

sommes, ici, en présence d'une ré-exportation indéniable : le pays transporteur est porté comme pays producteur. Le cas a lieu pour presque tous les produits importés de France, et en ce qui concerne le champagne, on peut, à défaut de chiffres précis, se servir de ces chiffres, comme d'une base d'appréciation, et conclure qu'il s'importe à Kurrachee dix fois plus de produits français qu'il n'en est porté dans les statistiques. Le transport de ces produits est absolument perdu pour notre marine marchande, comme l'est celui des produits que nous achetons en si grosses quantités. En présence de pareils résultats, que l'on peut constater dans tous les ports, on se demande à quoi servent les primes ?

En remarquant que sur les 51,000 tonnes de sucre étranger importé dans le port, l'Angleterre, Maurice et l'Egypte viennent au premier rang, et après elles, l'Autriche-Hongrie et la Belgique, on ne peut s'empêcher de regretter que la France n'essaie pas d'avoir sa part de cette importation. Je signale, en passant, ce débouché, relativement facile, et très fructueux.

Comme filés de coton, l'Autriche-Hongrie a importé un poids de 185,000 livres, par les navires du Lloyd, et la France, par ré-exportation de Bombay, seulement 20,000 livres, neuf fois moins. Encore un débouché qui peut s'ouvrir pour les filés des numéros élevés.

De même pour les lainages en pièces, sur une importation de plus d'un million de yards, l'Angleterre vient pour environ la moitié, la France pour 79,000 yards, l'Autriche pour deux fois plus et l'Allemagne

pour 300,000 yards. Il n'y a aucune raison, sauf l'effort absent, pour que la France, sur cet article, ne dépasse pas ces deux derniers pays.

Nous n'importons ni horlogerie, ni meubles, ni voitures. En perles fausses et verroteries, nous sommes encore battus par l'Autriche, l'Italie et l'Allemagne, qui ont importé, à elles trois, pour 57,000 roupies, contre à peine 3,000, venant de France, alors que nos perles et nos verroteries sont supérieures. Nous nous laissons prendre notre place : l'article n'est pas présenté à l'acheteur, comme le sont les articles italiens et allemands. De même, pour les appareils photographiques, la bijouterie, les cuirs ouvrés, les peintures et couleurs, la papeterie, les jouets etc. Une plus longue énumération serait monotone : la même cause produisant, sur toutes les branches possibles de l'importation, les mêmes effets regrettables.

Navigation.

Jetons, maintenant un coup d'œil sur le mouvement maritime chaque année plus considérable de ce grand port. Pour le trafic avec les ports de l'étranger, il y a eu à Kurrachee, en cette année fiscale, un mouvement de 1,021 navires représentant 1,288,475 tonnes, se décomposant ainsi :

496 navires entrés, steamers	281	{ Tonnage total à l'en-
—	voiliers 215	
		trée 552,000 tonnes.
525 navires sortis, steamers	352	{ Tonnage total à sortie
—	voiliers 173	
		736,475 tonnes.

Aucun navire battant pavillon français n'est entré,

sauf un petit voilier de 88 tonnes, venant de Madagascar.

Sur les 281 steamers entrés, 255 étaient Anglais, et seulement 26 étrangers (19 Autrichiens, 3 Hollandais, 2 Allemands, 1 Norvégien, 1 Grec). Sur les 352 steamers sortis, 308 étaient anglais et 44 étrangers (28 Allemands, 14 Autrichiens, 1 Norvégien, 1 Hollandais).

Plus de la moitié des steamers sortis du port étaient à destination de l'Angleterre : vingt-deux à celle de l'Allemagne ; 20 de la Belgique et seulement 4 à destination de la France. Nos achats au port de Kurachee, nous arrivent sous pavillon étranger, et la plus grosse partie transite par Anvers au lieu de débarquer directement à Marseille, C'est un état de choses que l'on ne peut que regretter pour notre marine marchande.

Cabotage.— Le mouvement à l'entrée a compris 400 steamers et 1,455 boutres et voiliers, représentant un total de 1,855 navires, d'un tonnage total de 579,978 tonnes. Le mouvement à la sortie a compris 332 steamers et 1,828 boutres et voiliers, d'un tonnage total de 421,799 tonnes. Il en résulte que l'ensemble du mouvement au cabotage représente 4,015 navires (dont 732 steamers) et un tonnage total de 1,001,777 tonnes. Si on ajoute à ces chiffres ceux relatifs à la navigation pour le commerce extérieur, on voit que le mouvement total du port pour l'année fiscale 1903-1904, se décompose ainsi :

Commerce extérieur.	{ steamers	633	1,238,475 tonnes.
	{ voiliers	454	

Commerce avec les ports de l'Inde.	{ steamers 732 } { voiliers 3,283 }	1,004,777 —
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Total général... 5,402 2,290,252 tonnes).

Soit en nombres ronds, 5,100 navires et un tonnage de 2,290,000 tonnes.

Comme on doit s'y attendre, la plus forte partie du commerce entre Kurrachee et les ports de l'Inde a lieu avec Bombay et les ports de la Présidence de ce nom. Voici les chiffres; sur les 367 steamers anglais entrés à Kurrachee, au cabotage, 353 venaient de Bombay, 12 de Calcutta, 1 de Madras, et 1 de Rangoon. Sur les 33 steamers étrangers, 1 venait de Calcutta et 32 de Bombay.

Le détail des points de départ des 1,455 voiliers ou boutres indigènes, entrés à Kurrachee en 1903, 1904 est assez intéressant :

Venant du port de Bombay.....	39
— de ports anglais de la Présidence de Bombay.....	38
Venant de Goa (Port Portugais).....	6
— de Cutch, port indien, Présidence de Bombay.....	478
Venant de Kathiawar Présidence de Bombay..	437
— de Madras et des ports anglais de la Présidence de Madras.....	315
Venant des autres ports, même province.....	142

La destination des navires sortis au cabotage est également utile à connaître : sur les 332 steamers sortis, 330 sont allés à Bombay et sur les 1,828 voiliers ou

boutres, 27 sont allés à Bombay même ; 355 dans les ports anglais de la Présidence de Bombay ; 1,304 dans les ports indiens de Kutch et de Kathiawar, même Présidence ; 10 à Goa ; 105 à Madras et 27 dans d'autres ports de l'Inde.

Constructions. — Il existe à Kurrachee des chantiers de constructions assez bien outillés. Dans la dernière année, il y a été construit :

11	Voiliers au-dessous de 100 tonnes,	298 tonnes.
1	— au-dessus	140 —

Total 12 voiliers d'un tonnage de 438 tonnes.

On projette pour un avenir prochain, une cale sèche et des ateliers de construction et de réparation répondant à l'importance de port.

Commerce de Kurrachee avec l'arrière pays par voie de terre.

On peut dire que le Punjab est le véritable arrière pays de Kurrachee, plus encore que le Sindh. Le trafic par rivière et par chemin de fer entre le port et la grande province du nord-ouest s'est élevé à 164 millions de francs, 84 millions de produits naturels importés et 80 millions de marchandises à destination des villes et villages du haut-pays.

La plus grosse partie de ce trafic a lieu par les rails de cette belle ligne, le *North Western Railway*, qui a amené à Kurrachee, en 1903, 830,000 tonnes de blé. Le *Southern Railway* est moins actif et moins bien mené.

Quant à la ligne directe en préparation, Bombay-Sindh, bien qu'évitant aux passagers et aux marchandises un long détour par le Rajputana, c'est, surtout, une ligne stratégique, et Kurrachee n'y attache pas, pour l'instant, une grande importance.

Par suite du nouveau contrat, le service hebdomadaire entre Bombay et Kurrachee sera fait, comme précédemment, par les navires de la *British India*, marchant à 15 nœuds. Quant à la ligne de Bombay à Kurrachee et aux ports du Golfe Persique, où la navigation est difficile et les phares peu nombreux, la vitesse est réduite à 12 nœuds.

La chambre de commerce demande la suppression de second service hebdomadaire venant de Bombay, et son remplacement par une ligne annexe de Kurrachee à Aden, en correspondance, à l'aller et au retour, avec les paquebots-poste de la compagnie Péninsulaire et Orientale, ce qui permettrait la distribution des courriers au Punjab et sur la frontière Nord-Ouest en avance de deux jours sur l'horaire actuel. Il est probable que ce changement ne tardera pas à s'effectuer, ce qui m'amène à penser que les Messageries Maritimes feraient bien de rétablir leur escale de Kurrachee, la ligne annexe passant à Mascate, Bouchir et Bassorab, et apportant du fret et des passagers à la ligne directe mensuelle Bombay-Marseille et Bombay-Australie.

Irrigation. — L'irrigation du Sindh et du Punjab est d'une extrême importance pour Kurrachee, le manque d'une récolte représentant une décroissance

tangible de ses exportations. La chambre de commerce ne cesse d'y donner toute son attention aux travaux faits dans cette direction, comme étant la source directe de la prospérité du port.

Le canal de Jamrao, dans le Sindh, est, parfois, empêché de produire ses effets bienfaisants, par suite du bas niveau des eaux de l'Indus. On propose d'en relever le niveau par un barrage à Sukkur, travail qui ne saurait tarder à être entrepris. Une série de canaux est en préparation dans le Punjab pour une valeur dépassant cent millions de francs : il n'y a pas d'argent mieux placé que celui consacré à l'irrigation. Tout cela est appelé à augmenter considérablement les exportations du port de Kurrachee, déjà si importantes. Pour les sept premiers mois de 1904 la sortie des blés a dépassé celle de toute l'année 1903.

Trafic avec le Bélouchistan.

Le Bélouchistan est divisé en deux parties, le Bélouchistan Anglais et le pays indépendant, c'est-à-dire les territoires de Khélat, de Lus Beyla, et le Scistan Bélouchi. Les importations par voie de terre se sont élevées à 2,125,000 francs, de la laine, des drogues, des chevaux, du blé, des peaux, des épices; et les exportations du port vers ces territoires ont été de 1,170,000 francs, principalement du sucre, du thé, du fer, du pétrole, des cotonnades, de l'indigo et du riz, soit au total, un trafic de 3,295,000 francs, susceptibles d'une grande augmentation quand les routes seront améliorées et la frontière plus sûre.

Traffic avec l'Afghanistan.

Ce trafic, assez important, est loin de ce qu'il devrait être, toujours en raison de l'insécurité des routes et de l'absence de voies ferrées. Il s'élève à dix millions de francs, à peu près également partagés entre l'importation d'articles destinés à être exportés par mer, et l'importation d'objets consommés par les Afghans.

Le trafic total entre le port de Kurrachee et les marchés du Bélouchistan et de l'Afghanistan par la voie de terre ne dépasse pas 13 millions 1/2, c'est-à-dire le douzième seulement du trafic avec le Punjab.

Conclusions.

Kurrachee occupe, géographiquement, une position exceptionnelle, par rapport au canal de Suez, à la Perse, au Sindh, au Punjab, et généralement à toute l'Inde du nord-ouest si peuplée et si fertile. Un immense avenir l'attend.

Rien n'est plus instructif que les chiffres officiels extraits du volume annuel des statistiques de l'Inde pour l'année fiscale se terminant au 31 mars 1904.

Si l'on examine le mouvement commercial des cinq principaux ports (marchandises seules, c'est-à-dire transactions du Gouvernement, monnaies et métaux précieux, non compris) on voit que Kurrachee vient au troisième rang: voici les chiffres en milliers de roupies (la roupie à 1 fr. 70 cs.):

1 Calcutta.....	572,522
2 Bombay.....	487,762
3 Kurrachee.....	132,649

4 Rangoon.....	126,382
5 Madras.....	51,179

Si maintenant, l'on examine, dans ce volume, le volume particulier du commerce avec la France seule, non pas des cinq ports, mais de l'ensemble des provinces auxquelles ils appartiennent, on trouve les chiffres suivants (marchandises seules) qui ne manquent pas d'un certain intérêt.

