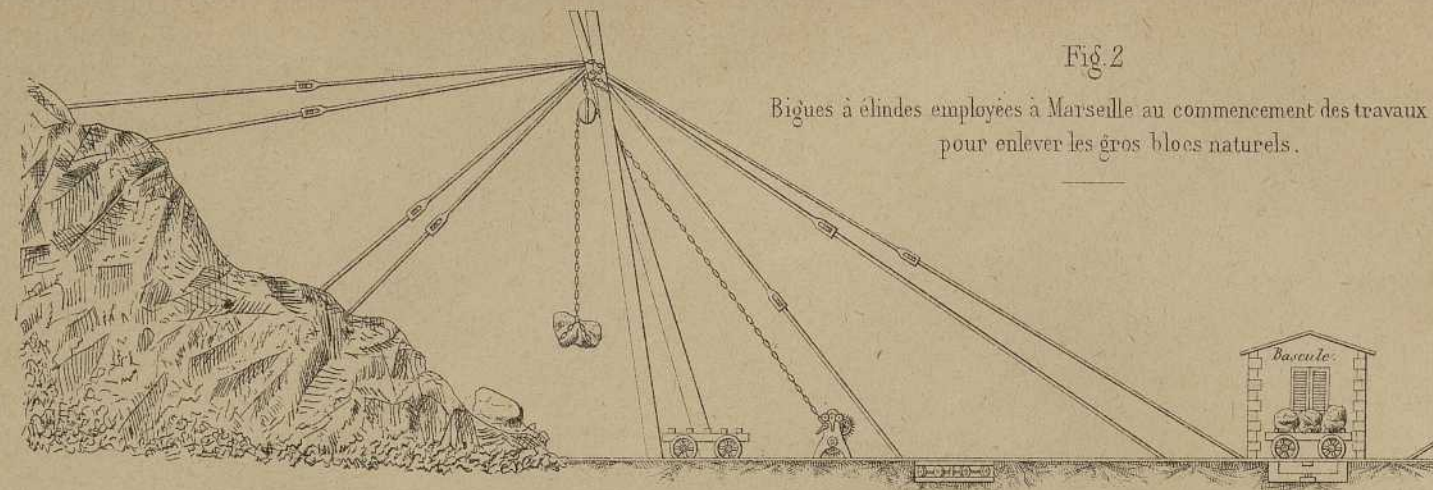


Fig. 2. Coupe transversale du pont de service et élévation d'une palée.

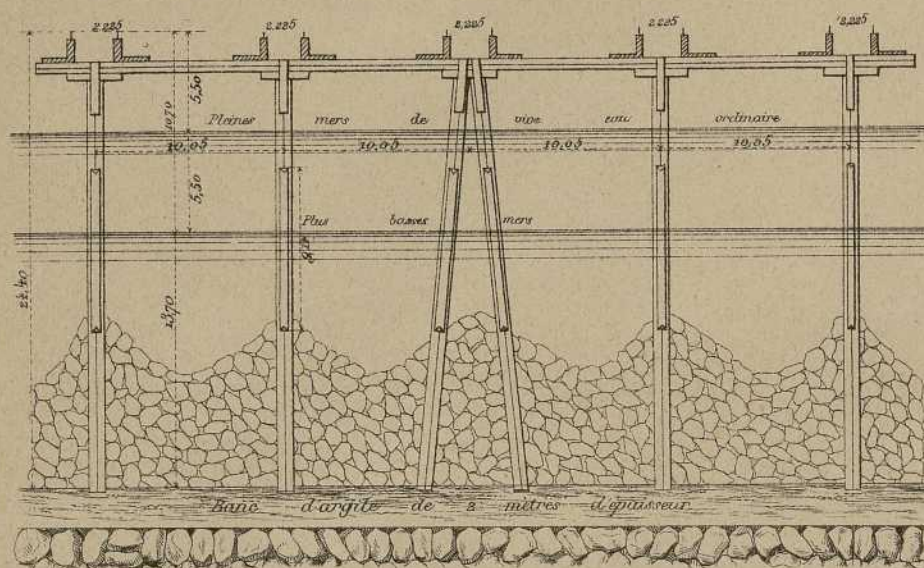


Fig. 3. Grue servant à la construction du pont de service.

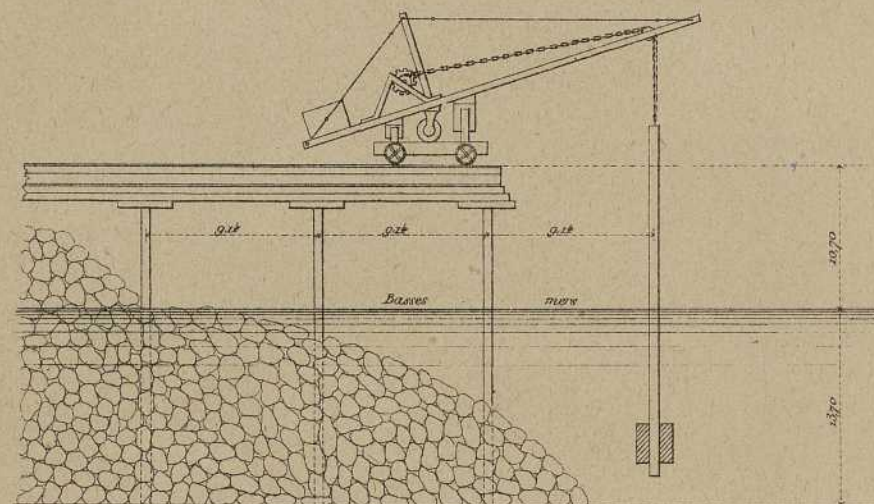
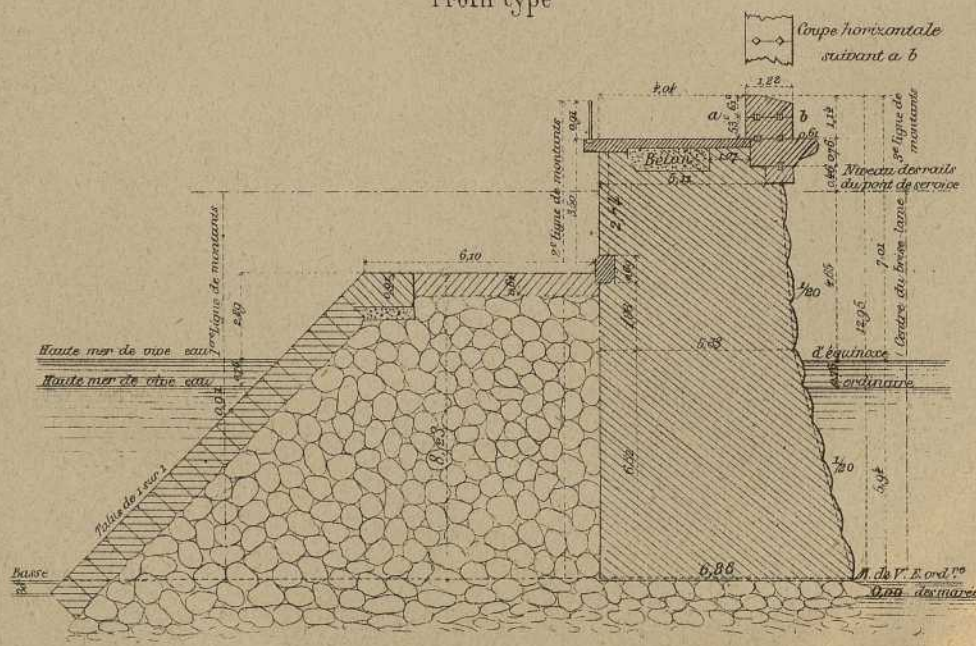


Fig. 8. Coupe transversale du mur d'abri du môle Nord.

Profil type



Echelle { De la fig. 2, 0^m002 p.m.
Des fig. 3 et 4, 0^m0025 p.m.
Des fig. 5, 8, 0^m003 p.m.
Des fig. 6 et 7, 0^m01 p.m.

PORT DE HOLYHEAD.

Construction du môle Nord.

Fig. 4. Grue employée pour les enrochements.

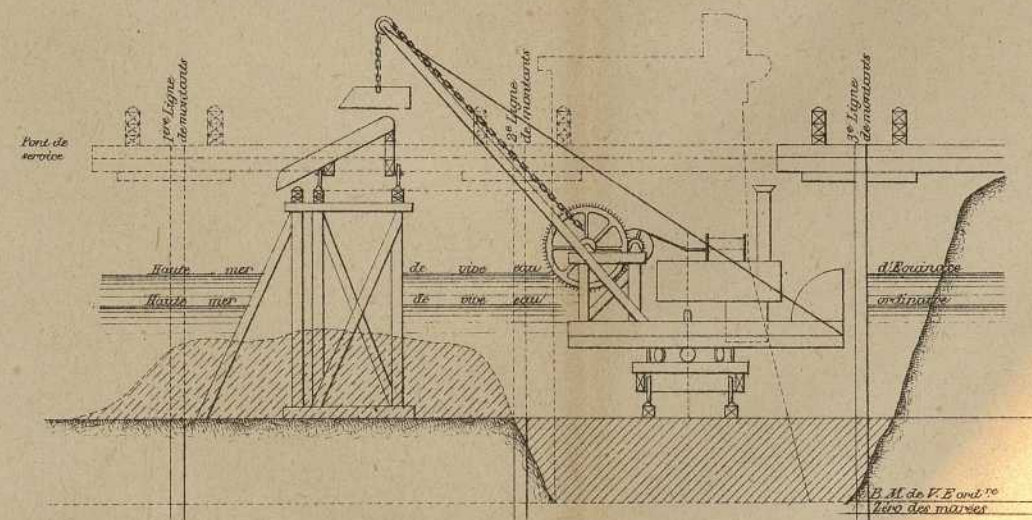


Fig. 1. Coupe transversale du Môle Nord de Holyhead.

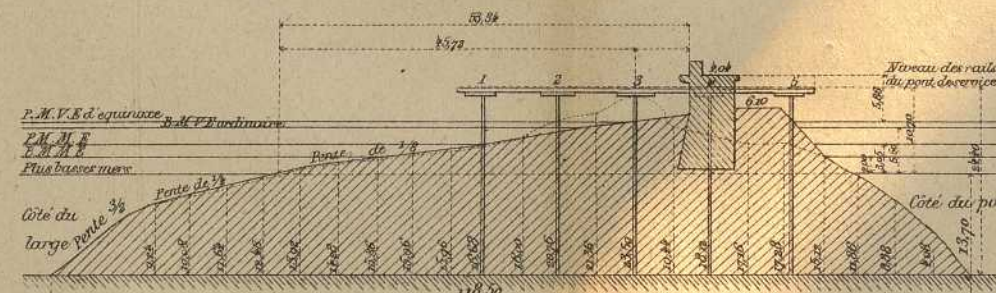
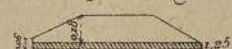


Fig. 11. Chapeau de pieu en fonte.

Coupe en long



Plan par dessus.



Plan par dessous.

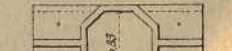


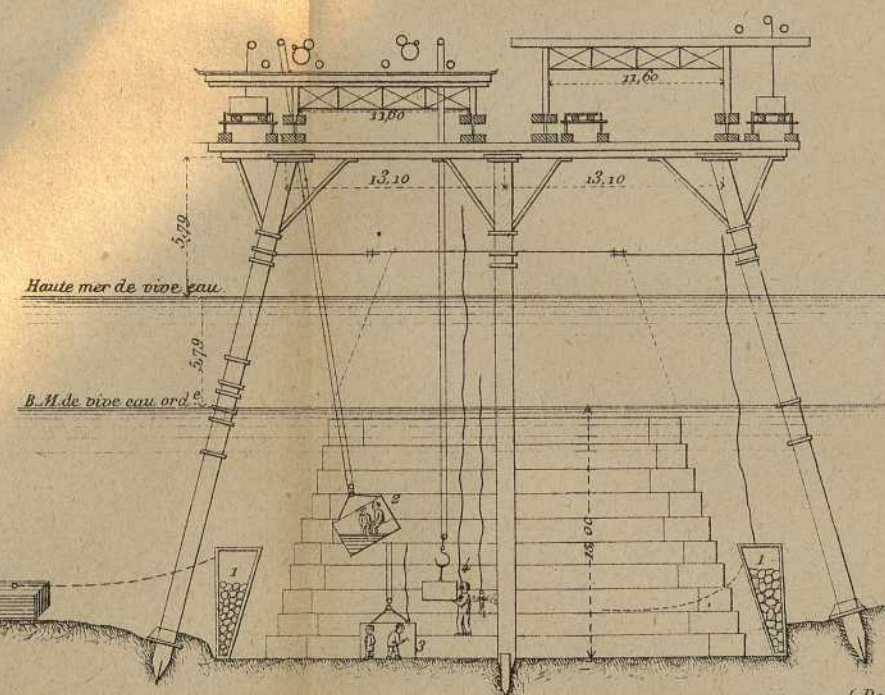
Fig. 12. Sabot en fer pour le fond de craie.



Fig. 13. Vis de ridage pour les tirants du fer.



Fig. 9. Elevation transversale.



Pont de service à Douvres.

Fig. 10. Elevation longitudinale.

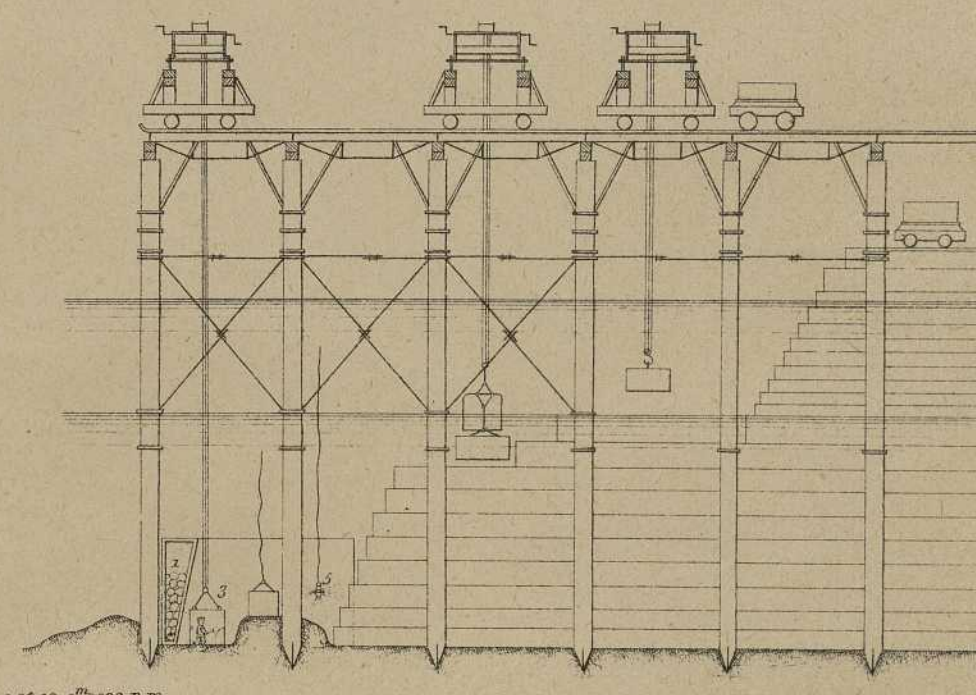
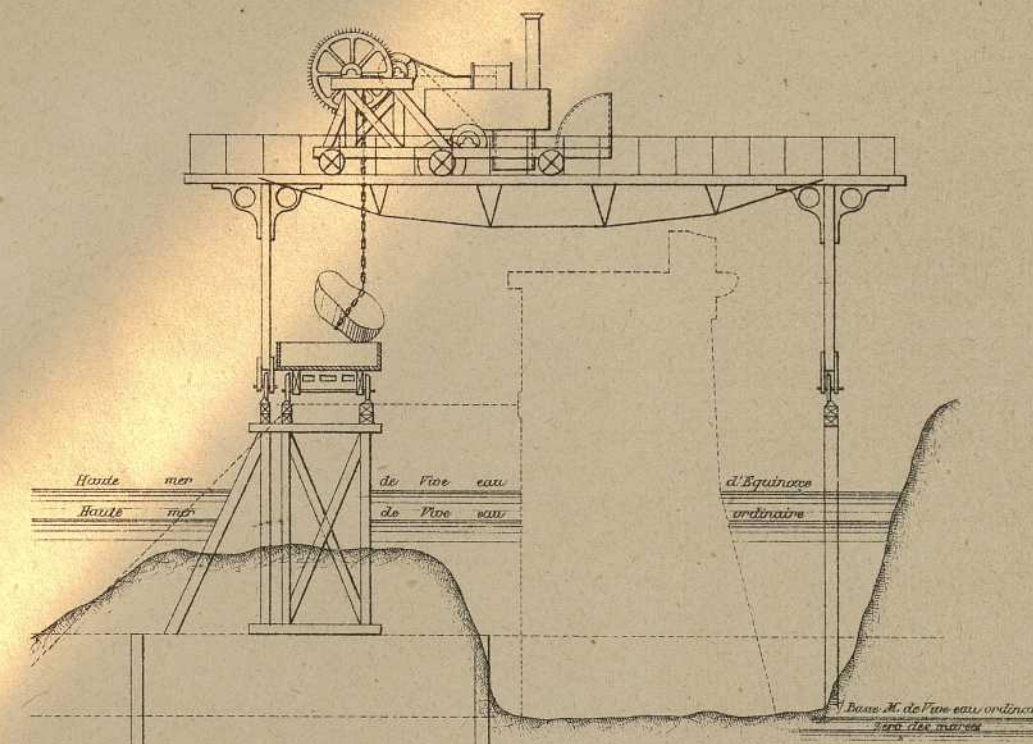
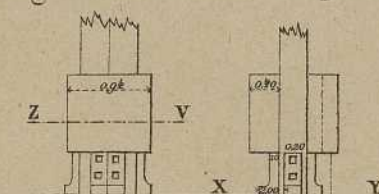


Fig. 5. Bâti et treuil à vapeur servant au transport et à la pose des matériaux.

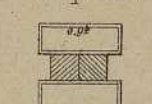


Détails des poteaux.

Fig. 6. About inférieur d'un poteau.



Coupe Z.V.



Plan XY

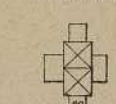
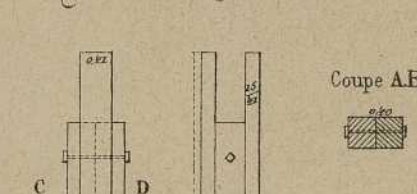
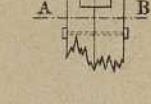


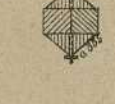
Fig. 7. About supérieur.



Coupe A.B.



Coupe C.D.

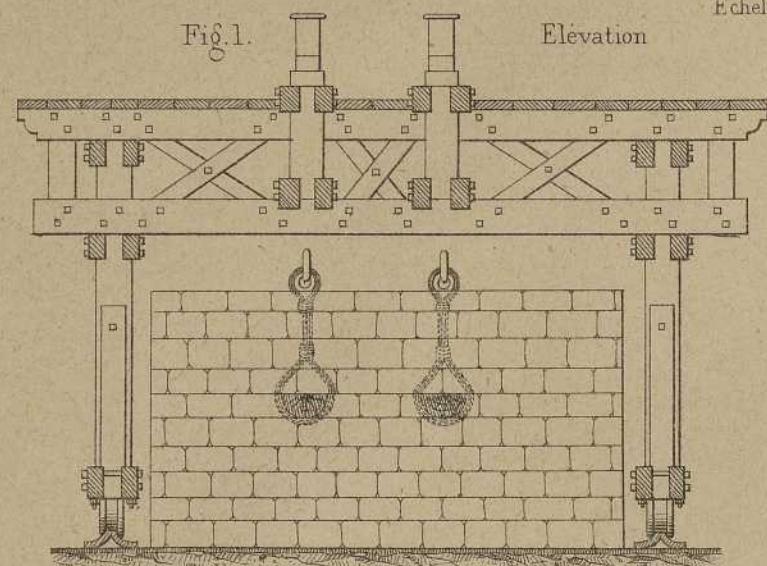


Appareil à soulever les blocs. — Socoa — St Jean-de-Luz.

Echelle de 0.02 par mètre.

Fig. 1.

Elevation



Profil

Fig. 2.

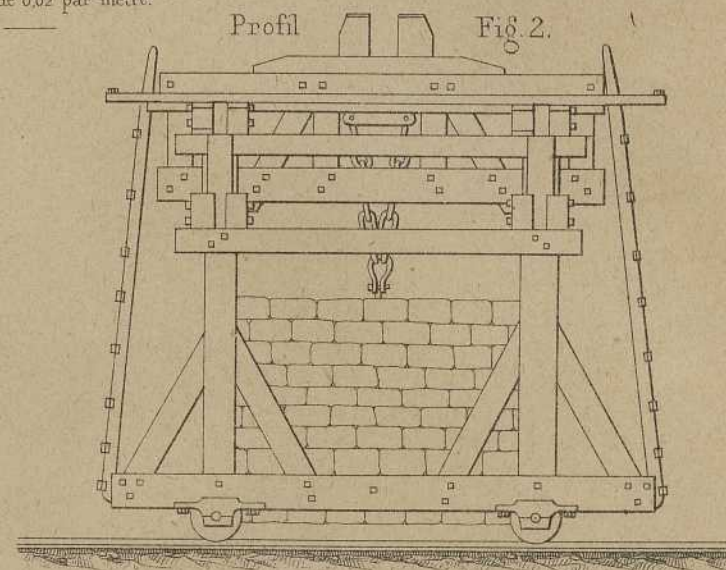
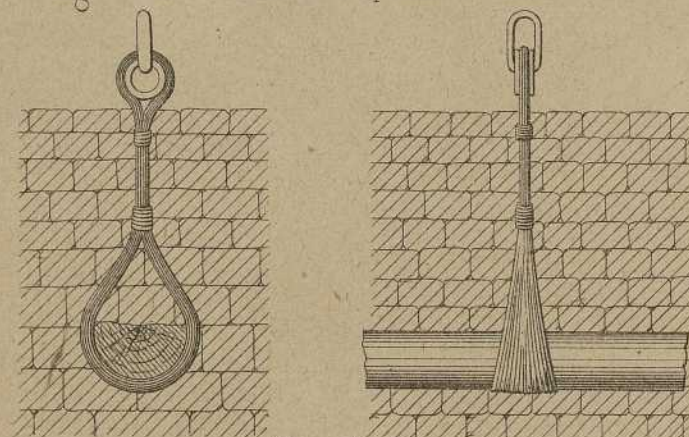


Fig. 3. Socoa. — Crochet de suspension des blocs.



Port de Boulogne.

Fig. 11. Lève-Bloc

Echelle de 0.025 pour 1^m00 (1/40)

Elevation

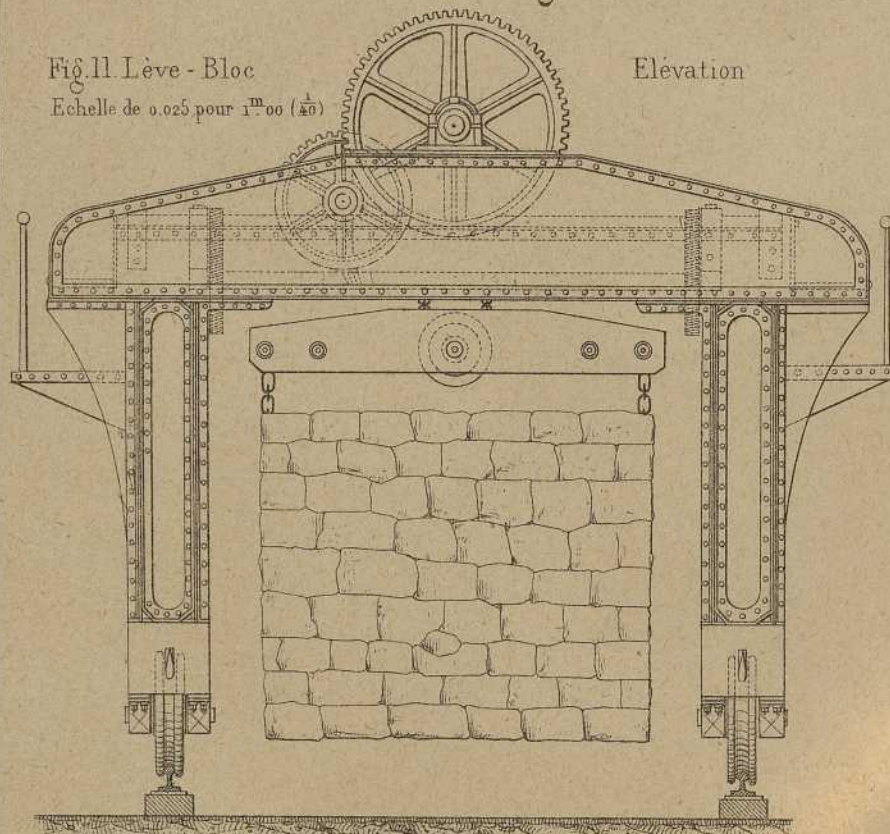
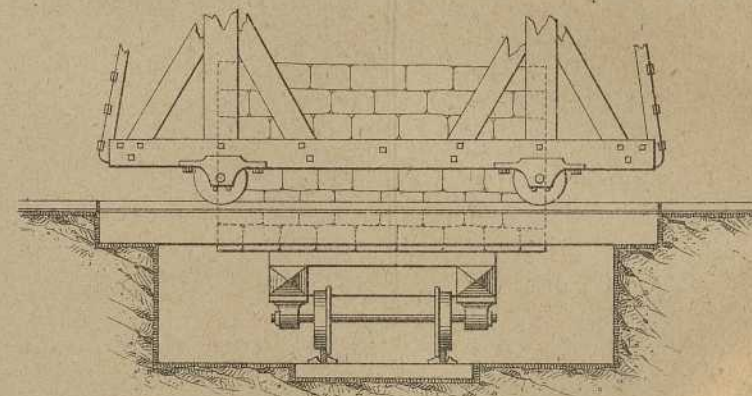
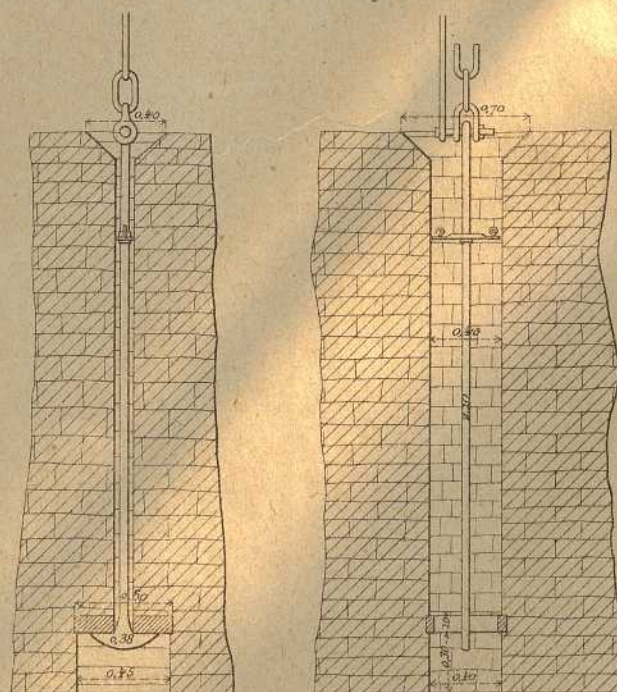


Fig. 4. Transport des blocs artificiels sur la voie de service. — Socoa.