PROVINCES.	COMMERCE TOTAL avec la France (en milliers de roupies).
Présidence de Bombay.....	57,940
Province du Bengale.....	28,107
Présidence de Madras.....	20,484
Province du Sindh.....	5,367
— de Birmanie.....	2,666

Progrès de la culture du coton dans le Sindh.

Les chiffres ci-dessus suffisent pour confirmer les conclusions de mon dernier rapport, touchant l'opportunité du rétablissement de l'escale des Messageries Maritimes à Kurrachee, et de la création, en ce port, d'un vice-consulat de plein exercice, au lieu de l'Agence consulaire qui, malgré la bonne volonté de l'Agent étranger quelqu'il soit qui l'occupe, ne saurait rendre

à notre commerce les services utiles et effectifs qu'il a le droit d'attendre.

Depuis la dernière année fiscale, un fait nouveau s'est produit d'une grande importance, je veux dire le succès des expériences pour acclimater dans le Sindh le coton Egyptien ; d'où va résulter une source nouvelle de prospérité pour Kurrachee.

Le nouveau coton à l'essai, quand la plantation en sera devenue générale, réalisera, certainement, de 7 à 8 derniers la livre anglaise. C'est le meilleur coton qui ait jamais été produit, jusqu'ici, dans l'Inde. On peut avoir une idée des profits qu'il donnera, si on observe que l'hectare produit une balle et quart, d'un prix marchand de 250 roupies (425 francs,) au minimum. comme le prix de revient n'en dépasse pas 50 roupies (85 francs,) il restera un profit net de 340 francs, mettons 300 francs, par hectare. Des arrangements ont été faits avec les *Zemindars*, grands propriétaires fonciers, pour ensemençer en cette saison plusieurs milliers d'acres, et le mouvement commencé ne s'arrêtera plus. Comme on évalue à trois cent mille balles le rendement possible en coton égyptien, dans la province du Sindh, ce sera un bénéfice annuel net de 70 à 80 millions de francs aux cultivateurs de la province, toujours sûrs d'avoir des acheteurs empressés, car les fabriques de Bombay trouveront avantage à se procurer, tout près, les cotons longues soies nécessaires à la production des filés des hauts numéros au-dessus du 40, et par conséquent, à celle des tissus fins importés jusqu'ici d'Angleterre.

Jonction possible des voies ferrées de l'Inde avec celles de l'Asie-Mineure par Kurrachee.— Enfin pour terminer, nous pouvons ajouter que Kurrachee est appelé à profiter de cefait, que l'on peut considérer comme impossible, politiquement, la jonction des réseaux russes de l'Asie centrale avec le réseau indien, jonction pourtant si désirable commercialement, qui mettrait Calais à 8 jours de Bombay et à 9 jours de Calcutta. En effet, cette jonction ne peut s'accomplir que de deux manières, l'une, allant d'Orenburg à Peshawar, l'autre, par la voie Transcaspienne, Kushk, Hérat et Chaman. Or, les deux lignes doivent traverser l'Afghanistan, et l'Emir actuel, Habibullah, qui a adopté les idées de son père, fait à l'établissement de tout chemin de fer sur son territoire, une opposition absolument irréductible.

Reste donc, seule, la ligne d'Asie Mineure, du Bosphore à Bagdad et à Bassorah, laquelle pourrait être prolongée jusqu'à Kurrachee et reliée ainsi au réseau indien. La réussite de ce projet donnerait immédiatement à ce port une importance considérable et en ferait du coup le rival de Bombay. Bien que cette jonction appartienne à un avenir encore lointain, il est bon de n'en jamais perdre de vue la possibilité, quand on veut parler des destinées réservées au port de Kurrachee. Son mouvement commercial et maritime, qui se développe déjà si rapidement, peut être appelé à ce moment à prendre des proportions dont on ne peut avoir aucune idée, et qui seront certainement gigantesques.

Bombay, le 1^{er} novembre 1904.

Pondichéry

*Imprimerie du Gouvernement
des Etablissements français dans l'Inde*

5 janvier 1905

A PRIVATE

SIGNAL CODE.

FOR THE USE OF

Light-House-Station &c., &c.

PREPARED BY

C. R. COLLIER,

Commander H. M's. Schooner "Pharos."

Union Jack to be used as Code Signal.

Rendezvous Flag to be hoisted when not
safe for boats to land.

BASSEIN

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SENTENCES.

JACK.

Is it quite safe to land ?

do. B. . .	• Commander
do. C. . .	Mate
do. D. . .	Gunner
do. F. . .	Carpenter
do. G. . .	Seacunny
do. H. . .	Lascars
do. J. . .	
do. K. . .	Senior European Light-keeper
do. L. . .	Second Class European Light-keeper
do. M. . .	Third Class European Light-keeper
do. N. . .	
do. P. . .	
do. Q. . .	Senior Native Light-keeper
do. R. . .	Second Class Native Light-keeper
do. S. . .	Third do do do
do. T. . .	Fourth do do do
do. V. . .	
do. W. . .	

SENTENCES.

B	Call attention to or of H. M. Schooner " <i>Pharos</i> " or Government vessel
C	Yes
D	No
F	Has the Boat landed ?
G	Boats re-called at once (Come Back)
H	Call attention to the Light-house or Station
J	
K	
L	
M	Is the Boat discharged ?
N	It is not safe for Boats to land ?
P	European Relief on board
Q	Relief sick
R	Native Relief on board
S	European and Native Relief on board
T	Boat or Boats have left—look out for them
V	Why don't you hoist the Jack if safe to land
W	Will Boats be able to land this Tide ?

SENTENCES.

3

Able.

- B C Are you able ?
 B D When will you be able ?
 B F I am not able.
 B G I shall be able.
 B H

Alongside.

- B J Can I come alongside ?
 B K Come alongside.
 E L I cannot get alongside.
 B M Try to get alongside.
 B N
 B P

Allowance.

- B Q We are on short allowance.
 B R Are you on short allowance ?
 B S You had better put your men on short allowance.
 B T Every one is on short allowance.
 B V We have full allowance (plenty.)
 B W
 C B
 C D

Anchor.

- C F I have lost my anchor.
 C G I shall not anchor.
 C H Are you going to anchor ?
 C J I shall remain at anchor all night.
 C K Shall you anchor on your way back ?
 C L I shall not anchor but remain under way.
 C M I shall not anchor but stand off and on.
 C N
 C P
 C Q

SENTENCES.

Answer.

C R	Send an answer.
C S	Will you wait for an answer ?
C T	Send answer as soon as possible.
C V	I cannot wait for an answer.
C W	Answer my last Signal.
D B	Signal is answered.
D C	Will you give me an answer ?
D F	
D G	
D H	April.

Arrived.

D J	I shall wait the arrival.
D K	Shall you wait the arrival ?
D L	Has the Steamer arrived ?
D M	Has the Superintendant arrived ?
D N	The Steamer has not arrived.
D P	When does she arrive ?
D Q	The Superintendant has arrived and gone.
D R	
D S	
D T	

Aground.

D V	I am on shore.
D W	Vessel is on shore.
F B	Are you going on shore ?
F C	I have been on shore.
F D	Come on shore.
F G	I am not going on shore.
F H	I will take you on shore.
F J	Will you take me on shore ?
F K	

Assistance.

- F L Want assistance immediately.
 F M What assistance do you require ?
 F N I am sorry I cannot assist you.
 F P Can I assist you ?
 F Q Do not require assistance.
 F R

Attempt.

- F S The attempt is dangerous.
 F T Do not attempt it.
 F V Shall I make another attempt ?
 F W It is useless to attempt.
 G B I have made several unsuccessful attempts.
 G C
 G D August.
 G F

Back.

- G H Go Back.
 G J Come Back.
 G K Send Back.
 G L You are ordered back.
 G M You have to go back ?
 G N When will you be back ?
 G P

Bags.

- G Q Empty Bags.
 G R Coal Bags.
 G S Send bags for.
 G T Return all empty bags.
 G V Send bags off.
 G W I want bags.
 H B I have no bags,
 H C

Bar.

- H D.... How is the Sea on the Bar ?
 H F.... The Bar is quite smooth.
 H G.... Very rough on the Bar.
 H J.... It is dangerous to attempt to cross the Bar.
 H K....
 H L....

Barometer.

- H M.... How is the Barometer ?
 H N.... Barometer is rising.
 H P.... Barometer is falling.
 H Q.... Barometer is stationary.
 H R.... Barometer indicates *fine* weather.
 H S.... Barometer indicates *bad* weather.
 H T....
 H V....

Beach.

- H W.... Is there much surf on the Beach ?
 J B.... Is there good landing on the Beach ?
 J C.... Can we land dry on the Beach ?
 J D.... You can land on the Beach with safety.
 J F.... Best to land on the Beach at high-water.
 J G.... Best to land on the Beach at low-water.
 J H.... There is not very good landing on the Beach.
 J K.... There is not good deal of Surf on the Beach.
 J L.... You can land on the Beach with care.
 J M....
 J N....
 J P....

Bearing.

- J Q....
 J R.... How does it bear ?
 J S.... It bears about.
 J T.... Cannot make out the Bearings.
 J V....
 J W....

SENTENCES.

9

Berth.

- K B Berth not very good.
- K C You are in a bad berth.
- K D You are in a good berth.
- K E
- K F
- K G
- K H

Better.

- K J Are you any better ?
- K L Is person's indicated any better ?
- K M I hope you are better ?
- K N I am better.
- K P
- K Q

Biscuit.

- K R Biscuit is very bad.
- K S Can you spare me some Biscuit or Bread ?
- K T Biscuit is good.
- K V
- K W

Blowing.

- L B It is blowing heavy.
- L C I think it is going to blow.
- L D It will blow before long.
- L E
- L F
- L G

Blue-Light.

- L H Burn a Blue-light. [light]
- * L J Burn a Blue-light or anything to show a good
- L K
- L M

Board.

L N	Come on board.
L P	Go on board.
L Q	Send on board.
L R	I will come on board.
L S	Will you come on board ?
L T	Is the Captain on board.
L V	All on board.
L W	All right on board.
M B	I cannot come on board.
M C	
M D	

Boat.

M F	Want a boat immediately (man over-board.)
M G	Send me a boat.
M H	Will you lend me a boat ?
M J	No boat on board.
M K .. .	Boat cannot get off.
M L	Great risk in sending a boat.
M N	Send a boat on shore.
M P	Send boat off immediately.
M Q	Do not send the boat.
M R	Boat is adrift.
M S	Boat is lost.
M T	Boat swamped.
M V	Boat stove.
M W	I cannot send my boat.
N B	Boat unable to pull against the Sea.
N C	Pilot Boat.
N D	Have you seen a Pilot boat.
N F	

Continued.

Boat.—Continued.

- N G Boat is all safe.
 N H Boat is on shore.
 N J Send a boat to point out Rock or passage.
 N K Send the boat to centre rock to wait signal.
 N L Can boat land with safety ?
 N M Can boat land in the dock ?
 N P Can the boat land on the East side ? [H. Steps
 N Q Can the boat land abreast of Light-House or L.
 N R No boat could live in such a sea.
 N S Send boat or boats to tow.
 N T No boat fit for the work.
 N V I shall fire Gun as signal to Boat.
 N W Steam Boat.
 * B Can I send another boat load ?
 P C Plenty of time for another boat load.
 P D Do not land any more boats.
 P F Send the boat off quick.
 P G Do not send the boat off.
 P H I have lost a boat.
 P J

Breakers.

- P K Water breakers full.
 P L Water breakers empty.
 P M Very heavy breakers in the channel.
 P N Breaking very heavy on the Reef.
 P Q
 P R

Brooms.