Fig. 12. Barres de suspension des blocs artificiels.
à Brest.

Echelle 0.025 p.m.



Marseille.

Chariot à vapeur, soulevant et transportant
les blocs artificiels.

Echelle de 0.02 pour mètre.

Fig. 5. Elevation.

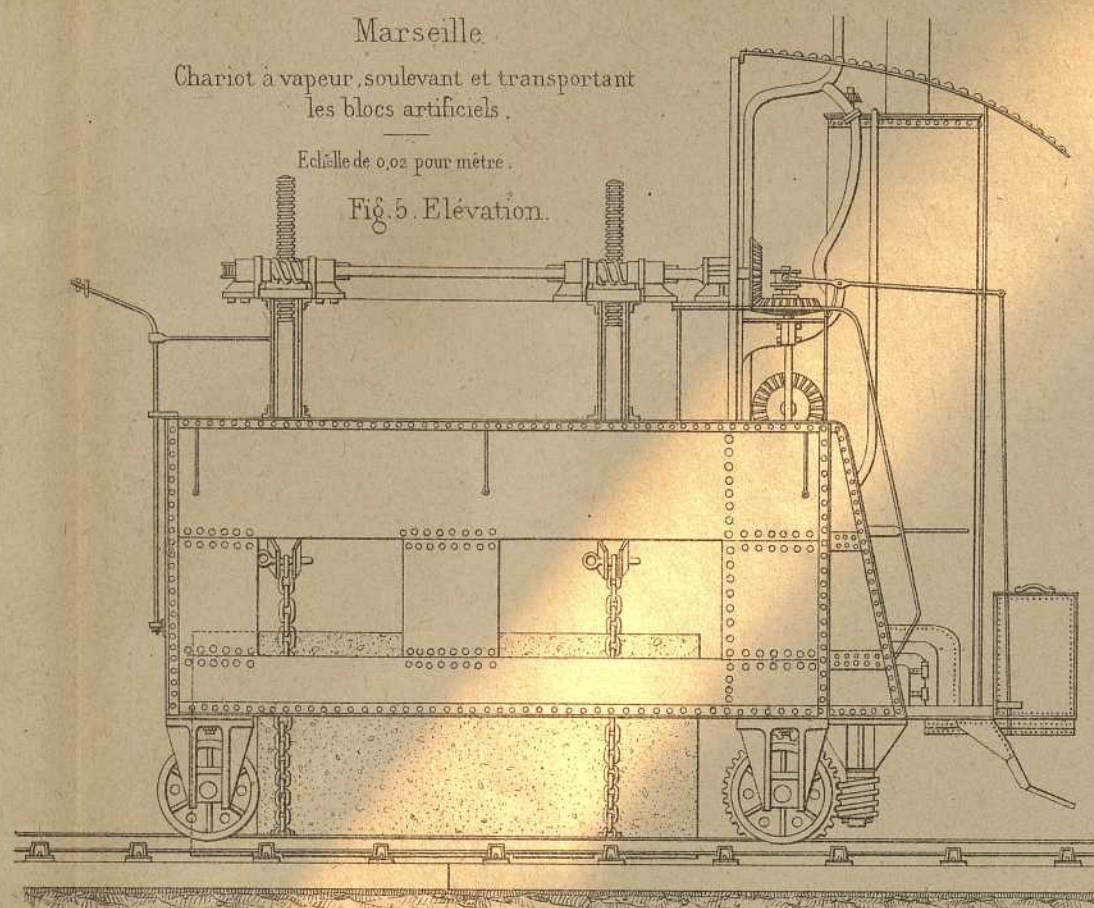


Fig. 6. Profil.

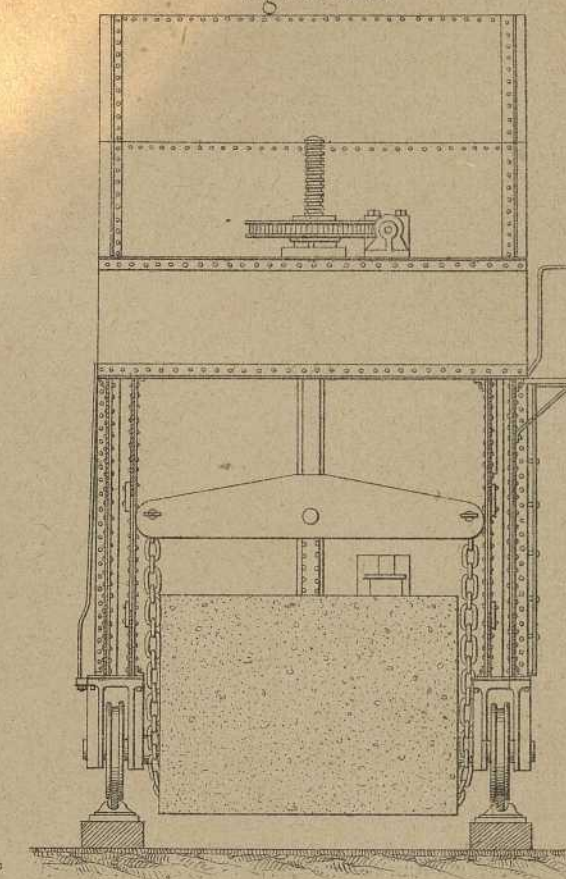


Fig. 9. Coupe AB.

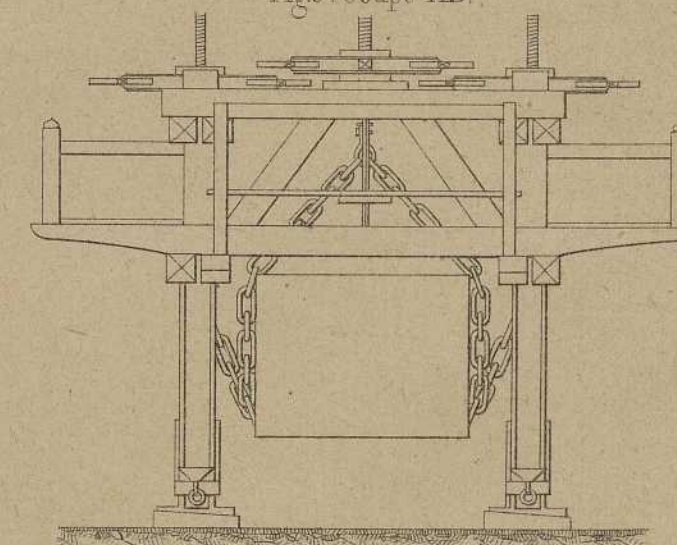
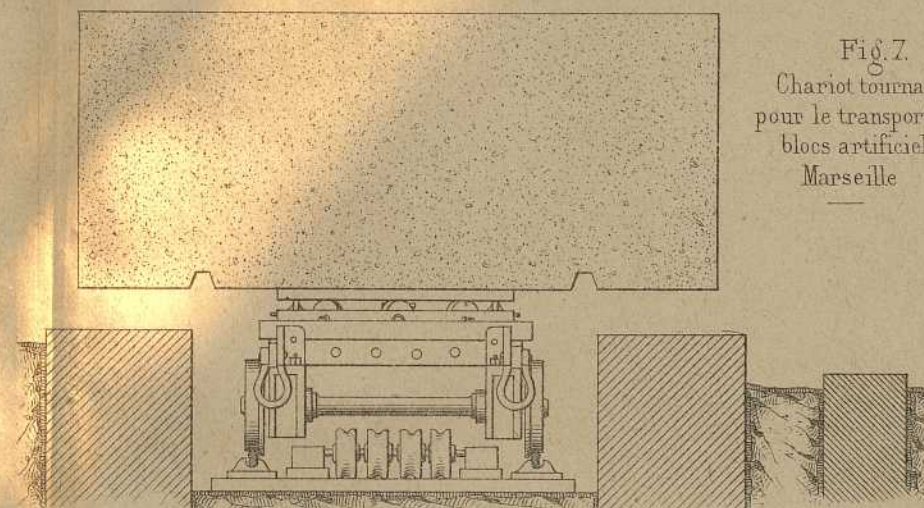
Fig. 7.
Chariot tournant
pour le transport des
blocs artificiels.
Marseille

Fig. 10. Coupe CD.

Appareil employé primitivement à Alger
pour soulever les blocs.

Echelle: 0.015

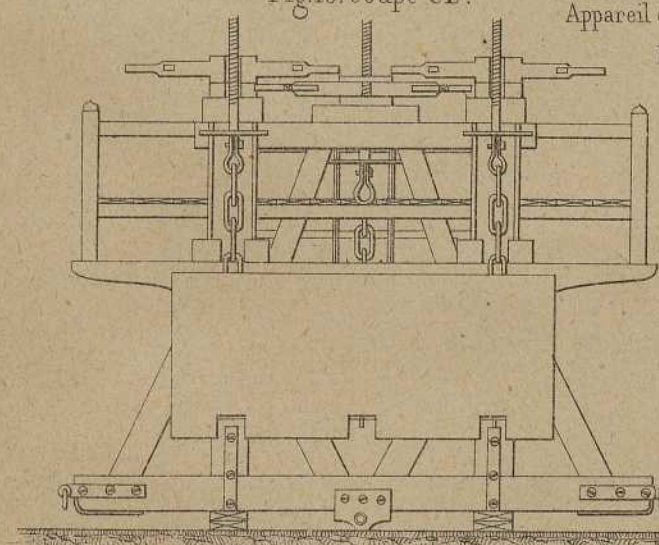
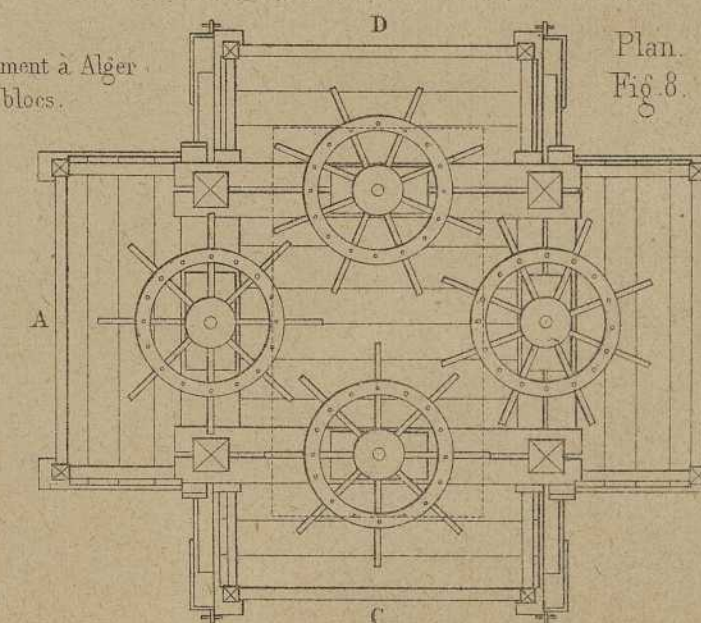
Plan.
Fig. 8.



Fig. 2. Appareil de suspension
(S^t Jean-de-Luz)

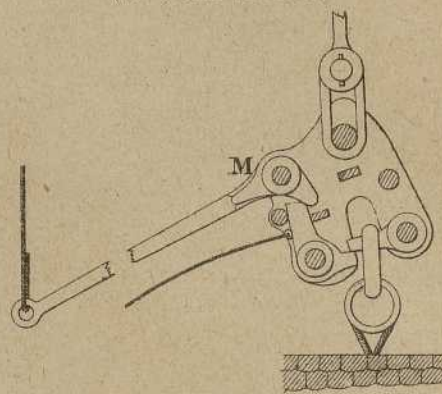


Fig. 3
Flotteur à double tonne pour le transport par eau et l'immersion des blocs. Alger
Première installation pour les blocs de 10 mètres cubes

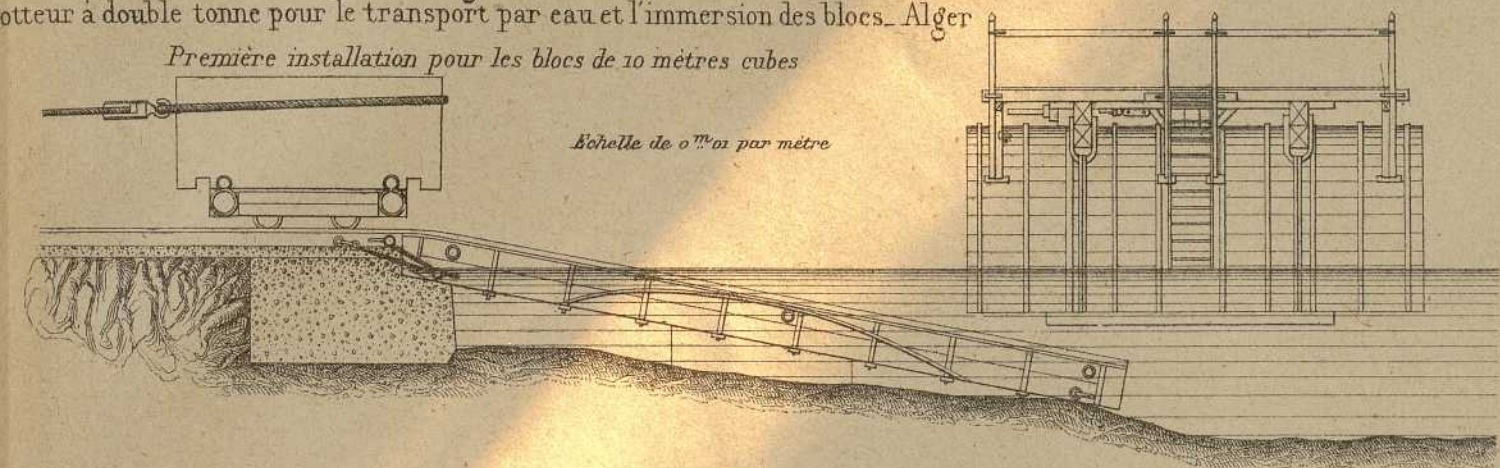


Fig. 5 — Alger. Lancement des blocs à la mer
Dernière installation pour les blocs de 15 mètres cubes