- P S I want some brooms.
 P T Can you spare me some brooms ?
 P V I have no brooms to spare.
 P W

Breakfast.

- Q B Will you breakfast with me ?
 Q C Will you breakfast on shore ?
 Q D Will you breakfast on board ?
 Q F Come to breakfast.
 Q G I will breakfast with you with pleasure.
 Q H I shall breakfast on shore.
 Q J I shall breakfast on board.
 Q K
 Q L

Canvas.

- Q M New Canvas.
 Q N Old Canvas.
 Q P Some Canvas.
 Q R

Castor Oil.

- Q S Castor Oil.
 Q T Can you send me some Castor Oil ?
 Q V
 Q W

Christmas Day.

- R B Before Christmas.
 R C After Christmas.
 R D

Code.

- R F Private Code.
 R G Commercial Code.
 R H Marriott's Code.

Come.

- R J Come on shore. (Sea shore.)
 R K I will come. (see aground.)
 R L I cannot come.
 R M Shall I come.

Compass.

- R N Put a Compass in the boat.
 R P Do not leave without a Compass.
 R Q I have no Comp ss.
 R S I cannot depend on my Compass.

Comply.

- R T I cannot comply with your request.
 R V You must comply with my request.
 R W Will you comply with my request.
 S B
 S C

Cot.

- S D Send my Cot.
 S F Send a Cot on shore.
 S G Send a Cot on board.
 S H
 S J

Cotton.

- S K . . . Lamp cotton.
 S L Raw cotton.
 S M

Crew.

- S N Send a boat's Crew.
 S P Full Crew.
 S Q Crew sick.
 S R Send extra Crew to assist.
 S T

Damage.

- S V Everything damaged.
 S W Partly damaged.
 T B Nothing damaged.
 T C
 T D

Danger.

- T F Is there any danger ?
 T G No danger.
 T H In great danger.
 T J You are in danger and a very unsafe position.
 T K Do not attempt if you think there is any danger
 T L I do not think it is very dangerous.
 T M
 T N

Dark.

- T P Before dark.
 T Q It is getting too dark.
 T R After dark.
 T S
 T V

Day-light.—Day.

- T W In a few days.
 V B Not to-day.
 V C I will come out again in a few days.
 V D In about 10 days.
 V F Sometime to-day.
 V G What day will you come again ?
 V H
 V J

Dead.

- V K No one dead.
 V L Who is dead ?
 V M

Detain.

- V N Do not detain me, make haste.
 V P I will not detain you.
 V Q I am sorry to detain you.
 V R

Dine.

V S	Will you dine with me ?
V T	I shall dine on board.
V W	I shall dine on shore.
W B	I will dine with you.
W C	With much pleasure I will dine with you.
W D	I am sorry I cannot dine with you.
W F	
W G	

Dock.

W H	Is the dock rope across ?
W J	Rig the Derrick on the East side.
W K	Rig the Derrick in the Dock.
W L	Put the Dock Rope across.
W M	
W N	

(See Rope)

Early.

W P	Early as possible.
W Q	Very early.
W R	Early to-morrow morning.
W S	
W T	

Enough.

W V	Have you enough ?
B C D . . .	I have enough.
B C F . . .	I have not enough.
B C G . . .	Quite enough.
B C H . . .	

Evening.

B C J . . .	This evening.
B C K . . .	Last evening.
B C L . . .	To-morrow evening.
B C M . . .	

Family.

- B C N .. Your family are all quite well.
 B C P .. Have you any news of my family.
 B C Q .. I have not heard any news of your family.
 B C R ...
 B C S ...
 B C T .. February.
 B C V ..

(See Wife.)

Feet.

- B C W .. How many feet ?
 B D C .. How many square feet ?
 B D F ..
 B D G ..

Fever.

- B D H ... Cases of Fever.
 B D J ... Natives with Fever.
 B D K ... European with Fever.
 B D L ... No Fever.
 B D M ...
 B D N ...

Find.—Found.

- B D P .. I cannot find.
 B D Q .. Can you find ?
 B D R ... Have you found ?
 B D S .. I have found.
 B D T ...
 B D V ..

Fish.

- B D W ... Have you any fresh fish ?
 B F C .. Any salt fish.
 B F D .. Get me some fish.
 B F G .. Send for some fish.
 B F H ..

Flags.

- B F J ... I cannot make out the upper Flag.
 B F K ... I cannot make out the Second Flag.
 B F L ... I cannot make out the Third Flag.
 B F M ... I cannot make out the Fourth Flag.
 B F N ... I cannot make out the Flags.
 B F P ... Can you make out the Flags ?
 B F Q ...
 B F R ...

Food.

- B F S ... I am in want of Food.
 B F T ... We are running short of Food.
 B F V ... We want Food.—Starving.
 B F W ...
 B G C ...

Forget.

- B G D ... Do not forget.
 B G F ... I will not forget.
 B G H ... Have forgotten.
 B G J ... I quite forgot.
 B G K ...
 B G L ...
 B G M ...

Funnel.

- B G N ... What color is the Funnel ?
 B G P ... White Funnel.
 B G Q ... Black Funnel.
 B G R ... Yellow Funnel.

Got.

- B G S ... Have you got ?
 B G T ... Can you get ?
 B G V ... I have got you some.
 B G W ... I cannot get any.

Going.

B H C ...	Where are you going ?
B H D ...	They are gone.
B H F ...	They have been, and now gone.
B H G ...	I cannot go.
B H J ...	I am going.
B H K ...	Do. do. To Bassein.
B H L ...	Do. do. To Diamond Island.
B H M ...	Do. do. To Heingee.
B H N ...	Do. do. To Rangoon.
B H P ...	Do. do. To Cocos.
B H Q ...	Do. do. To Reef.
B H R ...	Do. do. To anchor.
B H S ...	Do. do. To remain at anchor.
B H T ...	Do. do. To keep under-way.
B H V ...	Do. do. To leave to-morrow morning.
B H W ...	Do. do. To leave to-morrow afternoon.
B J C ...	Do. do. To-day.
B J D ...	Do. do. In a few days.
B J F ...	
B J G ...	
B J H ...	You can go to.

Gun and Gun-powder.

B J K ...	Fire a Gun.
B J L ...	When ready fire again.
B J M ...	I will fire a gun when ready.
B J N ...	I shall fire a gun as signal to boats (See Boats.)
B J P ...	I have gun-powder on board.
B J Q ...	Can you spare me some gun-powder ?
B J R ...	
B J S ...	
B J T ...	

SENTENCES.

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Hands.

- B J V ... I am short handed.
 B J W ... Have you sufficient ?
 B K C ... I am short handed, but can manage very well.
 B K D ... All hands saved.
 B K F ... I cannot manage without more hands.
 B K G ...
 B K H ...
 B K J ...

Haste.

- B K L ... Make haste. (See quick.)
 B K M ...
 B K N ...

Heingee.

- B K P ... I shall stop at Heingee.
 B K Q ... I shall not leave Heingee. (See going.)
 B K R ... Are you going to Heingee ?
 B K S ...
 B K T ...
 B K V ...

Impossible.

- B K W ... Is it impossible ?
 B L C ... It is impossible.
 B L D ... It is not impossible.
 B L F ...
 B L G ...

Jack.

- B L H ... Union Jack.
 B L J ... January.
 B L K ... Month of January.
 B L M ... June.
 B L N ... Month of June.

- B L P ... July.
 B L Q ... Month of July.

Kegs.

- B L R ... Send my kegs.
 B L S ... You have forgotten the kegs.
 B L T ... I have lost the kegs.
 B L V ... I want some kegs.
 B L W ..

Lamps.

- B M C ... Lamps are very bad.
 B M D ... Lamps are leaking.
 B M F ... Lamps wanted.
 B M G ... We want more lamps.
 B M H ..
 B M J ...

Lantern.

- B M K.. The lamp is broken—(or lantern.)
 B M L.. The lantern is damaged.
 B M N.. The lantern Frame is damaged.
 B M P.. Lantern glasses broken.
 B M Q.. Want lantern glasses.
 B M R.. The lantern is all right.
 B M S .. Panes of glass.
 B M T..
 B M V..

Landing.

- B M W.. Where is the boat landing ?
 B M C .. Is there anything to prevent landing ?
 B M D .. Landing is very difficult.
 B M F .. Is it any-ways dangerous to land ?

Continued

Landing.—Continued.

- B N G... It is impossible to land ?
 B N H... Do not attempt to land.
 B N J... What time is the boat to land ?
 B N K... Which side shall I land ?
 B N L... There is risk in landing.
 B N M... The landing is not very good.
 B N P... Land in the Dock.
 B N Q... Land on East side.
 B N R... Can I land European relief in Dock ?
 B N S... Can I land Native relief in Dock ?
 B N T... Can I land European and Native reliefs in Dock ?
 B N V... Can I land in the Dock (which side ?)
 B N W... Can I land on the East side ?
 B P C... Can I land provisions ?
 B P D... Can I land Water ?
 B P F... Can I land Coal ?
 B P G... Can I land Passengers ?
 B P H... Can I land with safety ?
 B P J... Good landing on East side.
 B P K... Good landing in the Dock (West side.)
 B P L... Good landing alongside of Light-house.
 B P M... Landing good but very unpleasant.
 B P N... I will shew a light at the best landing. [way.
 B P Q... Have some one at the landing to point out the
 B P R... Is there too much surf to land ?
 B P S... There is too much surf to land. [be.
 B P T... The landing is now good and better than it will
 B P V... Has the boat landed ?
 B P W... Not safe for boats to land.
 B Q C... It is too late to land.
 B Q D... Do not land any more.
 B Q F...

Letters.

- B Q C ... Have you any letters for me ?
 B Q H ... Have you any letters, papers or parcel for me ?
 B Q J ... I have a letter for you.
 B Q K ... Private letter.
 B Q L ... Official letters.
 B Q M ... No letter for you.
 B Q N ... Official and Private letters for you.
 B Q P ... I have no letter, news or anything for you.
 B Q R ... I will send your letter off as soon as possible.
 B Q S ... Will you take a letter for me ?
 B Q T ... Will you wait for my letter ?
 B Q V ... Send on board for letter.
 B Q W ... Send on shore for letter.
 B R C ... What are the letters Official or Private ?
 B R D ...
 B R D ...

Light.

- B R F ... Keep a good light burning all night.
 B R G ... Shew a light as soon as it is dark.
 B R H ... I will keep a light burning.
 B R J ... Shall I shew a light at night ?
 B R K ... { Flash powder burn blue light or a fire on the
 B R L ... { beach anything to shew a good light.
 B R M ...
 B R N ...

Lightning Conductor.

- B R P ... Lightning Conductor broke.
 B R Q ... Want a piece of Lightning Conductor.
 B R S ... Lightning Conductor.
 B R T ...
 B R V ...
 B R W ...

Lost.

- B S C ... All is lost.
 B S D ... I have lost every thing.
 B S F ... I have not lost anything.
 B S G ... Nothing lost.
 B S H ... Has anything been lost ?
 B S J ...
 B S K ...

Machine.

- B S L ... Machine out of order.
 B S M ... Machine wants repairs.
 B S N ... Want immediate assistance to repair machine.
 B S P ... Want a Brasier or an Engineer to repair machine.
 B S Q ... Machine out of order and working by hand.
 B S R ... Accident happened to machine.
 B S T ... Can you repair the accident ?
 B S V ... Will the accident interfere with the Light ?
 B S W ... Can you repair the accident yourself ?
 B T C ... I cannot repair the accident without assistance.
 B T D ... Machine all right and in good working order.
 B T F ... Accident does not interfere with Light.
 B T G ...

Mails.

- B T H ... Has the Mail arrived ?
 B T J ... Has the Mail left ?
 B T K ... I shall wait for the Mail.
 B T L ... I have the Mail.
 B T M ... Have you the Mail ?
 B T N ... The Mail is lost.
 B T P ... The Mail is behind time.
 B T Q ... The Mail is detained.
 B T R ... What detained the Mail (or detain ?)

Meat.

B T S .	Fresh meat.
B T V ..	Salt meat.
B T W ...	Preserved meat.
B V C ...	
B V D ...	

Medicine.

B V F ...	I am in want of Medical advice.
B V G ...	Want medicine.
B V H ...	No medicine to be had.
B V J ...	
B V K ..	

Moon.

B V L ..	New Moon.
B V M ..	Full Moon.
B V N ..	First Quarter.
B V P ..	Last Quarter.
B V Q ..	When the Moon rises.
B V R ..	When the Moon goes down.
B V S ..	

Mutiny.

B V T ..	The men are in a mutinous state.
B V W ..	They have all mutinied.
B W C .	Want assistance (mutiny.)
B W D .	
B W F .	

Mistake.

B W G .	You have made a mistake.
B W H .	You are mistaken.
B W J .	I have made a mistake.
B W K .	It is quite a mistake.
B W L ..	There is no mistake.
B W M .	

Needles.

- B W N... Can you spare me some roping Needles.
 B W P... Can you spare me some sewing Needles.
 B W Q... Can you spare me some fine Needles.
 B W R... Can you spare me a palm (or palms.)
 B W S...
 B W T...

News.

- B W V... Any news for me ?
 C B D ... What kind of news have you ?
 C B F ... Good news.
 C B G ... Bad news.
 C B H ... No news at all.
 C B J ...
 C B K ...

Night.

- C B L ... In the night.
 C B M ... Midnight.
 C B N ...
 C B P ...

None or No.

- C B Q ... Nothing for you.
 C B R ... I have none.
 C B S ... I am entirely out.
 C B T ... I have none to spare.
 C B V ... I cannot spare any.
 C B W...

Oblige.

- C D B ... Can you oblige me with ?
 C D F ... I shall be much obliged to you.
 C D G ... I cannot oblige you.
 C D H ... I shall be obliged to
 C D J ... I can oblige you.

Orders.

- C D K ... I have orders for you.
 C D L ... Have you any orders for me?
 C D M ... You are ordered.
 C D N ... No orders for you.
 C D P ...
 C D Q ...

Oysters.

- C D R ... We want some good Oysters ?
 C D S ... Can you get me some Oysters ?
 C D T ... Get some Oysters.
 C D V ... Are the Oysters good ?
 C D W ...
 C F B ...

Passage.

- C F D ... Will you give me a passage ?
 C F G ... Will you give me a passage with you ?
 C F H ... Will you take a passage with me ?
 C F J ...
 C F K ...

Pilot.

- C F L ... No Pilot or Pilots down.
 C F M ... Pilot's signal flying.
 C F N ... Pilot's signal.
 C F P ... Send a Pilot.
 C F Q ... I want a Pilot ?
 C F R ... Pilot cannot get off.
 C F S ... Pilot or pilots expected down.
 C F T ...

Pleasant or Please.

- C F V ... With much pleasure.
 C F W ... Not very pleas.
 C G B ... Please do.

Permission.

- C G D ... I want permission to visit town.
 C G F ... You have permission.
 C G H ... Get me permission to visit town.
 C G J ... I cannot visit town without permission.
 C G K ... You cannot go without permission.
 C G L...
 C G M...

Provisions.

- C G M... How many days provisions have you left ?
 C G P ... Can you spare me any provisions ?
 C G Q... I am short of provisions. [been sometime.
 C G R... We are on short allowance of provisions have
 C G S... I am in want of ?
 C G T... Do. do. Rice.
 C G V... Do. do. Dholl.
 C G W... Do. do. Ghee.
 C H B... Do. do. Ducks.
 C H D... Do. do. Fowls.
 C H F... Do. do. Beef.
 C H G... Do. do. Pork.
 C H J... Do. do. Flour.
 C H K... Do. do. Sugar.
 C H L... Do. do. Potatoes.
 C H M... Do. do. Onions.
 C H N... Do. do. Water.
 C H P... Do. do. Coffee.
 C H Q... Do. do. Tea.
 C H R...
 C H S...
 C H T...
 C H V...
 C H W...

Quick.

C J B .. Make haste be quick.
C J D ..

Reef.

C J F ... To the reef.
C J G ... You are too close to the reef.
C J H ... Come closer to the reef.
C J K ... Keep further off from the reef.
C J L ... On the reef.
C J M ...
C J N ..

Ready.

C J P . Are you ready ?
C J Q .. When will you be ready ?
C J R .. I am not ready ?
C J S .. Shall I get ready ?
C J T ..
C J V ..

Recall.

C J W .. Recall the boat.
C K B .. Recall the
C K D .. Boats recalled (immediately.)
C K F ..
C K G ..

Remain.

C K H .. You must remain till further orders.
C K J .. Remain where you are.
C K L .. I shall remain all night.
C K M .. I shall not remain any longer.
C K N .. How long will you remain ?
C K P .. You must not remain.
C K Q ..

Relief.

- C K R ... Have you the relief on board ?
 C K S ... European and Native relief on board.
 C K T ... European relief on board.
 C K V ... Native relief on board.
 C K W ... Relief sick.
 C L B ... Native relief sick.
 C L D ... European relief sick.
 C L F ... European and Native relief come out next time.
 C L G ... I have no relief on board.
 C L H ... Relief not arrived.
 C L J ... Men for the relief not complete some absent.
 C L K ...
 C L M ...

Repair.

- C L N ... Can you repair the damage ?
 C L P ... I can repair the damage.
 C L Q ... I cannot repair the damage.
 C L R ... I have repaired the damage.
 C L S ...

Returns.

- C L T ... Are the monthly returns ready ?
 C L V ... Send off the returns for last month.
 C L W ... When will you return ?
 C M B ... Return as soon as possible.
 C M D ... When you return.
 C M F ... I shall return with as little delay as possible.
 C M G ...

Reply.

- C M H ... Send answer, send reply.
 C M J ... I will send a reply.
 C M K ... Send reply to letter (or question.)
 C M L ... Send reply as soon as possible.

River.

- C M N... I shall run into the mouth of the river.
 C M P... I shall lay in the river.
 C M Q... I am up the river.
 C M R... Are you going up the river?
 C M S... I am not going up the river.
 C M T...
 C M V...

Rock.

- C M W... You are too near the rocks.
 C N B... You can come nearer the rocks with safety.
 C N D... How near can I go to the rocks?
 C N F... Stand intowards the rocks till I hoist a flag.
 C N G... The rocks are a long way off you.
 C N H... If you continue on you will strike on the rocks.
 C N J... It is a rocky bottom.
 C N K... It is not a rocky bottom.
 C N L...
 C N M...

Rockets.

- C N P... Shew a rocket.
 C N Q... I have no rockets.
 C N R... I will shew a rocket (or rockets.)
 C N S...
 C N T...

Rope.

- C N V... Veer a long rope astern for the Boat?
 C N W... I want a piece of rope?
 C P B... Can you spare me some rope?
 C P D... I have no rope to spare.
 C P F... I want rope to hoist stores in?
 C P G... I want rope for Derrick?
 C P H...

Safe.

- C P J ... Are you all safe ?
 C P K ... You are all safe.
 C P L ... It is not safe ?
 C P M ... Do you think it safe ?
 C P N ... Will it be safe ?
 C P Q ...
 C P R ...

Sand.

- C P S ... Send me some sand.
 C P T ... I want sand and Holystones.
 C P V ...
 C P W ...

Saved.

- C Q B ... Are all hands saved ?
 C Q D ... Everything saved.
 C Q F ... Crew saved everything else lost.
 C Q G ... I have saved.
 C Q H ...
 C Q J ...
 C Q K ...

Sea.

- C Q L ... Very heavy sea.
 C Q M ... Tremendous Sea.
 C Q N ... Do you think the sea will go down ?
 C Q P ... When the sea goes down
 C Q R ... Not very much sea.
 C Q S ... Is there much sea on ?
 C Q T ... Sea is quite smooth.
 C Q V ...
 C Q W ...
 C R B ...

Send.

- CRD .. Send it to me.
 CRF ... Send it to the
 CRG ... Send it away.
 CRH ... Will you send it off?
 CRJ ...
 CRK ...

Ship.

- CRL ... Is there anything in sight?
 CRM ... Nothing in sight.
 CRN ... Several Ships in sight.
 CRP ... Ship in sight standing in.
 CRQ ...
 CRS ...

Shore. (See Come.)

- CRT .. Are you going on shore?
 CRV ... Are you come on shore?
 CRW ... You are too near the shore.
 CSB ... Come on shore.
 CSD ... Go on shore.
 CSF ... I want to see you on shore!
 CSG ...
 CSH ...

(See around.)

Short. (See Provisions.)

- CSJ .. I am short handed.
 CSK .. Are you short handed?
 CSL .. I am short of everything.
 CSM .. I am not short. I have plenty.
 CSN .. Are you short or will you run short?
 CSP ...
 CSQ ...
 CSR ...

Sick.

C S T ... I am sick.
 C S V ... Who is sick ?
 C S W ... Sick.
 C T B ... Several sick.
 C T D ... All hands sick.
 C T F ... Sea sick.
 C T G ... Very sick dying.
 C T H ...
 C T J ...

Side.

C T K ... On which side ?
 C T L ... Either side.
 C T M ... Both sides.
 C T N ... Starboard side.
 C T P ... Port side.
 C T Q ...
 C T R ...

Sight. (See Ship.)

C T S ... Government Steamer in sight.
 C T V ...
 C T W ...

Signal. (See Answer.)

C V B ... Signal made is not understood.
 C V D ... Repeat the last Signal.
 C V F ... You have mistaken the Signal.
 C V G ... There is some mistake in your Signal.
 C V H ... The Signal is not in my book.
 C V J ... Hoist the Signal up and down till I make it out.
 C V K ...
 C V L ...
 C V M ...

Steamer.

- C V N ... Has the Steamer arrived ?
 C V P ... Steam Boat.
 C V Q ... Steam Tug.
 C V R ... Government Steam Boat.
 C V S ...
 C V T ...

Stop.

- C V W ... Can you stop till to-morrow ?
 C W B ... I cannot stop.
 C W D ... How long will you stop ?
 C W F ... I will stop.
 C W G ...
 C W H ...

Stores.

- C W J ... I have Stores on board.
 C W K ... I am in want of
 C W L ... Medical Stores.
 C W M ... Lamp Stores.
 C W N ... House Stores.
 C W P ... Cocoanut Oil.
 C W Q ... Sweet Oil.
 C W R ... Dunnage.
 C W S ... Lusters.
 C W T ... Soap English.
 C W V ... Soap Native.
 D B C ... Soda.
 D B F ... Wicks.
 D B G ... Coals.
 D B H ... Lamp Glasses.
 D B J ... Lamp Chimnies.
 D B K ... Tobacco.
 D B L ... Pipes.
 D B M ... Cigars.

Sun-set.

- D B N ... Sun rise to-morrow morning.
 D B P ... Before Sun rises.
 D B Q ... Before Sun-set.
 D B R ...
 D B S ...

Surf.

- D B T ... How is the surf?
 D B V ... The surf is bad.
 D B W ... The surf is very bad.
 D C B ... Hardly any surf at all.
 D C F ... No surf.
 D C G ...
 D C H ...

Swell.

- D C J ... Is there much swell on?
 D C K ... Not much swell.
 D C L ... A good swell.
 D C M ... No swell on.
 D C N ...
 D C P ...

Tackle.

- D C Q ... I want a small Tackle?
 D C R ... I want a large Tackle?
 D C S ... Send me a Tackle.
 D C T ...
 D C V ...