Elévation longitudinale
Echelle de 0^m par mètre

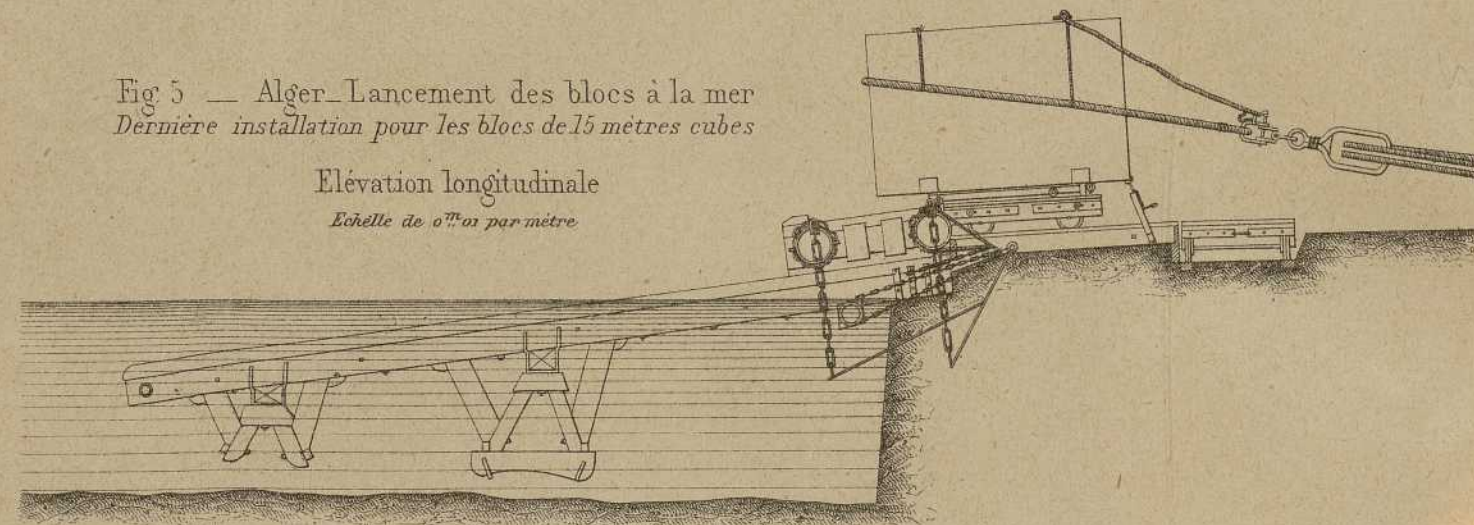


Fig. 6. Plan

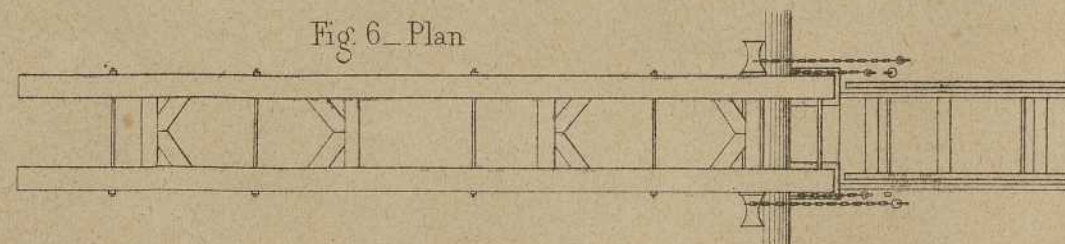
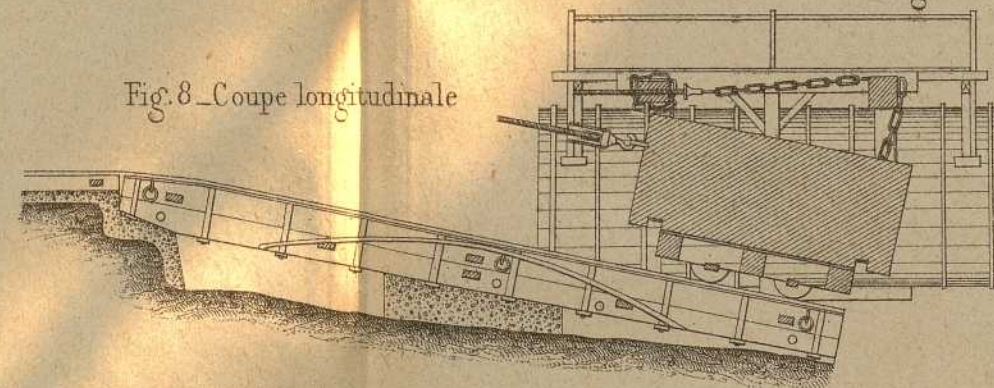
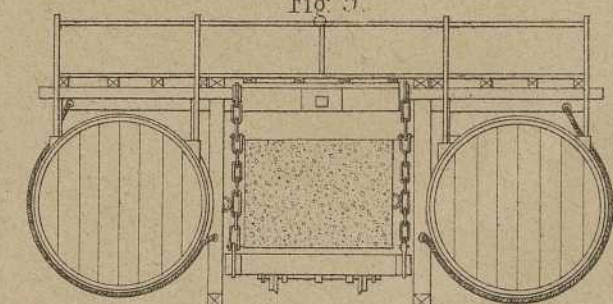


Fig. 8. Coupe longitudinale



Alger. Flotteur à double tonne

Fig. 9



Echelle de 0^m par mètre.

Fig. 7. Elévation longitudinale d'un bloc chargé sur la cale

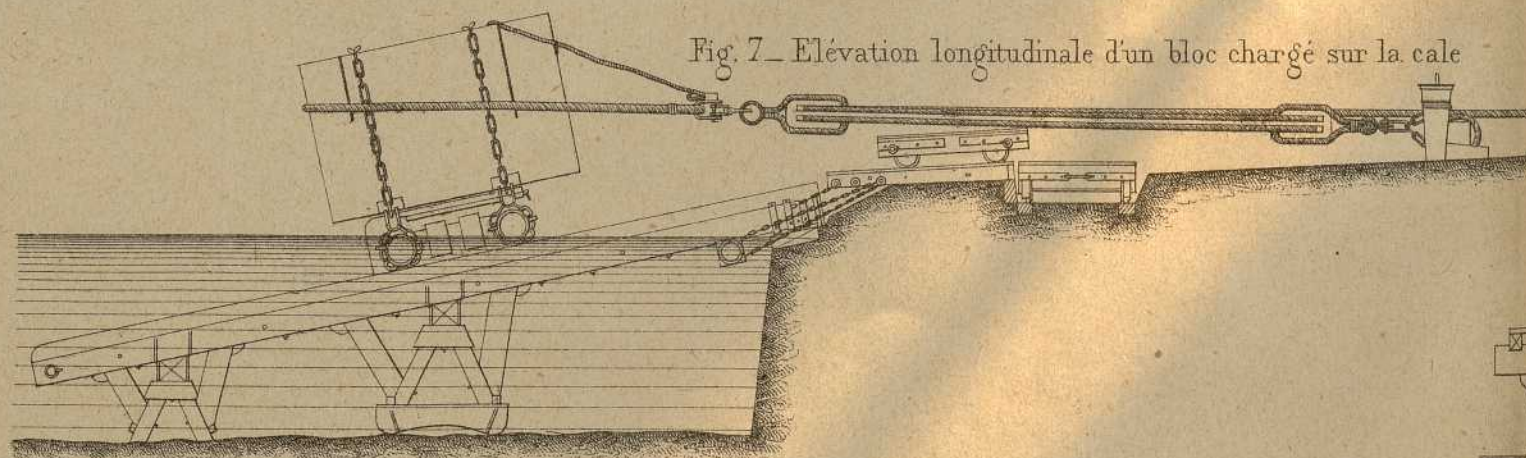


Fig. 10
Fort Boyard — Flotteur à double tonne

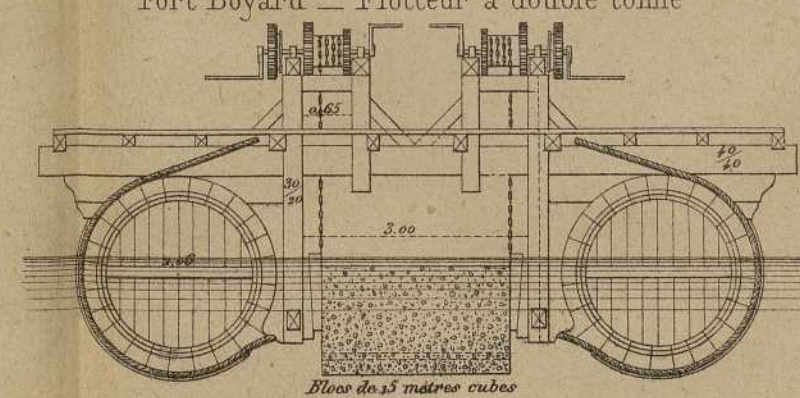
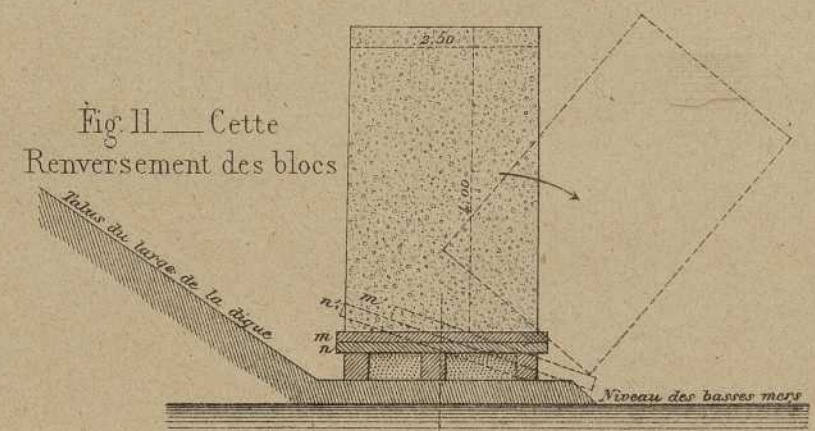
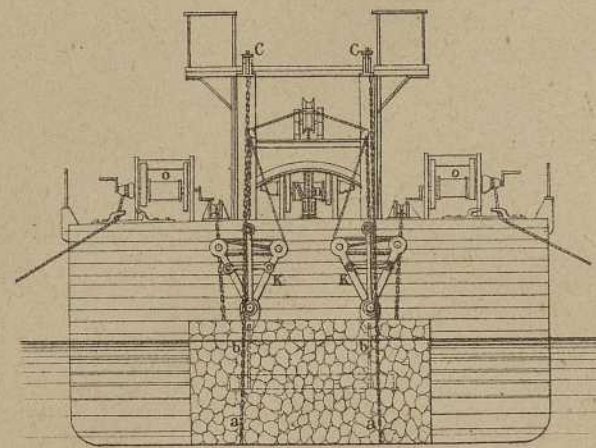


Fig. 11. Cette
Renversement des blocs



PORT DES SABLES — Prolongement de la jetée St Nicolas.

Fig. 1. Vue de face.



Ponton porte-blocs A. Fig. 2. Plan de l'arrière.

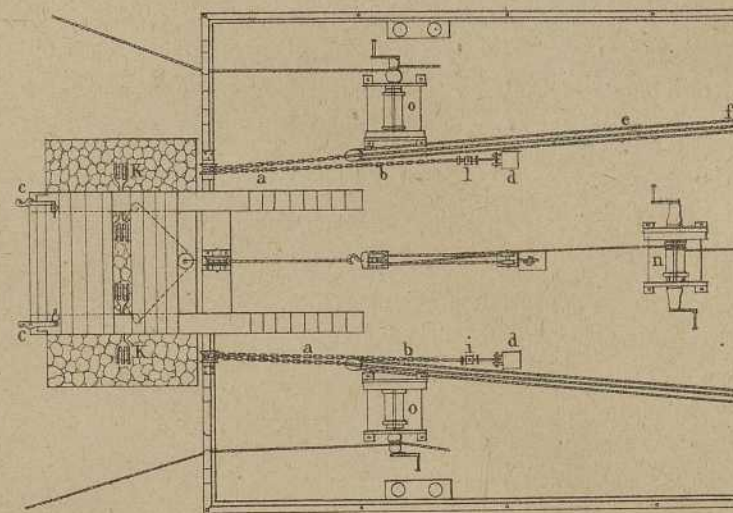


Fig. 3. Coupe longitudinale de l'arrière.

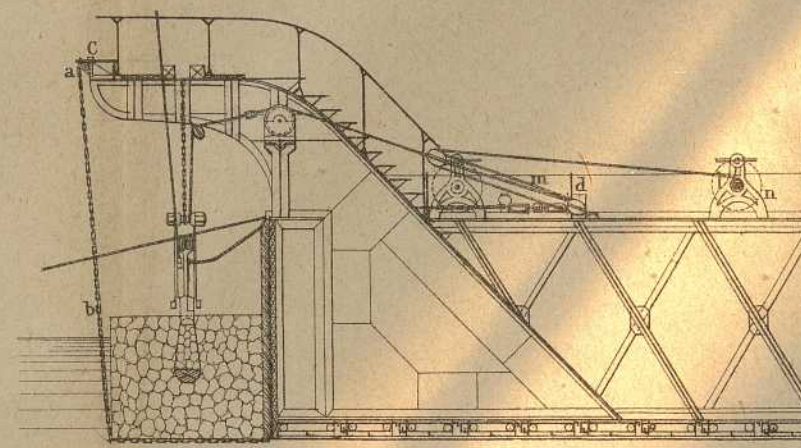


Fig. 4. Plan du chantier des blocs.

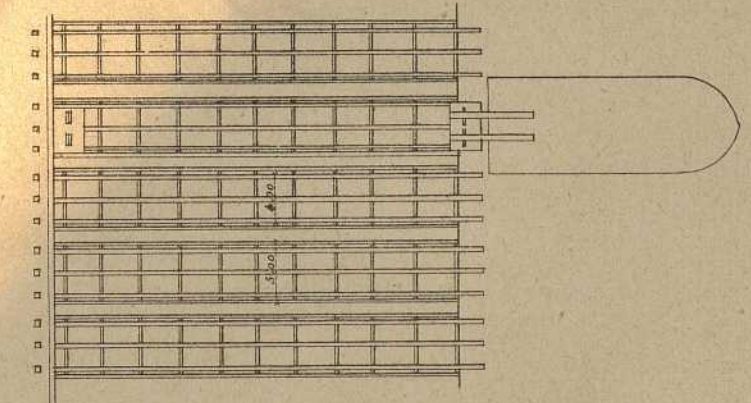


Fig. 5. Coupe du Chantier.



Construction des quais verticaux dans le bassin à flot.

Ponton porte-blocs B. Fig. 6. Coupe longitudinale.

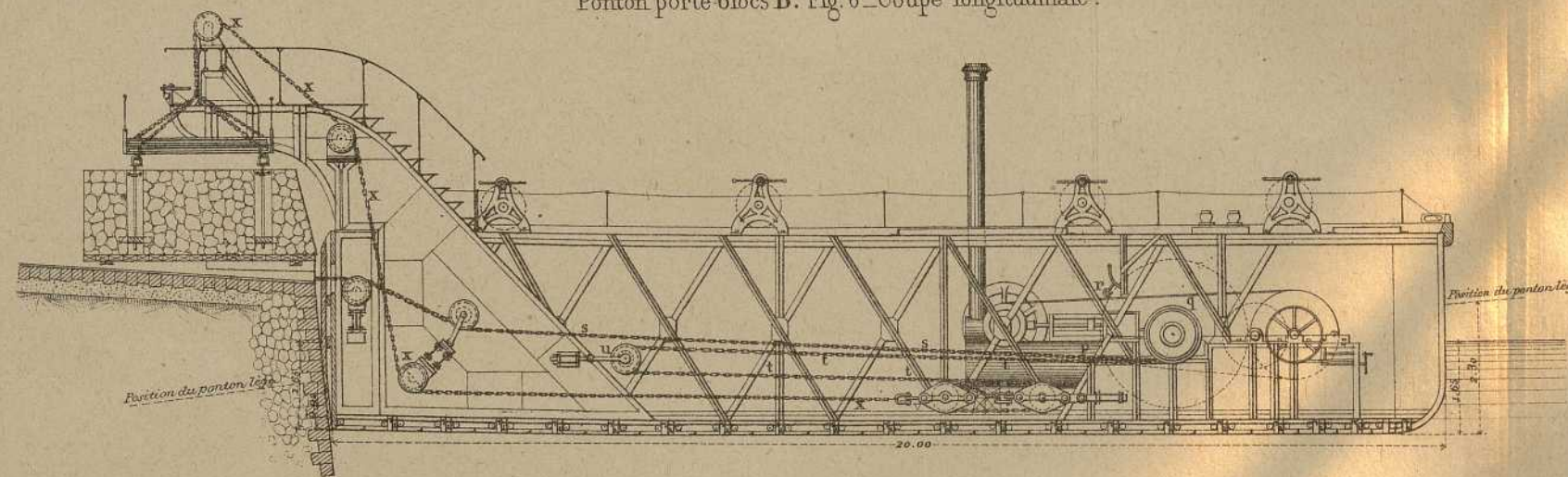


Fig. 8. Vue de face.

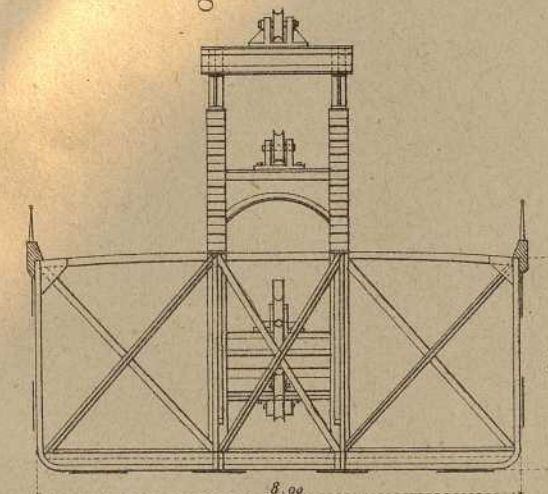


Fig. 9. Elevation longitudinale

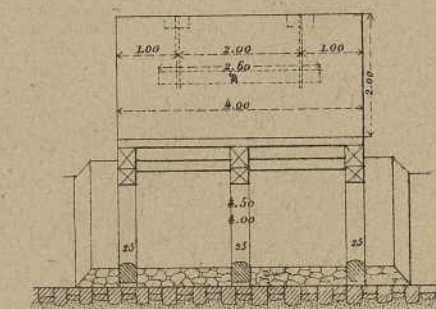


Fig. 10. Coupe transversale.

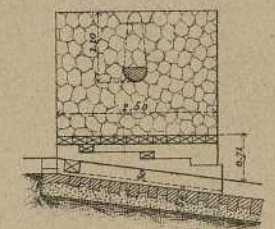


Fig. 11. Plan d'un chassis.

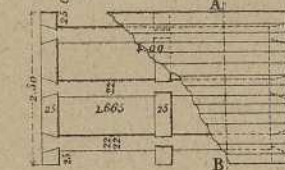


Fig. 12. Coupe du chassis suivant AB.

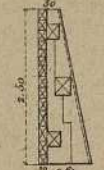


Fig. 7. Plan.