Telegraph.

- D C W ... Answer for me by Telegraph.
 D F B ... Send following Telegraph.
 D F C ... I have a telegram for you.
 D F G ... Send a Telegraph Message for me.
 D F H ... I have Telegraphed.

Thanks.

- D F J .. Many thanks for.
 D F K ... Thank him for me.
 D F L ... Accept my best thanks.
 D F M ...
 D F N ...

Tide.

- D F P ... How is the Tide ?
 D F Q ... Flood Tide.
 D F R ... Ebb Tide.
 D F S ... High Tide.
 D F T ... Low Tide.
 D F V ... Tide is answering (or rising.)
 D F W ... Tide is falling.
 D G B ... When the Tide falls.
 D G C ... When the Tide makes.
 D G F ... When the Tide turns.
 D G H ... Next Tide.
 D G J ... This Tide.
 D G K ... What time is it High water ?
 D G L ... What time is it Low water ?
 D G M ... Wait till the tide falls.
 D G N ... Wait till the tide rises.
 D G P ... What time of tide will be best ?
 D G Q ... I wish to save this tide.
 D G R ... Will Boats be able to land this tide ?
 D G S ... I shall leave next Flood tide.
 D G T ... I shall leave next Ebb tide.
 D G V ...
 D G W ...
 D H B ...
 D H C ...

Time.

D H F ...	What is the time ?
D H G ...	What will be the best time ?
D H J ...	Allow me plenty of time to get on shore.
D H K ...	at you appoint any time ?
D H L ...	Next time.
D H M ...	Not this time.
D H N ...	
D H P ...	
D H Q ...	
D H R ...	The time is or at 2 A. M.
D H S ...	Do. do 4 A. M.
D H T ...	Do. do 6 A. M.
D H V ...	Do. do 8 A. M.
D H W ...	Do. do 10 A. M.
D J B ...	Do. do 12 noon.
D J C ...	Do. do 2 P. M.
D J F ...	Do. do 4 P. M.
D J G ...	Do. do 6 P. M.
D J H ...	Do. do 8 P. M.
D J K ...	Do. do 10 P. M.
D J L ...	Do. do 12 Mid-night.
D J M ...	
D J N ...	
D J P ...	

Twine.

D J Q ...	Sewing Twine.
D J R ...	Roping Twine.
D J S ...	Twine palms and needles.
D J T ...	
D J V ...	
D J W ...	

Understand.

- D K B ... Do you understand ?
 D K C ... I understand.
 D K F ... I do not understand.
 D K G ... It is understood.
 D K H ...
 D K J ...

Vessel.

- D K L ... She is a small vessel.
 D K M ... He is a large vessel.
 D K N ... She is a Government vessel.
 D K P ...
 D K Q ...

Venture.

- D K R ... I shall not venture.
 D K S ... Shall you venture ?
 D K T ... Do not venture.
 D K V ... Are you going to venture ?
 D K W ...
 D L B ...

Wanted.

- D L C ... Have you been wanted during my absence ?
 D L F ... I have not been wanted.
 D L G ... I have been wanted.
 D L H ... Have I been wanted ?
 D L J ... You have not been wanted.
 D L K ... I shall want you.
 D L M ... I shall not want you.
 D L N ...
 D L P ...
 D L Q ...

Wait.

- D L R... Will you wait?
 D L S... I cannot wait.
 D L T... Wait for me.
 D L V... Do not wait.
 D L W... Shall I wait for you?
 D M B... I will wait (or for you.)
 D M C...
 D M F...

Want.

- D M G... What are you in want of?
 D M H... Are you in want of anything?
 D M J... What do you want?
 D M K... I am in want of
 D M L... In want of food (starving.)
 D M N... I do not want anything.
 D M P...

Water.

- D M Q... Have plenty of water.
 D M R... Have you all the water you require?
 D M S... What water have you left?
 D M T... Have you one good month's water in the Tanks?
 D M V... Have you water to last two months with care?
 D M W... I have plenty of water.
 D N B... I have not enough water.
 D N C... I have enough water for two months.
 D N F... I have enough water for one month.
 D N G... Water breakers empty.
 D N H... Water breakers full.
 D N J... I want water?
 D N K...
 D N L...

Weather.

- D N M ... What do you think of the weather ?
 D N P ... Weather will be good.
 D N Q ... Weather will be bad.
 D N R ... Good weather (Fine.)
 D N S ... Bad weather
 D N T ... What weather have you had ?
 D N V ... If the weather will permit.
 D N W ... As soon as the weather permits,
 D P B ... I shall return as soon as the weather permits.
 D P C ...
 D P F ...

Well.

- D P G ... Are all well ?
 D P H ... All are well.
 D P J ... Not very well.
 D P K ... I hope you are all quite well ?
 D P L ... Europeans not very well.
 D P M ... Natives not very well.
 D P N ...
 D P Q ...

Wife.

- D P R ... Your wife was quite well when I left.
 D P S ... How is my Wife ?
 D P T ... How was my wife and family when you left ?
 D P V ... Your wife is sick.
 D P W ... Your wife is not very well.
 D Q B ... Your wife was quite well when I left.
 D Q C ... Your wife wishes you to write.
 D Q F ...
 D Q G ...
 D Q H ...

Wind.

D Q J ...	How have you had the wind ?
D Q K ...	Light—moderate—winds.
D Q L ...	Steady strong winds.
D Q M ...	Heavy winds.
D Q N ..	From the East.
D Q P ..	Do. N. E.
D Q R ...	Do. North.
D Q S ..	Do. N. W.
D Q T ..	Do. West.
D Q V ..	Do. S. W.
D Q W ...	Do. South.
D R B ...	Do. S. E.
D R C ...	
D R F ..	

Wood.

D R G ...	I am going to cut fire-wood.
D R H ..	I want some fire-wood ?
D R J ...	I am out of fire-wood.
D R K ..	
D R L ...	
D R M ...	

Yes.

D R N ..
D R P ..
D R Q ..
D R S ..

You or Yourself.

D R T ..
D R V ..
D R W ..



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Sacks*

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DRISCOLL'S PATENT

Life and Property Saving Apparatus.

To

Sir,

During my experience as a Seaman and my long service in the Port Police, I have very often witnessed loss of human life, Europeans and Natives, by drowning, which could have been averted if proper appliances had been available. I have also noticed in a great many instances the sinking of boats and vessels with valuable property, which has never been recovered, as the exact seat of the wreck could not be ascertained. I have for a very long time given the matter my serious attention, and have devised several plans for the purpose of saving human life and property. I have at last succeeded in my endeavours in inventing a life buoy and a buoy to act the double purpose of marking the position of wreck, and saving documents, also saving human life. I have had samples of both these buoys made at my own expense, and they have met with the approval of a large number of the most experienced and influential Nautical gentlemen. Annexed are copies of their certificates.

The ball buoy will float 2 persons, and the bigger or oblong buoy will float 8 persons beside marking position of the wreck and saving documents. These buoys have been patented and have been adopted by the Government for their vessels, also by the Port Commissioners and some of the leading Merchants in Calcutta. The life buoy is built of copper and its price is Rs. 15-0-0. The other buoy for saving life and documents and marking the position of wrecks, is built of steel or iron, and its price is Rs. 50-0-0. This can be built of copper likewise, but then it would be a little more expensive.

Soliciting your Patronage,

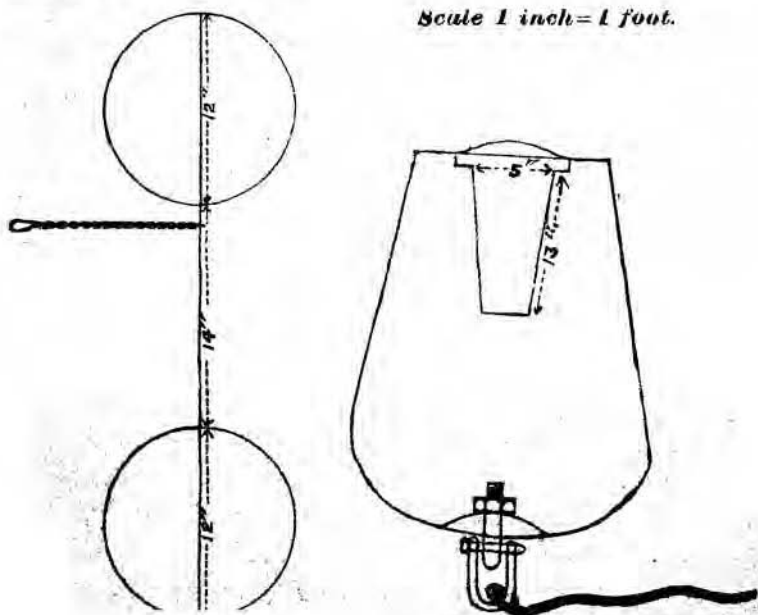
Yours obediently,
J. DRISCOLL,
Insp. of River Police,
Koilaghat, Calcutta.

HOW USED.

THE ball buoy is meant to be used instead of the old circular cork buoy. It is made of two balls of copper 12 inches in diameter with a wooden or copper bar running through both balls with 18 inches between the balls. This will float 5 men with ease, but can be built larger or smaller as people giving the order require; it weighs 14 lbs. The cone buoy is built of iron, copper or steel as required; it is meant to set on a clear space of the deck of a cargo boat, launch, or vessel, on its own coil of line, one end of which is made fast to a swivel in the bottom of the buoy, and the other end fast to some secure post or station of the craft. If the craft meets with an accident and sinks, the buoy floating off marks the position of the wreck. The documents belonging to the craft are safe in the water-tight chamber and the crew, 9 in number, holds on to a ring which is attached round the belly of the buoy, and this saves them until assistance arrives.

This buoy also could be used to mark off sand banks on a dark night with a lamp on it, as also on board a sea-going vessel in communicating between two ships in bad weather or in sending a message on shore. Its height is only 1 foot 10 inches, and diameter in the broadest part 18 inches, and it weighs only 30 lbs.

Scale 1 inch = 1 foot.



DRISCOLL'S PATENT
Life and Property Saving Apparatus.

PORT OFFICE,

Calcutta, the 28th August 1891.

I am very pleased with the buoy now that it is constructed, and I think so much of it that I shall ask the Government to adopt it in their vessels.

The life buoy is certainly an improvement upon the ordinary circular cork buoy and has the extra advantage of durability.

E. W. PETLEY,

Port Officer of Calcutta.

PORT OFFICE,

Calcutta, 14th September 1891.

I have to inform you that the Government have ordered some of your patent buoys, and I should be much obliged by your telling me if I can place the order direct with Messrs. Jessop & Co.

E. W. PETLEY,

Port Officer of Calcutta.

Shipping Office, June 16th 1891.

I have given a very careful examination of your patent buoy, it seems to me very complete, and a capital invention. Trusting it will be generally adopted and meet with every success.

H. LINDQUIST,

Deputy Shipping Master, Calcutta.

Calcutta, 23rd September 1891.

I have practically examined both the contrivances invented by you and in the case of the heavier one, a combined life and document-saving apparatus, I can confidently certify that you have succeeded in meeting a want long felt in this port, owing to the frequent total loss of Cargo Boats and other Crafts with valuable property and lives in this river; and I shall certainly suggest to the Port Commissioners the great need of some rule being enacted to enforce the use of some such appliance on cargo carrying boats with the view of saving much valuable property and lives.

As regards the life buoy, I shall strongly recommend their use on all our boats and vessels and will suggest their adoption as a necessary appliance on all dhingies, passenger boats and steam launches as also on the Hooghly Bridge and landing stages in this port.

G. H. KINGCOME,
Harbour Master.

Calcutta, the 14th September 1891.