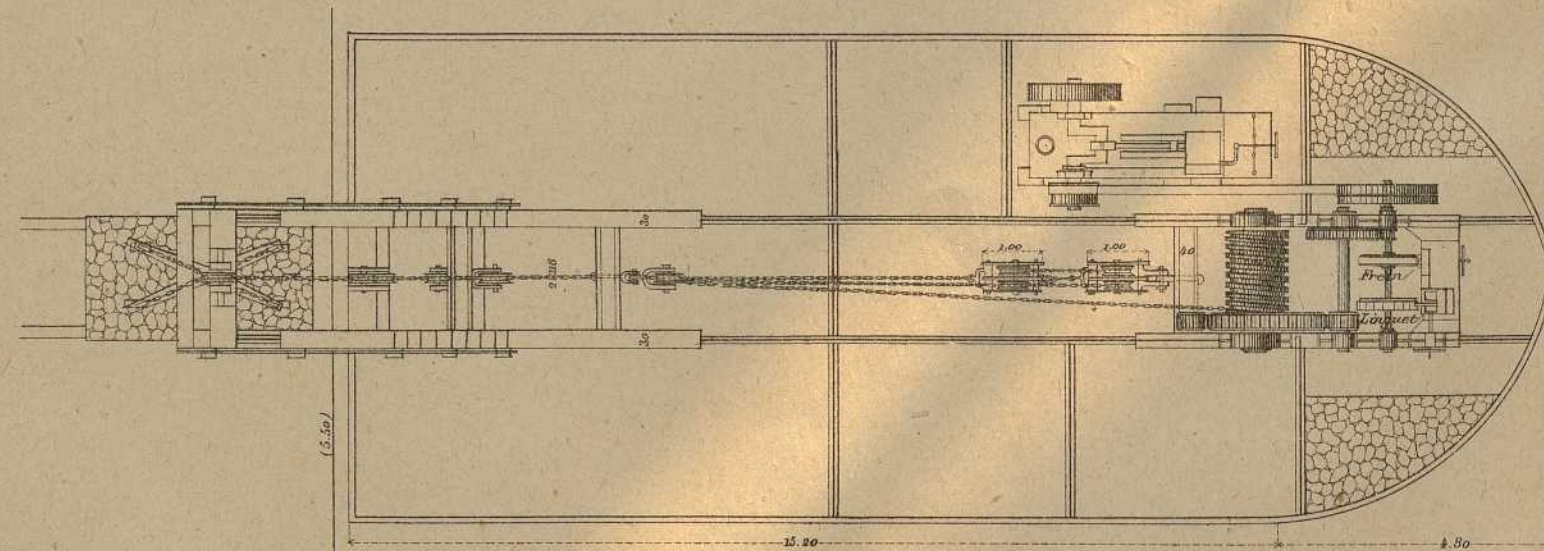


Fig. 13. Ponton B

Détails des appareils de suspension

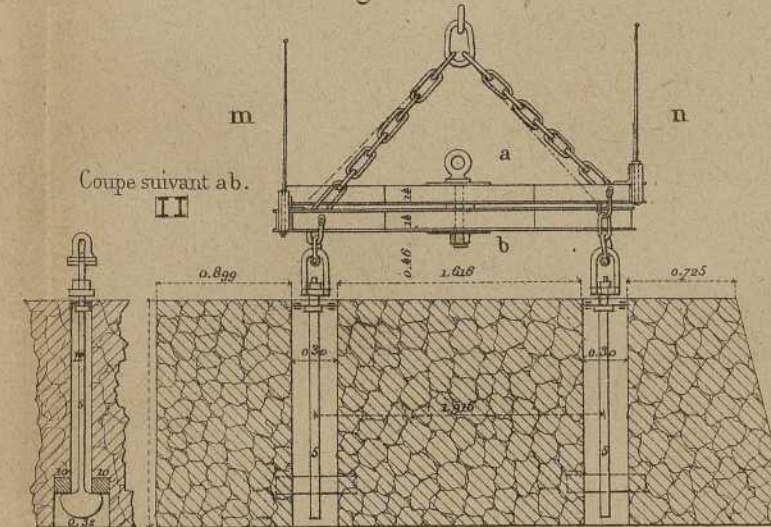


Fig. 14. Vue par dessus

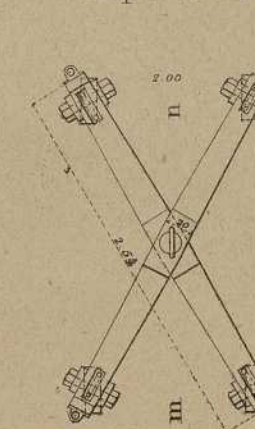
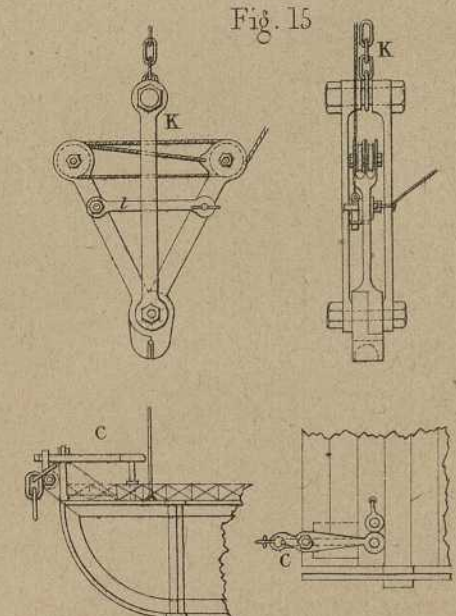
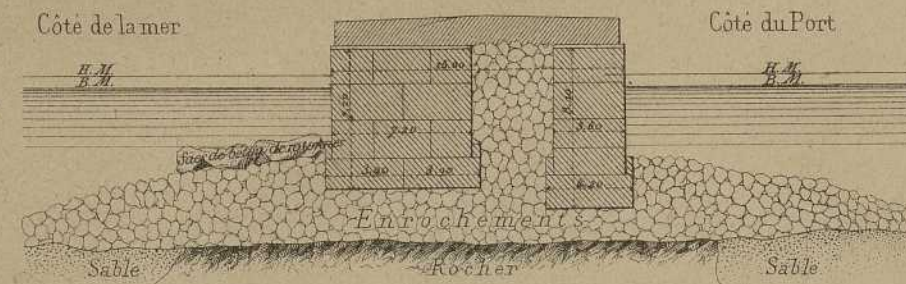
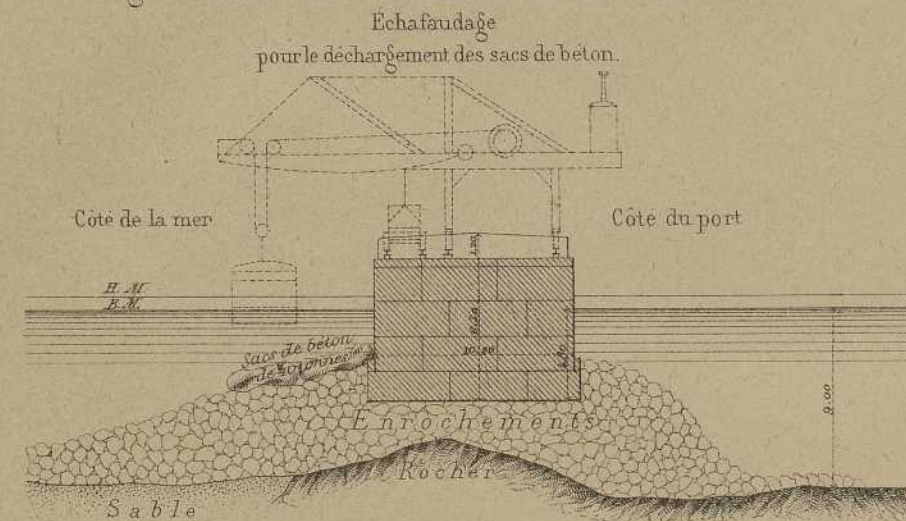
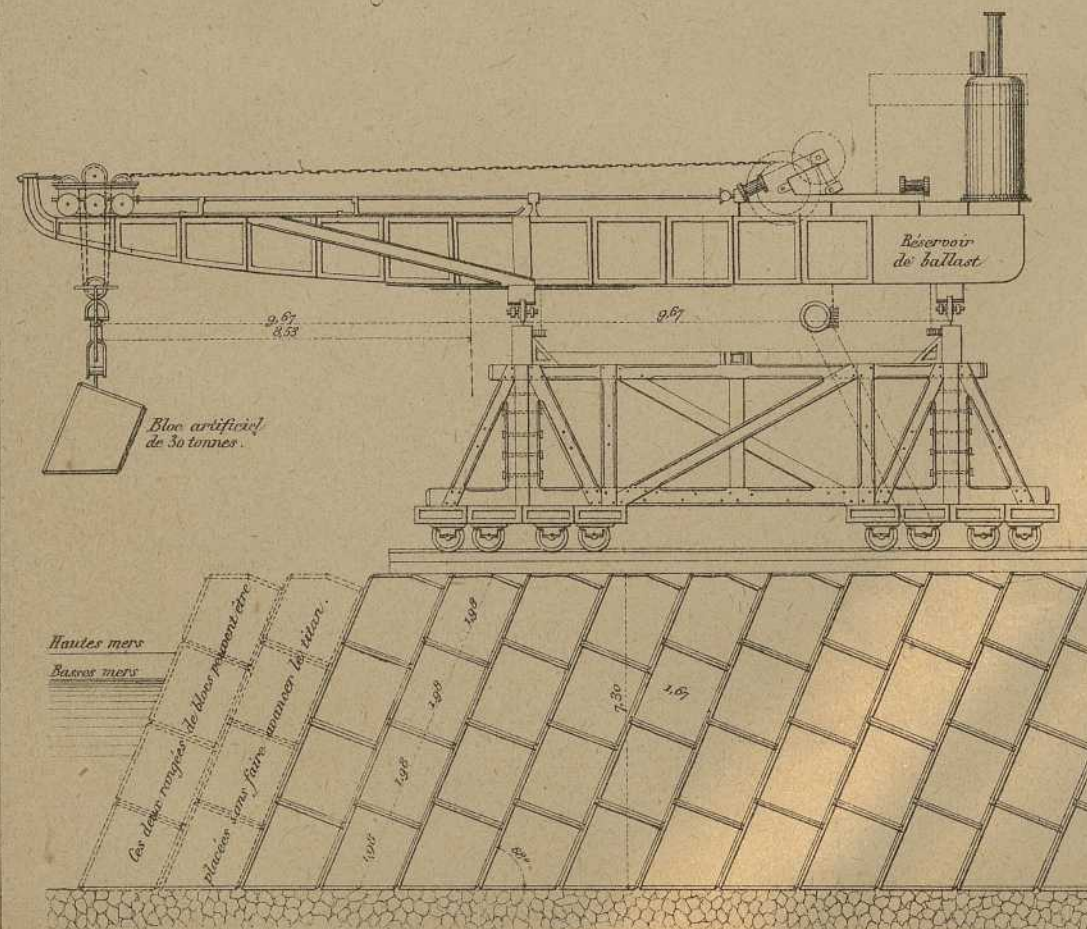
Ponton A
Fig. 15

Fig. 1. Section transversale à la distance de 300^m.00.Fig. 2. Section transversale à la distance de 600^m.00.

Titan sur la jetée.

Fig. 6. Elévation latérale.



Les figures 1 à 7 sont extraites du Volume LXXXII des Minutes of Proceedings of The Institution of Civil Engineers.

Gravé par A. Simon, 13 rue du Val-de-Grâce, Paris.

PORT DE COLOMBO

Fig. 4. Extrémité de la jetée et vue du phare

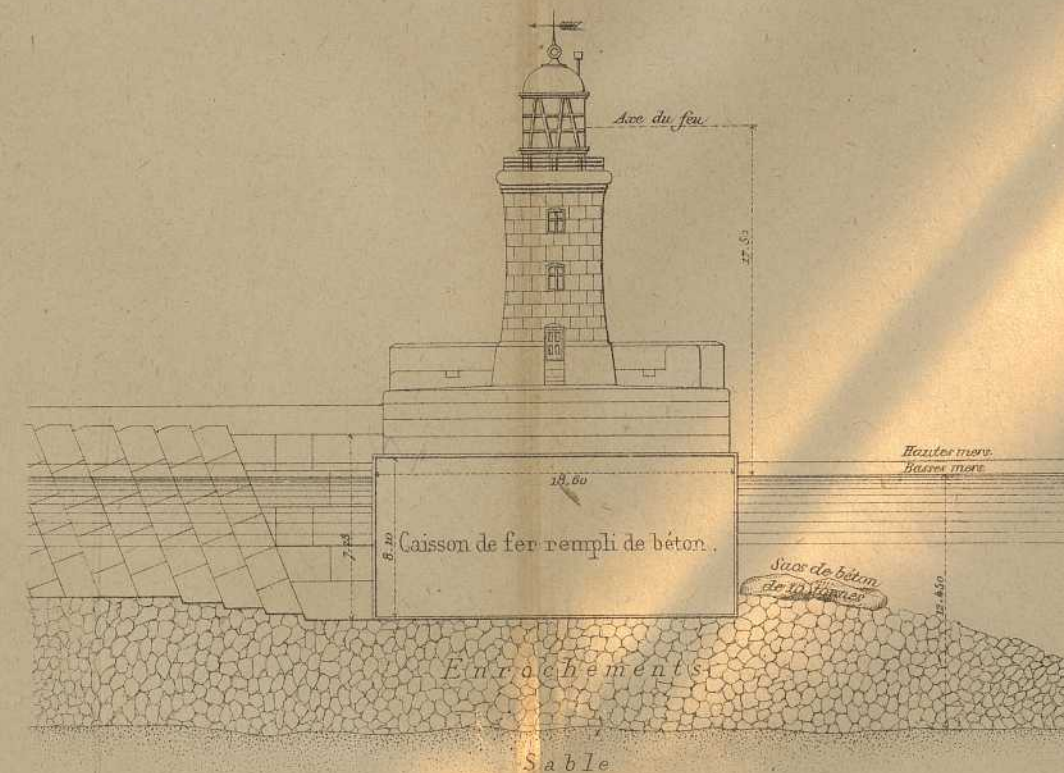


Fig. 7. Elévation transversale.

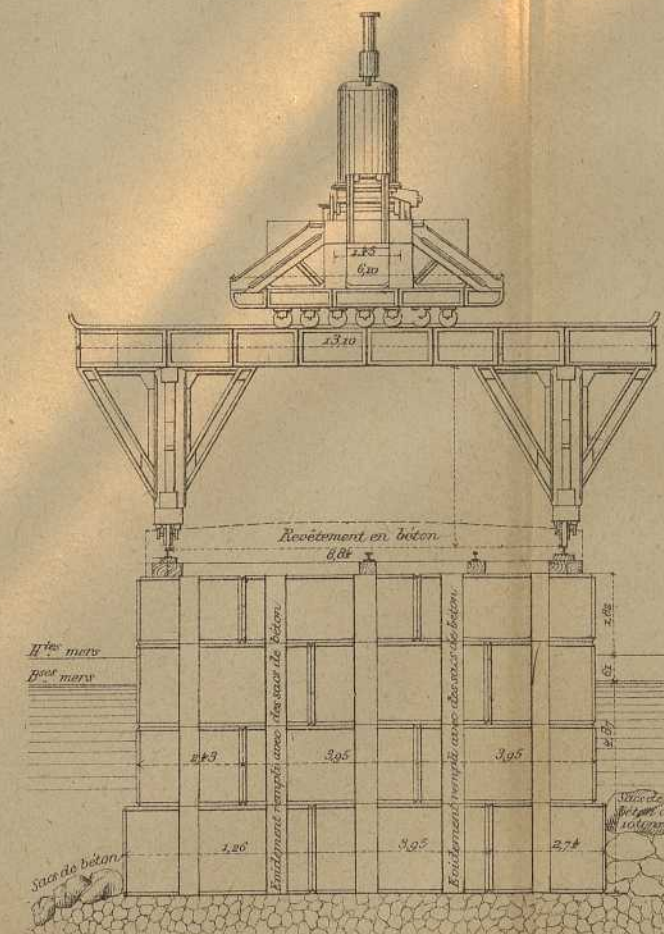
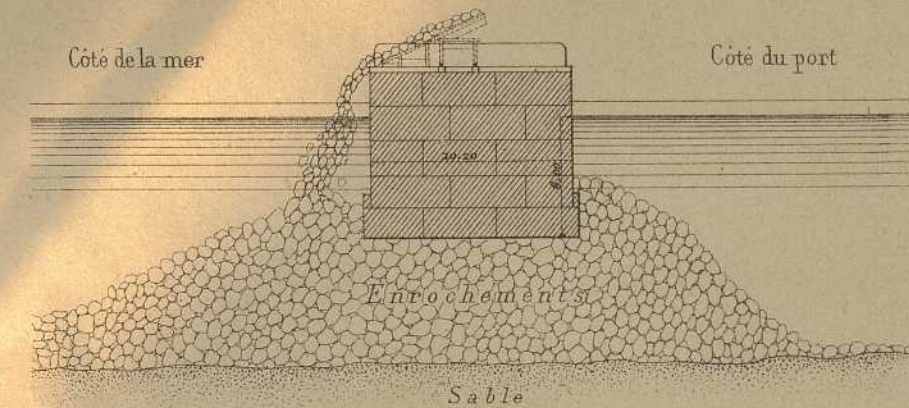
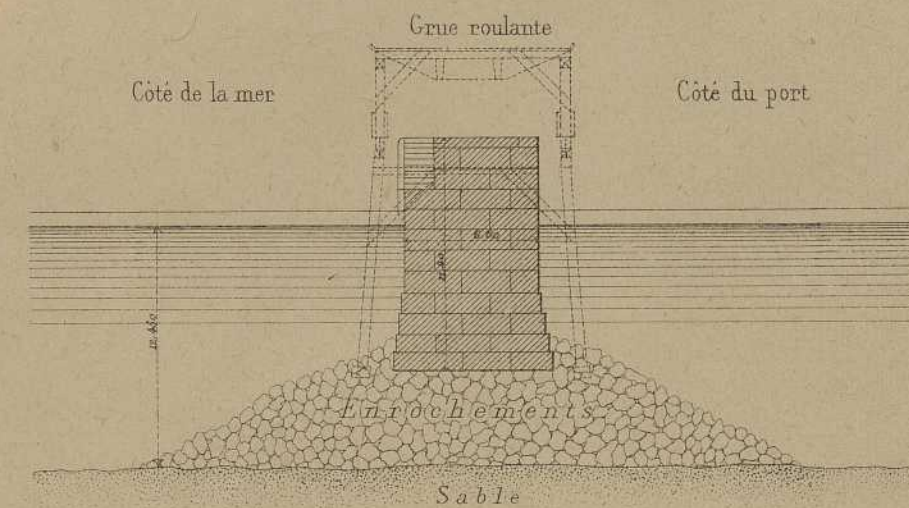
Fig. 5. Section transversale à la distance de 1200^m.00

Fig. 3. Section transversale du môle d'accostage à la tête de la jetée.



Grue roulante pour la construction des môles à Sunderland.

Fig. 8. Elévation latérale.