This is to certify that I have examined a plan and model of a contrivance invented by Mr. Driscoll, for saving life and documents in sinking crafts, specially adapted for Cargo Boats, Lighters and Crafts in the river Hooghly and other rivers, and I am of opinion that Mr. Driscoll's invention is a most suitable apparatus for that purpose, and also that some such apparatus is very much wanted on board crafts in this river. There are many thousands of Dinghees, Cargo Lighters and Crafts plying within the limits of the port, besides the many thousands of country crafts plying between Calcutta and places up and down the river, and so far as I am aware not one of them has a life saving apparatus on board. To my knowledge a large number of Cargo Boats loaded with valuable cargoes sink to the bottom of the river every year within the limits of the port and go down

so suddenly that the crew has no time to save their belongings or the documents carried on board such as the Boat-notes, shipping order and Customs passes &c., &c.; those papers generally go to the bottom with the Boat, causing great inconvenience to the parties concerned and many lives are lost that might be saved if there was a good life saving apparatus on board.

Mr. Driscoll's Invention provides a life saving apparatus, having a watertight chamber for holding the usual documents and papers carried in a Cargo Boat. It occupies very little space and can be carried without inconvenience to the crew or the boat's equipment and does not take up any cargo space. In the event of the Boat capsizing or sinking the apparatus floats off and is available for life saving purposes and the Boat's papers are safe in the watertight chamber, but at the same time it is attached to the boat by a coil of small line by which the exact position of the sunken craft can be traced.

In my opinion Mr. Driscoll's invention is an excellent one and should be placed on board every Lighter or Cargo Craft plying on the river.

D. McKELLAR,
Surveyor to Lloyds' Agents.

Calcutta, the 25th September 1891.

I have looked into your drawings of Buoy and Life Buoy.

The Buoy is an invention I wonder has not been brought out before this, and for landing mails on the Coast, where a ship's boat or open boat of any kind is required it would entirely do away with any danger of loss and in any boat carrying papers of value. It would also be of use largely with Lighters or small Crafts plying on the Coast in case of collision and one of them foundering to mark the spot where she went down.

The invention is one that should be generally used.

The Life Buoy is much more convenient than the old cork life buoy and less liable to get out of order, much easier to get hold of in the water and, with the addition of a whistle at night, could be easily found.

JOHN D. ALLISON.

Superintendent of Sworn Measurers.

Calcutta, 25th September 1891.

I examined your patent Life Buoy yesterday and consider it a very useful addition to a Boat's equipment, and one of which ought to be on board of every Steam Launch and Passenger Dinghy in this River. They might also be adopted by Sea-going Steamers with one of Holme's patent lights fitted where you now have the document case; this kind of life buoy would be most valuable in the case of a man falling overboard at sea.

WM. CORKHILL,

Marine Superintendent

A. S. N. Co., LD.

BRITISH INDIA STEAM NAVIGATION Co., LD.

Calcutta, September 26th 1891.

I have seen your life saving and document saving inventions and think the life saving apparatus quite suitable except as to the whistle which I think an unnecessary addition, because the voice of a person in the water would be more likely to attract attention than a whistle, and if the person had not wind enough to cry out the whistle could not be used.

The case buoy with receptacle for papers is no doubt as efficient a means as could be devised of saving the papers of a sinking Cargo Boat.

With best wishes for the success of your venture.

J. H. ATKINSON,

Marine Superintendent.

H. M.'s. I. M. DOCKYARD,
Calcutta, 22nd October 1891.

At your request a trial of your patent Life Buoys was made here on the 20th Instant, at which I was present together with the officers of the Dockyard. They are in my opinion a success and will accomplish all you claim for them. They are excessively, light, inexpensive and easily handled, and can be manipulated in the water without difficulty by a nonswimmer, a great advantage in this respect over the present service Life Buoys.

2. I shall have great pleasure in bringing to the notice of the Director of Marine your very useful invention.

AUSTIN GWYN, CAPTAIN, I. M.,
Officiating Deputy Director Indian Marine.

CORONER'S COURT,
25th November 1891.

MR. INSPECTOR DRISCOLL,
CALCUTTA RIVER POLICE.

I HAVE much pleasure in noticing your recent invention, viz., the "Patent Life and Property Saving Apparatus." It appears, from what I can see of the apparatus myself, and from the many handsome testimonials you have already got from competent authorities in such matters, that your invention will certainly be the means of saving a large percentage of life and property which have hitherto been lost, for the want of really serviceable life-buoys. I am pleased to find that Government has already ordered some of your patent buoys, and I shall always feel glad to learn that they are universally adopted where wind and wave hold men and property at their mercy.

Your invention has come opportunely. When the Jury made their presentment in the case of Peter Geletty last September, it was felt that some good description of life-buoys should be supplied in all passenger and other vessels.

E. W. CHAMBERS,
Coroner of Calcutta.

OPINIONS OF THE PRESS.

THE ENGLISHMAN.

DRISCOLL'S PATENT BUOYS.—On Saturday morning, several gentlemen, representing some of the leading engineering firms in Calcutta, met at Koila Ghât to witness the experiments made of the life and property apparatus recently patented by Mr. John Driscoll, of the River Police. Mr. Driscoll, having had long experience on the river, has had many opportunities of observing the casualties which constantly occur for the want of proper life-saving appliances, and in consequence decided on supplying the necessary article for the purpose. About two months ago Mr. Driscoll showed his patent to the Commissioner of Police, and tried its powers before that gentleman and several others with success, and received permission to patent it. Captain Petley, the Port Officer of Calcutta, has greatly approved of the buoy, and recommended it to the Government of Bengal in the Marine Department, with the result that they have adopted the apparatus, and sent several orders. Mr. Apjohn, Vice-Chairman of the Port Commissioners, also considered the patent a good one, and has ordered that the buoys should be supplied to all pontoons and boats, belonging to the Commissioners on the Hooghly. Mr. Driscoll has also received testimonials from the Harbour Master, Lloyd's Surveyor, and the Marine Superintendents of the British India and Asiatic Companies, as to the efficiency of the apparatus. While the tide was running very strong yesterday, Mr. Driscoll accompanied by several natives, proceeded to mid stream, opposite Koila Ghât, where half a dozen of the natives jumped into the river, and the cylindrical buoy was thrown to them, and having caught on to it, they were comfortably supported till picked up. The smaller buoys were next thrown out, some supporting four men, and others three, according to the size. The smallest buoy, to support one man is a capital contrivance and very light. The cylindrical buoy, besides being a life-saving apparatus, has a water-tight compartment for holding the usual documents and papers carried in cargo boats, such as custom passes, shipping orders, boat notes, etc., which, if lost, cause great inconvenience to the parties concerned. In the event of the boat on which the buoy is placed, capsizing or sinking the apparatus floats off, and is available for life-saving purposes, the boat's papers being safe in the air-tight chamber. At the same time it is attached to the boat by a coil of small line, by which the exact position of the sunken craft can be traced. These life buoys are much more convenient than the old cork contrivance, and being made of copper and steel, are less liable to get out of order. A whistle is also attached to each buoy, which enables the rescuers at night to tell the position of the man in the water. The cylindrical buoy can also be used for the purpose of communication between two ships when the weather is so bad at sea that no boat can live and no voices be heard. The papers are put into the buoy and let go, and are picked up by the other vessels. Similarly in the case of a vessel sinking at sea, the buoy will shew in what latitude and longitude the vessel has sunk. The apparatus taken all round is a complete success. Two of the life-saving buoys have been placed on a stand at Koila Ghat already, the stand being so placed as to act in some measure as a railing to the pontoon. The life buoys are a very useful and necessary addition to a boat's equipment.—1317
October, 1891.

DRISCOLL'S PATENT BUOYS.—Yesterday morning a large number of spectators, among whom were Mr. A. B. Barnard, Deputy Commissioner of Police, Captain Richards, Government Engineer for the Calcutta Circle and several gentlemen representing the firms of Messrs. Gillanders, Arbuthnot, George Henderson, and Gladstone, Wyllie, were present to witness another trial of these buoys. The party went down the river in the Police launch *Beatrice* and two boats. When in mid stream, the buoys were thrown to men in the water, and proved as successful as on the former occasion. The old circular cork buoy was then tried, which proved a failure, submerging the men for some time. An idea has been suggested of placing a lamp on the cylindrical buoy occupying the safety chamber. This is intended to mark off sand banks and shoal water in our rivers at night, and Mr. Driscoll has already thought out and provided for the innovation. There is no doubt that this idea will take, as the boats which at present do the duty are rarely to be seen. The Port Commissioners would do well to adopt these buoys for the Hooghly Bridge, where they are an absolute necessity, considering the many accidents that do occur, and are liable to occur there. All the spectators expressed themselves well satisfied with the buoys, and agreed that a long-felt want had been met.—19th October 1891.

DRISCOLL'S PATENT BUOYS.—Yesterday morning, at the request of Captain Gwyn, R.N., Deputy Director-General, Indian Marine, another trial of these buoys took place in the Tidal Basin of the Kidderpore Docks, and proved as successful as the preceding ones. Among the visitors present to witness the experiments were Messrs. R. Watson, Constructor in charge of the Government Dockyard, G. G. Ross, Marine Storekeeper, Captain Jones, Commander of the Government steamer *Resolute*, and several other officials, as well as some of the leading members of the large mercantile houses in the city. The cylindrical buoy underwent a severe test, nine men clinging to it, but the buoy was equal to the strain, and supported the men with ease. All the buoys then underwent tests in every possible shape, and at the conclusion of the experiment Captain Gwyn expressed himself thoroughly pleased with the patent, as did all the other gentlemen present. These buoys have now been tested in the presence of almost all the leading nautical men in Calcutta, and they have unanimously pronounced them a complete success and a vast improvement on the old cork contrivance.—22nd October 1891.

EDITORIAL.

It is probable that the old circular buoys, mis-named life-saving appliances, will soon be a thing of the past. Mr. Driscoll's ingenious inventions have been so generally approved by experts in Calcutta that their general introduction can be only a matter of time. The Bengal Government and the Port Commissioners have already placed orders with Mr. Driscoll for several specimens of the new invention, and in view of the excellent results obtained at the recent trials on the Hooghly it is unlikely that their use will be confined to Calcutta. The smaller of the two contrivances is dumb-bell shaped and calculated to support two men. The larger, in form of a truncated cone will not only support six men, but by an ingenious water-tight arrangement can be used also for the storage of papers and valuables. The buoy

moreover, has this advantage over any pattern hitherto invented, that it can be so attached to a ship as to indicate the position of a vessel if the latter should become a wreck. It is conceivable, for instance, that had the *Thunder* been supplied with buoys of this pattern her whereabouts would have been discovered within a few days of the catastrophe in which she perished. The more recent instance of the *Retriever* is another case in which Mr. Driscoll's new patent would have proved invaluable. In addition to its extreme lightness the smaller of the two buoys has a very noteworthy advantage over the obsolete circular pattern. Owing to the peculiarity of its shape it cannot only be projected to a greater distance, but on striking the water it offers less resistance, and consequently travels much further. It may confidently be hoped that Mr. Driscoll's inventions will go far to reduce the mortality from drowning not only in the Hooghly, but throughout the world.—24th October 1891.

THE INDIAN DAILY NEWS.

LIFE AND PROPERTY SAVING APPARATUS (DRISCOLL'S PATENT.)—On Saturday several gentlemen were present on the Koila Ghat pontoon to witness the testing of some contrivances invented by Inspector J. Driscoll, of the River Police, for the purpose of saving life and documents from sinking crafts, and also marking the position of wrecks. Inspector Driscoll has had a long experience of the Hooghly, where accidents to cargo and passenger boats are almost of daily occurrence, by which, in many instances, lives are lost, and boats with valuable cargo are sunk, and being carried away by the strong under current, are scarcely ever found and recovered. The inspector has given his attention to inventing an apparatus for saving life and property and has completed what he considers to be an improvement on the old cork life-buoys. Two of his buoys were tried about two months since in the presence of Mr. J. Lambert, Commissioner of Police, and a party of ladies and gentlemen. Having got to the worst part of the river, abreast of Prinsep's Ghat, the two buoys were thrown in the middle of the stream, and were found to work remarkably well. Mr. Lambert and the other gentlemen who were with him advised Mr. Driscoll to apply for a patent. This he has done, and the papers are at present before Government. Finding he had succeeded so well Inspector Driscoll showed his contrivances to the principal nautical gentlemen of the port, who all highly approved of the invention. Captain Petley, Port Officer, referring to the buoys says he is "very pleased" with them, and has recommended the Government of Bengal to adopt them for all Government vessels, and several of these buoys have been ordered for the purpose. Mr. Apjohn, Vice-Chairman, Port Commissioners, has also given orders for a large number of the buoys for boats and other vessels belonging to the Commissioners, and for the pontoons along the river bank. Mr. H. Lindquist, Deputy Shipping Master, considers the contrivance to be "very complete and a capital invention." Mr. G. H. Kingcome, Harbour Master, writing of the combined life and document saving apparatus, certifies that Mr. Driscoll has "succeeded in meeting a want long felt in this port owing to the frequent total loss of cargo boats and other craft with valuable property and lives in this river." As regards the life buoys, he says, I shall strongly recommend their use on all our boats and vessels and will suggest their adoption as a necessary appliance on all *ninghies*, passenger boats and steam launches, as also on the Hooghly Bridge and landing stages in this port." Mr. D. McKellar, surveyor to Lloyd's agents, is of opinion

that Mr. Driscoll's invention is a most suitable apparatus for saving life and documents in sinking craft." He considers that the invention is an excellent one and should be placed on board every lighter or cargo craft plying on the river. Captain W. Corkhill, Marine Superintendent, Asiatic Steam Navigation Co., considers the buoy to be "a very useful addition to a boat's equipment, and one which ought to be on board every steam launch and passenger dinghy in the river." Captain J. H. Atkinson, Marine Superintendent, B. I. S. N. Co., thinks "the life saving apparatus quite suitable," and that "the case buoy with receptacle for papers is no doubt as efficient a means as could be desired of saving the papers of a sinking cargo boat." This apparatus is a cylindrical shaped buoy with a water-tight compartment for papers. A swivel at one end has attached to it a coil or line, the other end of which is fastened to the boat or launch. The buoy sits on its own coil, and can have the number of the boat and name of owner painted on the outside. In case of a vessel meeting with an accident and going down, the buoy floats off and marks the position of the wreck and whenever the wreck drifts the buoy goes along with it. Besides it is of sufficient buoyancy to keep seven or eight persons afloat till they can be picked up. It can also be utilised for sending communications from a ship to the shore, for which purpose the Government of Bengal have ordered several of the buoys. On Saturday two of the cylindrical buoys (one of copper weighing 22lbs., and the other of steel weighing 40lbs.), were thrown in the middle of the steam off Kolia Ghat, with a strong tide running. The copper one kept five men afloat by just holding on to an appliance attached to it for the purpose. The steel one had six men hanging on to it. Both could apparently have kept up one or two more. When the buoys were brought ashore the water-tight compartments were found to be perfectly dry. The life buoy is made of two copper balls attached to a copper or wooden bar. To this three men held on, and were kept afloat. These buoys weigh 14 lbs. each. A smaller one on the same principle, intended for one man, was also tested and found to be quite suitable for the purpose. The life buoy have already been brought into use by the Port Commissioner who have placed some of them on the landing stages and pontoons. Messrs. Ralli Bros. have given orders for several of the cylindrical buoys for their cargo boats and other river craft. The copper cylindrical buoys can be made at a cost of Rs. 80 and the steel ones for Rs. 50. The large size life buoys, with copper bar, costs Rs. 20 each, and with wooden bar Rs. 15 while the small ones with copper bar can be made for Rs. 12. A whistle is attached to the bar by which a person holding to the buoy can direct attention to his whereabouts in a fog or at night.—12th October 1891.

DRISCOLL'S PATENT LIFE BUOYS.—Another trial of these buoys was made yesterday in the presence of a large number of spectators, among whom were Mr. Barnard, Officiating Commissioner of Police, and several gentlemen from the leading mercantile firms, Messrs. Gladstone, Wyllie and Co., George Henderson and Co., and Gillanders, Arbuthnot and Co., being represented. Captain Richards and the Government Engineer for the Calcutta Circle were also present. The party went out to the centre of the river in two Police boats, and the steam launch *Beatrice*, and the buoys again proved an eminent success in every way. The old circular buoy was tried as against Driscoll's patent, and the former proved, as it has repeatedly done, an absolute failure. The idea has been suggested of placing a lamp on the cylindrical buoy, occupying the safety chamber for ship's documents; this alteration is intended to mark off

sand banks and shoals in our inland rivers at nights, and should prove of great use to the India General and River Steam Navigation Companies, as well as to railway ferries. Mr. Driscoll has already thought out and provided for the innovation. The boats at present employed to show a light over shallow spots at night are conspicuous by their absence in rough weather, when they are most required.—19th October 1891.

DRISCOLL'S PATENT BUOYS.—Captain A. Gwyn, R.N., Deputy Director, General of Indian Marine, had a trial yesterday morning of the life and property saving apparatus invented by Inspector Driscoll, of the River Police. The buoys were tested in the tidal basin at the New Docks, in the presence of Captain Gwyn and a large number of officials, among whom were Captain P. Jones, of the I. G. steamer *Resolute*, Messrs. R. Watson, Constructor, Government Dockyard, and G. G. Ross, Marine Store-Keeper, Government Dockyard. The buoys passed severe tests very successfully.—22nd October 1891.

EDITORIAL.

We have already noticed the experiments that have been made in the river and the docks to test the capabilities and efficiency of Mr. Driscoll's new buoys. Though to look at they seem to be little more than toys, there is no doubt they are capable of very extensive use; and, as in many other cases, the wonder is that things so simple have not been invented and used before. The number of lives lost in the Hooghly is far greater than is supposed; and there is no doubt that many of these might be saved by such means as Mr. Driscoll's buoys. Nothing more or better than the old cork disc with a hole in it seems to have been thought of for years. And even that imperfect and perishable as it is, has done good service. But how many, or how few, of the hundreds of vessels on the river have even this primitive appliance on board? Apart from the possibilities of saving life, the wreck buoy that Mr. Driscoll has invented would soon repay its cost to the owners of boats. When these are sunk, events of almost daily occurrence, there is seldom much chance of recovering the boats or whatever they may contain, because they cannot be found. But with such appliances as are now available at what in such cases may be deemed a nominal cost, the position of sunken boats may be found at once. The Government and the Port authority should see to the general use of these appliances even where the self-interest of owners of boats is overborne by the conservative instinct of going on in the old ways. These buoys may be large or small according to probable requirement, and they will assuredly tend to the saving of life and property in the degree in which they may be adopted, here or elsewhere.—23rd October 1891.

THE INDIAN MIRROR.

A NEW INVENTION IN LIFE-BUOYS.—Inspector Driscoll's recently invented Buoy was last Sunday morning successfully experimented upon in the river off Koila Ghât, in the presence of Mr. A. Barnard, Deputy Commissioner of Police and several representatives of the mercantile community. The party proceeded in a steam launch, as far as mid stream, preceded by boats containing the buoys in charge of Mr. Geo. Griffiths.

an Engineer and Boiler-maker, and here they were thrown out into the water, eight of the crew jumping after and supporting themselves from seemingly sinking condition by clinging to the buoys in a style which showed the ease with which a ship-wrecked man could keep himself afloat till assistance was rendered him. The utility of this new invention will be seen from a certificate granted to the inventor, by D. McKeller, Esq., Surveyor to Lloyd's agents, who says, Mr. Driscoll's invention provides a life-saving apparatus, having a water-tight chamber holding the usual documents and papers carried in a cargo boat. It occupies very little space and can be carried without inconvenience to the crew or the boat's equipments and does not take up any cargo space. In the event of the boat capsizing or sinking, the apparatus floats off and is available for life-saving purposes and the boat's papers are safe in the water-tight chamber, but at the same time it is attached to the boat by a coil, or small line, by which the exact position of the sunken craft can be traced. Mr. Driscoll's invention is an excellent one, and should be placed on board every lighter, cargo, and every passenger craft plying on the river, not one of which at the present day has a life saving apparatus on board. These buoys are of two descriptions one for the preservation of life, and the other for the combined preservation of life and valuable documents. The former is composed of copper and the other of steel or iron. The sizes of these buoys also differ—one will hold eight persons, the other two and the third one. The beauty of these latter is that the person or persons using them has his hands quite free to signal for help or wipe the water off his face, after being momentarily immersed. Too much cannot be said, or written, of this remarkable invention, for which a patent has been granted. The Port Commissioner, we understand, have in view the purchase of this specification, and they would greatly profit by them if they did. The *manji* of every craft in the river should be made to carry one or more of these buoys with them, when we come to consider how many lives have been lost for the want of such an appliance, and how many lives may now be saved. This invention is a unique one, and supplies a *desideratum* long felt. The experiment lasted for over an hour and everyone left well pleased with their sights and experiences, wishing the inventor, Mr. Driscoll, the success his invention deserves.—20th October 1891.

Pam. 9

Antiquities

No. 21

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A Treatise
ON
MARINE ARCHITECTURE,
&c. &c. &c.



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Pam
A Treatise

ON

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MARINE ARCHITECTURE,

ELUCIDATING

The Theory of the Resistance of Water ;

ILLUSTRATING

THE FORM, OR MODEL, BEST CALCULATED TO UNITE VELOCITY, BUOYANCY, STABILITY, AND STRENGTH IN THE SAME VESSEL ;

AND FINALLY

ADDUCING THE THEORY OF THE ART OF SHIP-BUILDING.

—♦—
BY

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Of the Country Service.

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CORRIGENDA.

- P. 4. l. 17. *for* "Panlany," *read* "Panlang."
26. l. 15. *for* "de Baut," *read* "de Buat."
36. l. 16. *for* "other," *read* "their."
44. l. ult. *for* "evidenced," *read* "evinced."
48. l. 5. *for* "steer," *read* "other."
51. l. 13. *after* "this," *insert* "accident."

PREFACE.

LEAVING to others the office of tracing the origin and progressive advancement of Marine Architecture, sufficient remains to be done to describe the properties which vessels must necessarily possess to be perfect sea boats; to elucidate and explain the manner of obtaining these properties; and, finally, to unite them in the same vessel, that each may be predominant without deteriorating from the others.

Of the many writers who have written on Marine Architecture, no two of them have agreed in proportioning the breadth to the length, or the depth to either breadth or length—or in placing the extreme breadth, the centre of gravity, of displacement, and

of lateral resistance or rotatory motion,—the position of the masts,—nor on the form best adapted to produce velocity, buoyancy, or natural stability; much less on the model or form best adapted to unite the above properties or qualities in the same vessel, which is proved by the variation in every succeeding vessel built. Their nearest agreement has been to determine, that the “breadth should be one third or one fourth the length, and that the extreme breadth ought to be before the midships of the ship.”

The obscurity in which the true principles of Marine Architecture continue to be involved, may be attributed,

1st. To the disinclination of builders to communicate freely with experienced seamen. And,

2dly. To the mode of admeasuring vessels to obtain their register tonnage, whereby ship-owners and ship-builders are interested in constructing ships after one form

or model, namely, that form which enables the vessel to carry one third to one half more cargo than its register tonnage; with the view to evade that proportion of the tonnage, and light and harbour dues, and to sail their vessels with a proportionable smaller crew. While, therefore, improvements are obstructed by professional prejudices or interested motives, or theories consulted that are founded on erroneous or narrow principles, it will be next to impossible to extricate the rudiments of this noble science from their present obscurity.