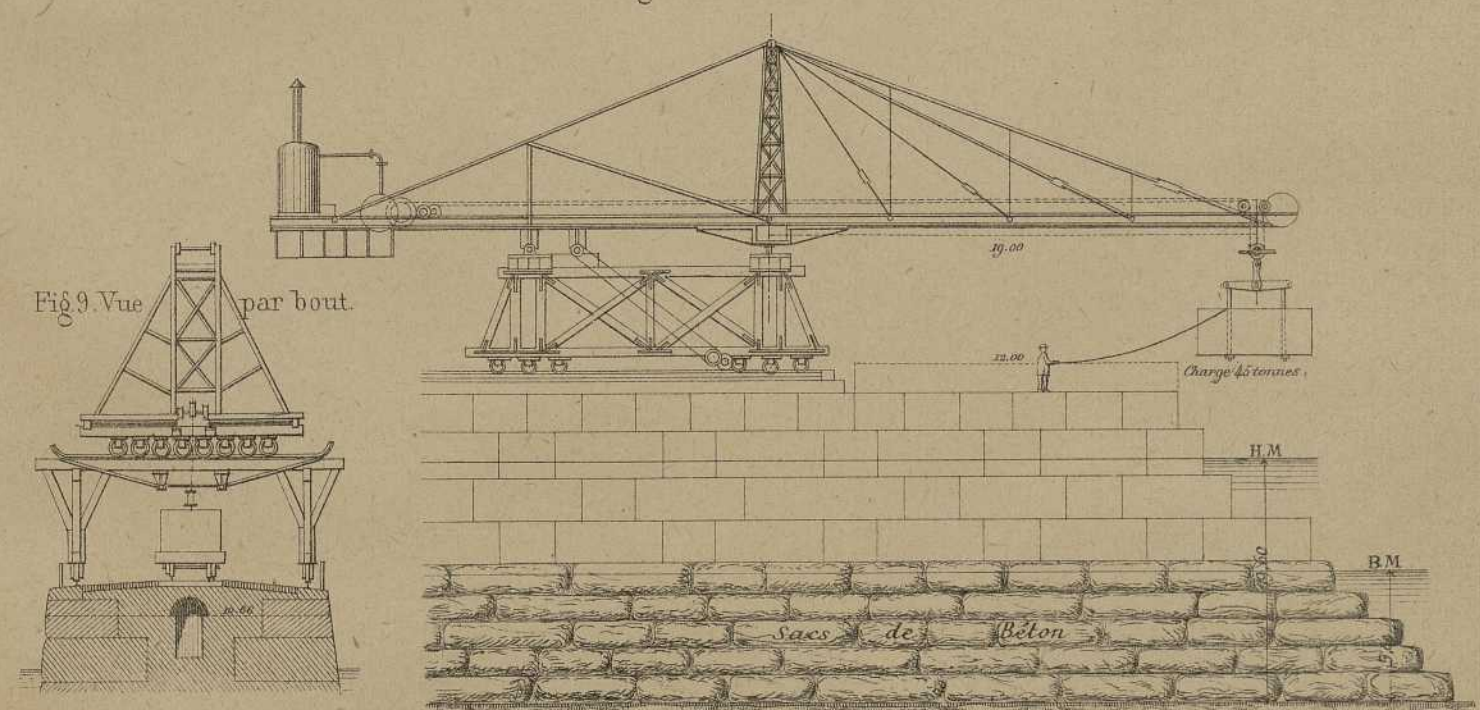
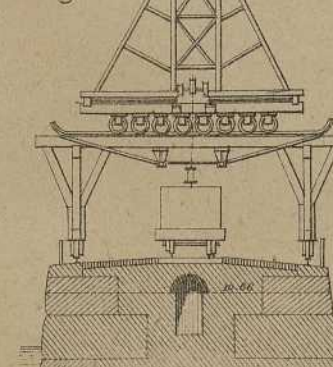


Fig. 9. Vue par bout.

Echelle { des fig. 1, 2, 3, 4, 5, 6, 7, 8, 9. 0.0025 p. m.
des fig. 6 et 7. 0.0058 p. m.
des fig. 8 et 9. 0.0033 p. m.

Les figures 8 et 9 sont extraites du "Centralblatt des Bauverwaltung"

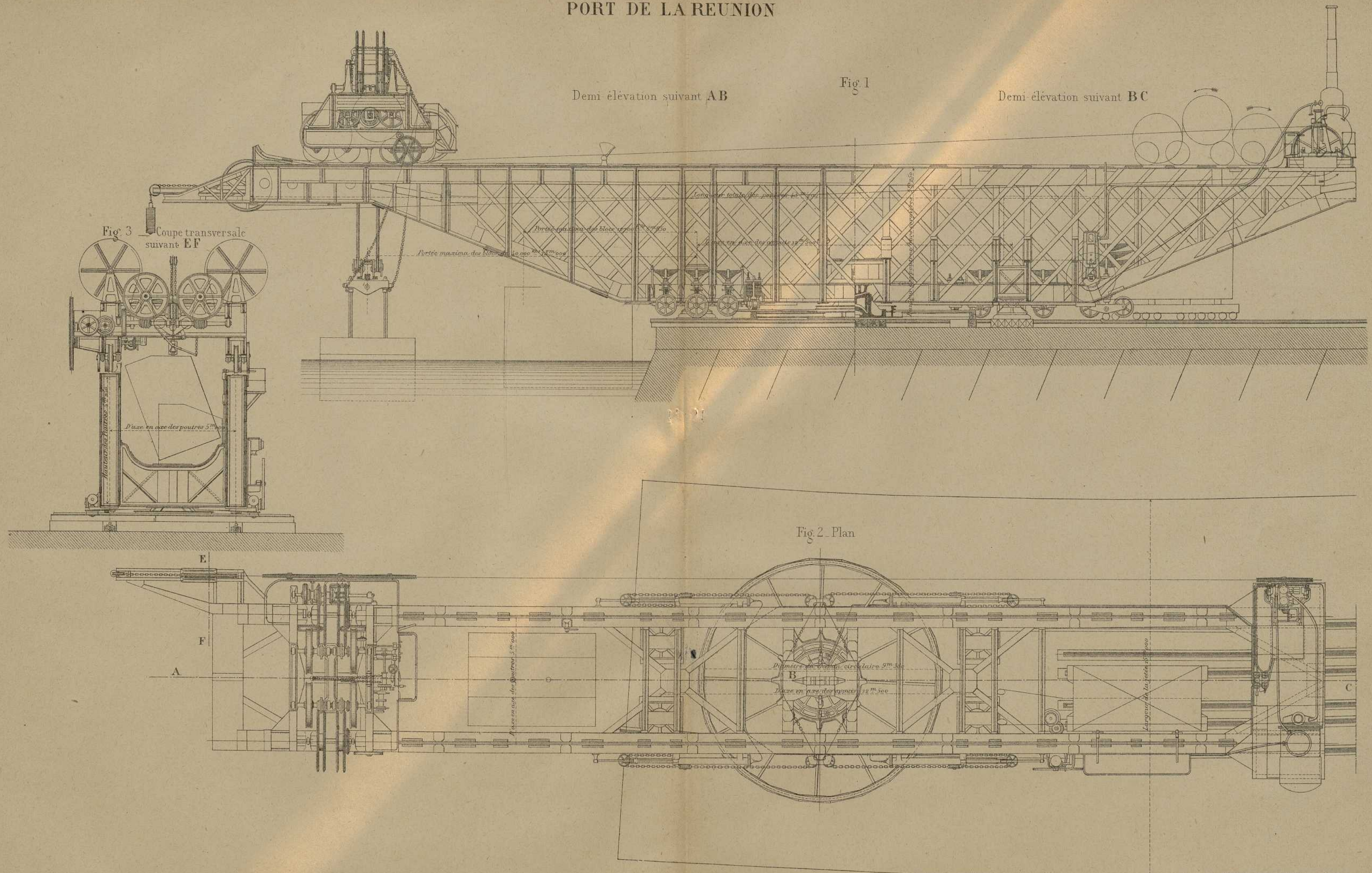
Imp. Dufrenoy, 29, rue du Montparnasse, Paris.

PORT DE LA RÉUNION

Demi élévation suivant AB

Fig. 1

Demi élévation suivant BC

Fig. 3 Coupe transversale
suivant EFEchelle de 0^m 008 p. m.

PORT DE LEIXÔES

Fig. 3. — Vue par bout

Fig. 1. — Elevation

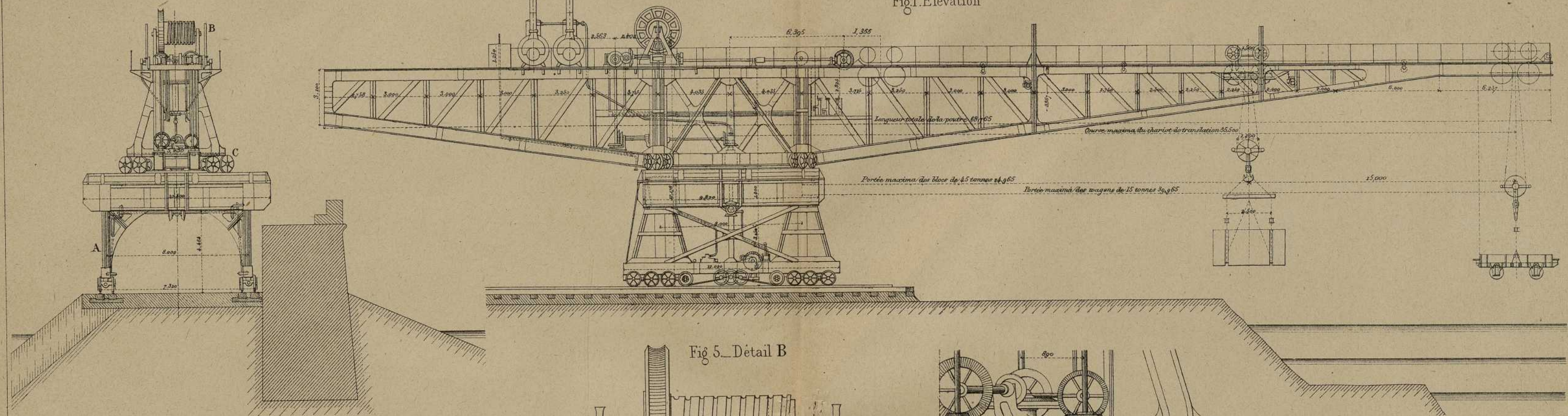
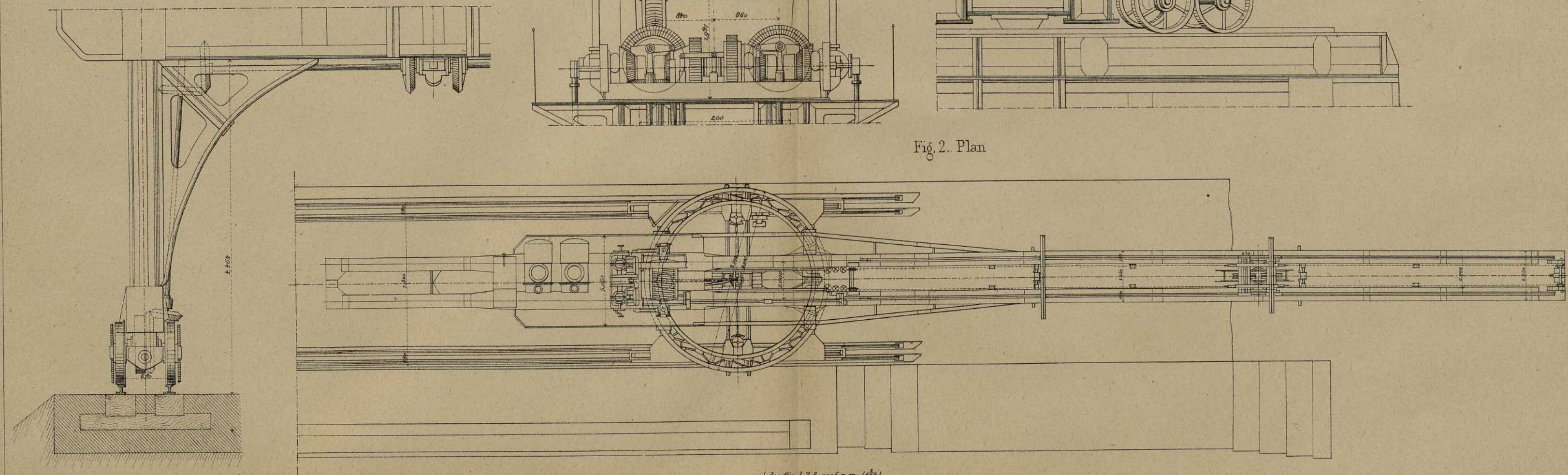


Fig. 4. — Détail A

Fig. 5. — Détail B

Fig. 6. — Détail C

Fig. 2. — Plan



Echelle
 des fig. 1, 2, 3, 4005 p. m. (1/50)
 des fig. 4, 5, 6, 0.02 p. m. (1/50)

Fig. 1.
Mur de mer de l'Ouest
avec caisson en charpente.

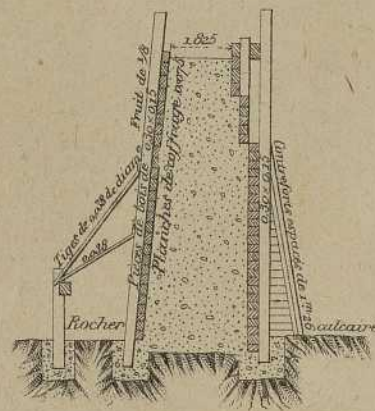
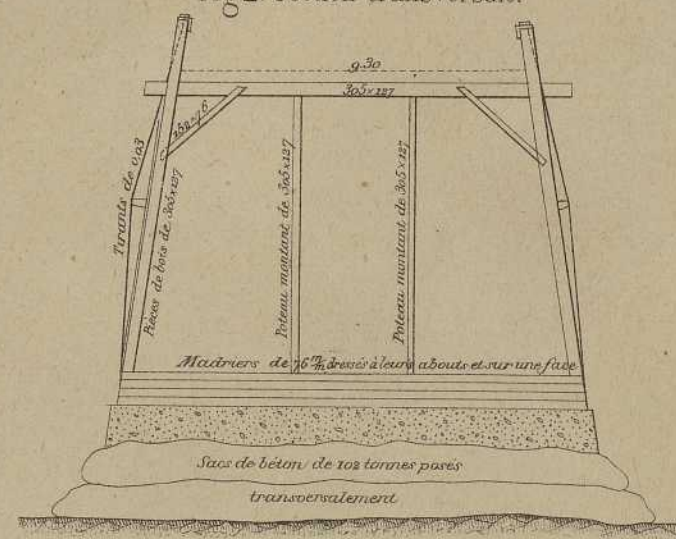


Fig. 2. Section transversale.



Ouvrages du port de Newhaven.

Fig. 3. Elevation.

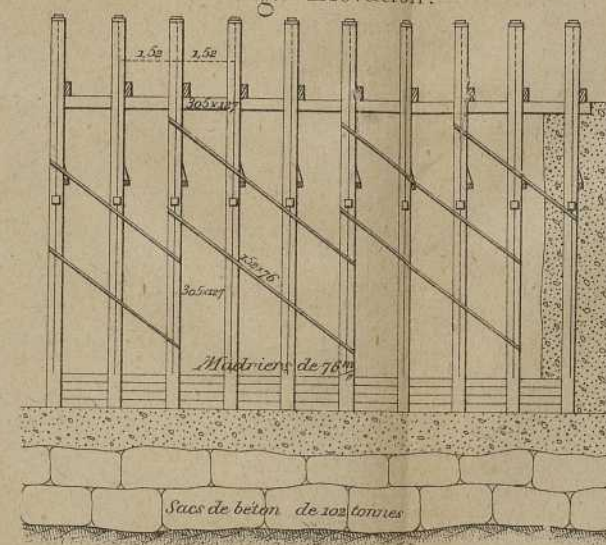


Fig. 4. Section de la jetée.

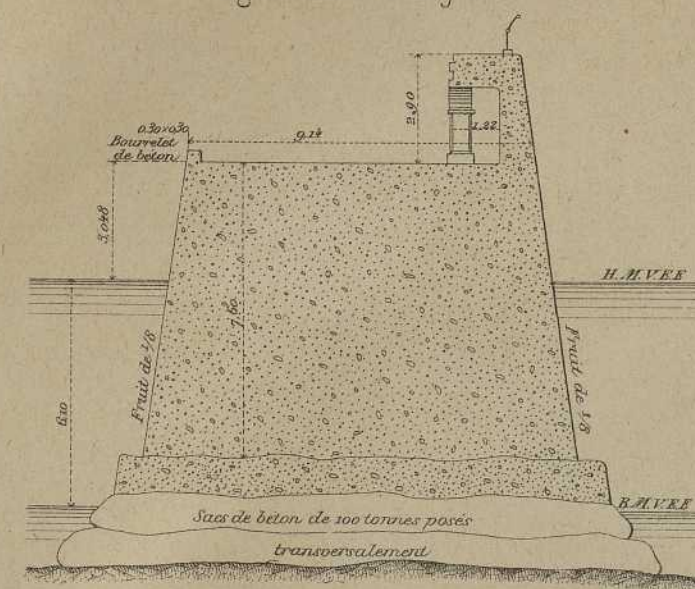


Fig. 5. Chemin couvert.

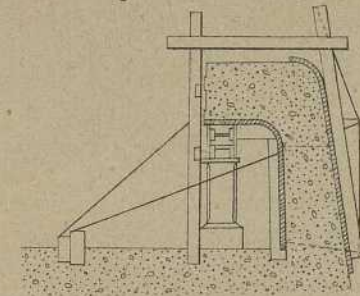


Fig. 6. Elevation.

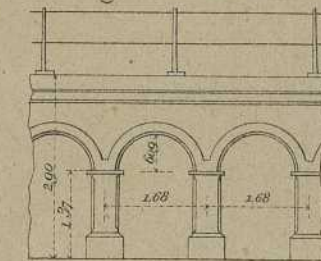


Fig. 10. Mur de mer de l'Ouest.

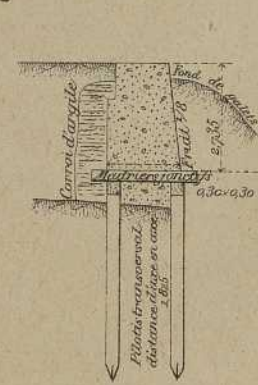


Fig. 11. Quai de rivière de l'Est.

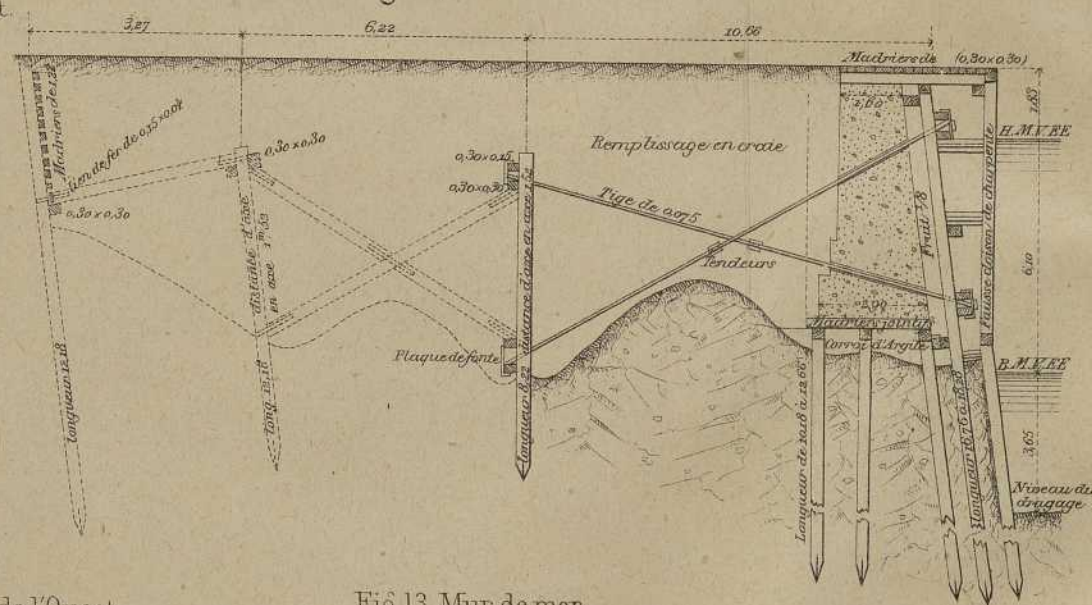


Fig. 12. Quai du chemin de fer.

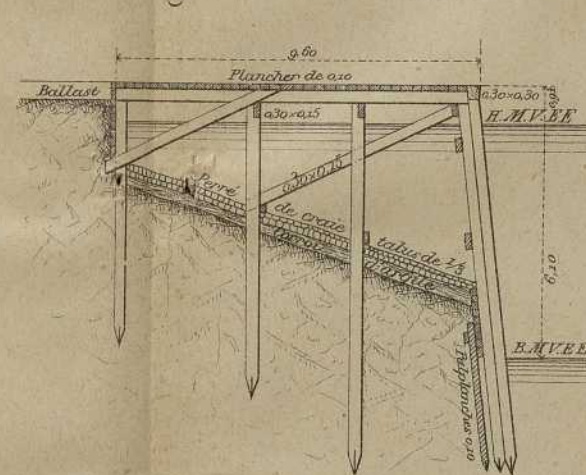


Fig. 8. Jetée de l'Est.

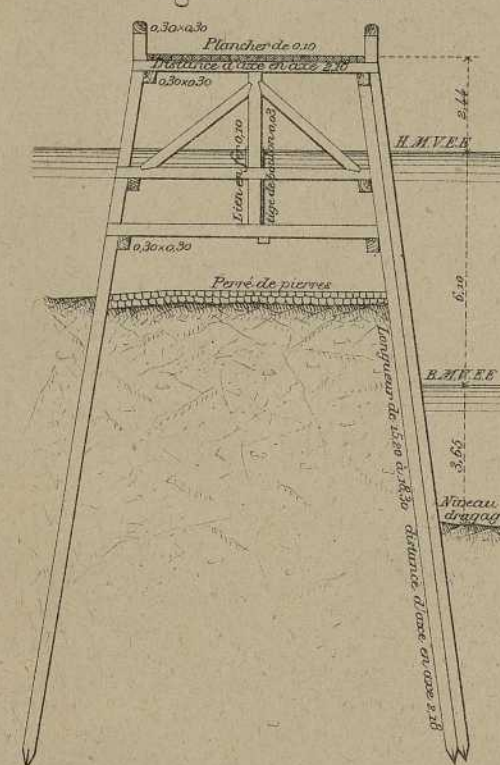


Fig. 9. Mur transversal (Côté Est).

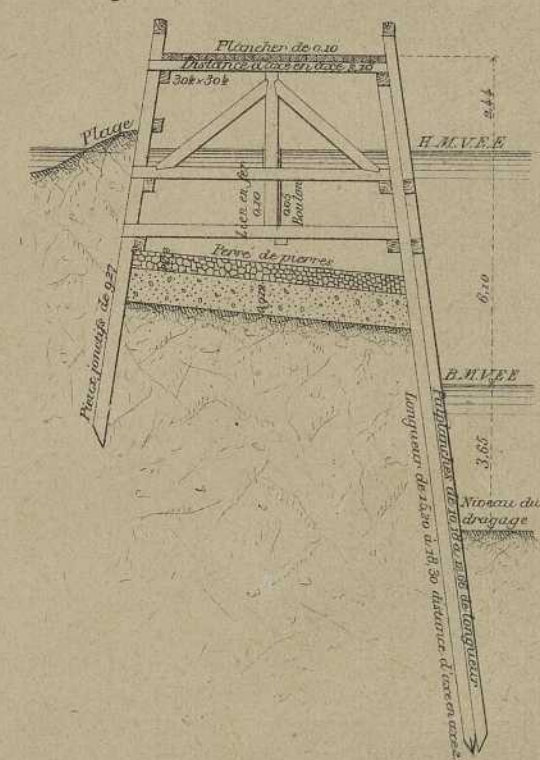


Fig. 7. Mur de quai de l'Ouest.

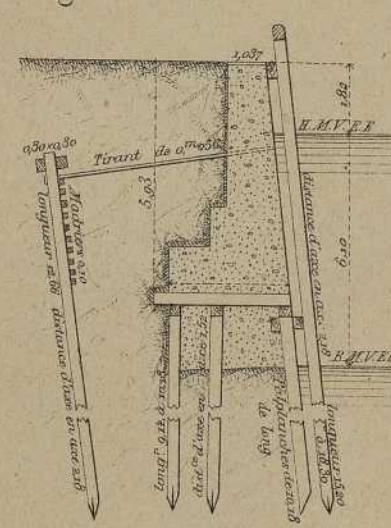


Fig. 13. Mur de mer.

Débarcadere du Sud-Ouest Greenock.

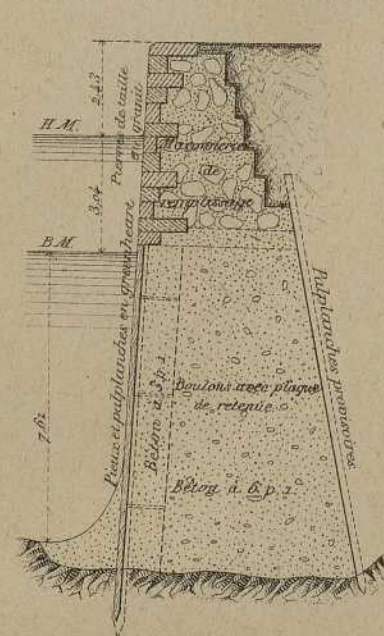


Fig. 16. Mur de mer à Aberdeen.

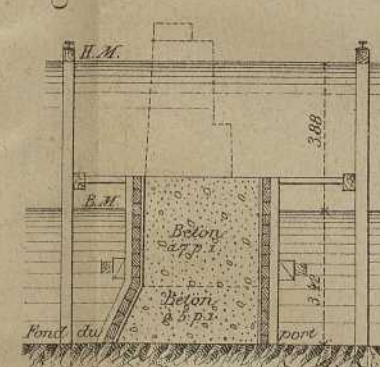


Fig. 10. Mur de mer à Aberdeen.

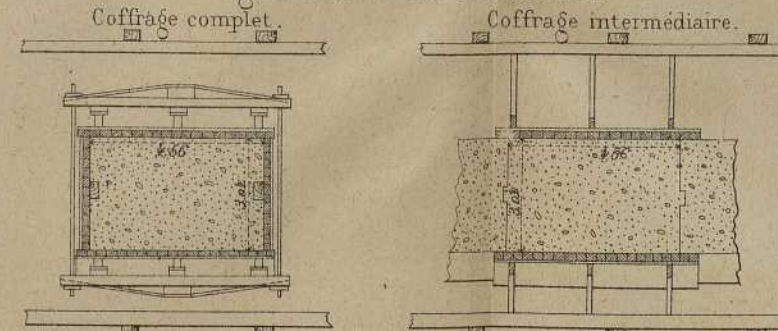


Fig. 15. Mur de quai à Girvan.

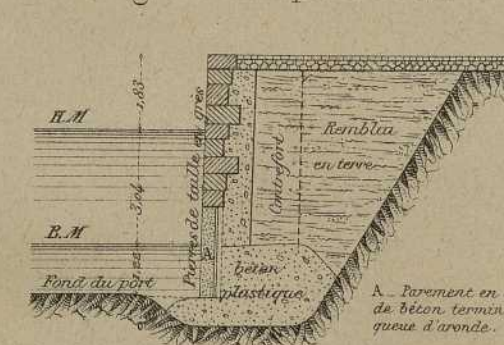
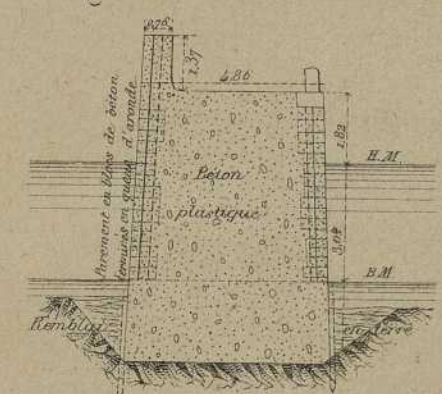
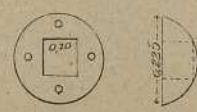


Fig. 14. Mur de mer à Girvan.



Disque de fonte pour protéger
les têtes de boulons.



Echelle des figures 5 et 6 0.00087 m. 1/3
des autres figures 0.00057 m. 1/200

Nota. Les figures 1 à 12 sont extraites de la Pl. III. et les figures 13 à 17 de la Pl. I du Volume LXXVII.
des Minutes of Proceedings of the Institution of Civil Engineers London.