To have a just idea of the theory of Marine Architecture, the mind must be divested of professional prejudices; the laws and the causes of resistance of water must be carefully investigated; and in fact we must

“ E’en follow nature, of each art the soul :

“ Parts answering parts, shall glide into a whole,

“ Spontaneous beauties all around advance,

“ Start e’en from difficulty, strike from chance,” &c. &c.

A fish, for example, conveys a good idea of the form of a vessel intended for velocity ; but it gives no idea of that of stability or buoyancy, qualities that are indispensible for the safety of a vessel.

On the other hand, the form of the albatross, the duck, and other water fowls, gives a good idea of the form best adapted for buoyancy, but no idea of that of velocity.

As, however, a vessel is not required to have the same degree of velocity as the fish, the practicability may be conceived of reconciling in some degree the form of the albatross to that of the fish, and thereby unite in the same vessel the two most essential qualities, namely, velocity and buoyancy.

A vessel calculated to keep on an enemy's coast with all winds, or to work off a lee shore, must have good hold of the water, and therefore be deep in the water to hold a good wind ; whereas a vessel intended to navigate in shallow water, or to take the ground,

must have a flat and a long floor, and therefore be shallow, in order to draw the least water, and to avoid straining when she lies on the ground.

Nature formed flat fish to lie securely on the bottom, and to inhabit rivers and shallow water; whereas the dolphin and other fleet fish that inhabit the sea, are formed deep, doubtless to add to their velocity.

The perseverance with which writers on Marine Architecture have endeavoured to give the same properties to vessels that are intended for different purposes, has much impeded the advancement of the art; and when to this be added the notorious prejudice and adherence of ship-builders to old habits and customs, we need not be surprised to find them governed in the form or model of the vessel to be built, either by precedent, caprice, or convenience, and that this noble art has not advanced one step beyond practice.

Chapman, in his celebrated work on Marine Architecture, translated in 1820, by Professor Inman, is constrained to confess :
“ The construction of a ship with more or
“ less good qualities, is a matter of chance,
“ not of previous design : and it hence fol-
“ lows, that so long as we are without a good
“ theory on ship-building, and have nothing
“ to trust to beyond bare experiments and
“ trials, this art cannot be expected to ac-
“ quire any greater perfection, than it pos-
“ sesses at present.

“ It becomes a matter of importance, then,
“ to discover what may bring this know-
“ ledge to greater perfection. Seeing that
“ ships, the proportions of which lie within
“ the same limits, nay, which have the same
“ form, differ greatly from each other in re-
“ spect to their qualities, and even that with
“ a small alteration in the form, a ship ac-
“ quires a quality immediately opposite to
“ the one we wish to give it, we must con-
“ clude this arises from certain physical

“ causes; and that the art of constructing
“ ships cannot be carried to greater perfec-
“ tion, till a theory has been discovered
“ which elucidates these causes.”

It must be manifest to every amateur, nay, even to the most superficial observer on Marine Architecture, that while the theory of resistance of water (the foundation of Marine Architecture) remained unknown, the Theory of Marine Architecture would remain undiscovered, neither could the art be much improved by the writings of our ablest mathematicians. Hence Euler's elaborate work on the construction and properties of vessels failed to afford the improvements in the art, which the author and translator evidently contemplated. In page 93 and 94 of that work, is the following remark relative to resistance:--
“ But as the theory of resistance which we
“ have hitherto considered, must be allowed
“ to be very defective, and that we cannot
“ entirely depend upon the conclusions

“ which are drawn therefrom, we may well
“ spare ourselves the trouble of such diffi-
“ cult researches. For although we have
“ already supposed that the simple pres-
“ sures which the body of a vessel sustains
“ when in motion, do mutually destroy each
“ other, yet we are certain this can only
“ happen when the vessel is at rest, since
“ the water behind the vessel must follow
“ and overtake it before any pressure can
“ be exerted : it is therefore evident, that
“ the pressure upon the aft part cannot be
“ so great when the vessel is in motion, as
“ when it is at rest ; whilst the pressure up-
“ on the fore part will nearly be the same
“ in both cases. From whence it follows,
“ since the pressure upon the fore part is
“ no longer counterbalanced by that upon
“ the aft part, the effect of this resistance
“ must necessarily be increased ; and this
“ increase will by this means be so much
“ the more considerable, as the velocity of
“ the vessel becomes greater : and however

“ little consideration we may employ upon
“ this matter, we may easily conceive that
“ this increase must depend principally
“ upon the figure of the aft part of the ves-
“ sel, which we have hitherto entirely ne-
“ glected. On this account it appears very
“ probable, that notwithstanding all our en-
“ deavours to determine the exact resist-
“ ance, we may perhaps still vary consi-
“ derably from the truth.” And in a more
recent work on resistance, (Robison’s Me-
chanical Philosophy,) the author concludes
by observing:—“ Thus have we attempted
“ to give our readers some account of one
“ of the most interesting problems in the
“ whole of mechanical philosophy. We
“ are sorry that so little advantage can be
“ derived from the united efforts of the first
“ mathematicians of Europe, and that there
“ is so little hope of greatly improving our
“ scientific knowledge of the subject. What
“ we have written will, however, enable our
“ readers to peruse the writings of those who

“ have applied the theories to practical purposes. Such, for instance, are the treatises of John Bernoulli, of Bouger, and of Euler, on the construction and working of ships.”

My object in adverting to these remarks on resistance, is with the view to unbias the reader's mind, and at the same time to give him some idea of the obscurity and difficulty of the subject.

After twenty years experience and close observation on the properties of various vessels, under every circumstance, at sea, I became convinced of the causes which more or less affected their good or bad qualities. This conviction impelled me to investigate and comprehend the laws of fluids ; and this again led to the important discovery of the predominant cause of resistance, which retards the velocity of all bodies when they are passed quickly through the water.

The following Treatise commences with a concise account of the laws and resistance of fluids, which the avocation of a seaman but little qualifies him to elucidate in a pleasing or agreeable style. It then proceeds to elucidate and explain the causes that produce, or which more or less affect the good qualities in a vessel,—reconciles those causes on theoretic principles,—and finally demonstrates the principles of the art of constructing vessels, in so plain a manner as to render the subject easy of comprehension to every reader.

From the various kinds and various forms of vessels that navigate the Indian seas, and from the cordial interchange of liberal opinions and sentiments between gentlemen of different professions, more especially those of ship-building and seamanship, there is no part of the world better qualified to appreciate the observations and remarks contained in the following sheets than India. If, therefore, this effort to improve the art of

CHAPTER I.

Of the Laws of Fluids, particularly Water.

1st. “**W**ATER presses with equal force
“ in every direction,” and its degree of
pressure is in proportion to the distance
from its surface.

The great Dr. Halley says, “ That the
“ pressure of the water at thirty-three feet,
“ pressed the natural air into half its space
“ in his diving-bell;” and by many experi-
ments made by Captain Hutchinson, it ap-
pears, that “ the pressure of water upon
“ bottles of different shapes, corked up with
“ nothing in them but common air, was as
“ follows :—Two common square flat-sided
“ bottles, which would hold three half pints
“ each, broke at the depth of between six
“ and seven fathoms ; but two oval formed

“ Florence flasks, of nearly the same size,
 “ bore the pressure to about fifteen fathoms.
 “ A round common quart bottle broke only
 “ at about twenty-eight fathoms. It seems,
 “ at a great depth, few things that are made
 “ hollow and tight, will bear the water’s pres-
 “ sure: an instance of which has been seen
 “ by a ship that drove off the bank in Gibralt-
 “ ar Bay, into water so deep, that the an-
 “ chor would not reach the ground at a hun-
 “ dred fathoms; and when hove up, it was
 “ found that two new nun-buoys had their
 “ sides crushed inwards by the water’s pres-
 “ sure.”

2dly. “ All floating bodies displace as
 much water as is equal to their weight,” and
 are subject to the same laws as the quantity
 of water would have been which such bodies
 have displaced.

Fill any vessel with water, and place it in
 a scale with an equal weight in the opposite
 scale, then place any floating body in the
 water, and it will be seen to displace a quan-
 tity of water equal to its weight.

Place models of different shapes (from
 the wedge to the wedge reversed) in a line
 abreast of each other, in a stream that runs

to a waterfall, and they will be seen not only to descend with the stream, and form every curvature with the eddy water, but they will be seen to fall in rotation, according to the fulness of the advanced end or bow, and this because of the greater quantity of water displaced by the advanced end.

3rdly. Water runs to its level, or into a vacuum, at a determined velocity, according to the pressure of the surrounding fluid.

All fluids possess a natural velocity, according to their density or cohesion. This will be seen, by pouring several fluids of different densities down an inclined plane at the same instant; suppose tar, oil, molasses, water, &c. when the fluid which possesses the greatest degree of cohesion, adhesion, or attraction, will be seen to run with the least velocity. The adhesive power of water is evident, by the quantity that may be dropped into a glass, after the water is level with the rim of the glass; and again, by the number of small particles of rain that compose a large drop, before the latter descends from any intercepting body: on this principle the phenomenon is accounted for, of the water being several inches

above the (quarter) gunwale of a boat, when towed quickly through the water by a whale, &c.

Drop a piece of solid metal into a quantity of metal in a state of fusion, or into any fluid, and it will be seen that the vacuum thus created will require a greater or lesser time to fill, according to the density or adhesion of such fluid.

The natural flow of water is seen in every aqueduct, and is farther evinced by alternately raising the end of a tube or trough containing water. This natural flow is manifest in every river:—at the mouth of Rangoon river, where the tide rises upwards of 20 feet, it is there high water at 3 o'clock; while at Panlany, about 80 miles up the river, it is then low water, and *vice versa*. The mean velocity of the tide in this river during the year, may be estimated at three to four miles per hour; and by taking this river as a criterion, we may estimate the natural flow of water at three to four miles per hour.

4thly. The vacuum made by a body passing quickly through a fluid, is in proportion to the density of the fluid, to the velocity

with which it is passed through it, and to the fulness or squareness of the hindermost end of such body.

Move a wedge, for example, through tar or oil, with the small end foremost, at the rate of three miles an hour, or three and half feet per second, and there will be seen a large vacuum behind : reverse the wedge, and move it with its large end foremost, at the same rate, when little or no vacuum will be seen. A vacuum is seen behind a ship's rudder, when sailing fast ; also behind a boat's oar, in the act of being pulled strong. In fact, a vacuum is made by passing your hand flatways through water, or a teaspoon through a cup of tea, but much more so through a more dense fluid.

5thly. All bodies specifically heavier than water, descend to a point where the upward pressure of the water is equal to their weight.

This is demonstrated in the act of sounding in deep water, when the person that holds the line supposes the lead to be at the bottom, when no bottom is to be found : again, by the decreasing rate at which the deep sea lead descends ; and may be seen

by the distance which pieces of wax, made specifically heavier than water, will be suspended from the surface of a glass of water.



CHAPTER II.

Of the Resistance of Fluids.

“ THE theory of resistance is a subject
“ which has exercised the extraordinary
“ talents of the most distinguished mathe-
“ maticians of the last century. Neverthe-
“ less it is a subject which is as yet very
“ imperfectly known. It seems that Sir
“ Isaac Newton was the first who attempted
“ to make the motion and actions of fluids
“ the subject of mathematical discussion ;
“ yet even he, with all his genius and all his
“ science, was at length convinced that it
“ was in vain to expect an accurate investi-
“ gation of the motions and actions of fluids,
“ where millions of unseen particles com-
“ bine their influence, &c. He however
“ figured in his mind an hypothetical

by the distance which pieces of wax, made specifically heavier than water, will be suspended from the surface of a glass of water.

