

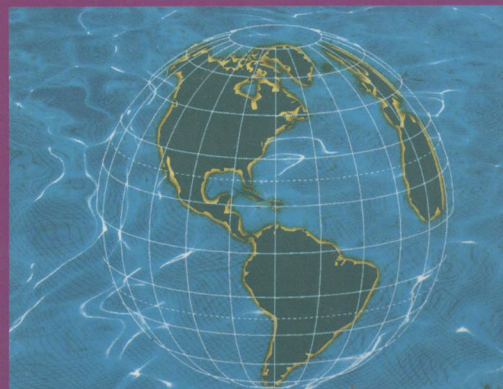
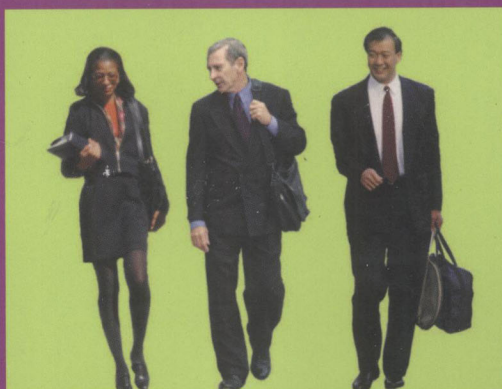


ICS

INSTITUTE OF CHARTERED
SHIPBROKERS

2010/2011 Edition

Ship Sale and Purchase

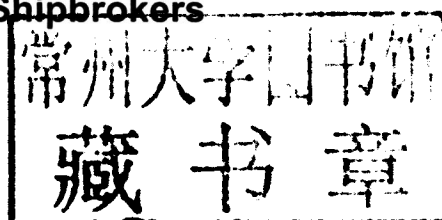


SHIP SALE AND PURCHASE



TutorShip

**The Distance Learning Programme
of
The Institute of Chartered Shipbrokers**



Published by
Witherby Seamanship International Ltd.
4 Dunlop Square, Livingston,
Edinburgh, EH54 8SB, Scotland, UK

Published for the Institute of Chartered Shipbrokers

2010/2011 Edition

ISBN 978 1 85609 375 0

© Institute of Chartered Shipbrokers

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library.

© Copyright

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher and copyright owner.

Notice of Terms of Use

While the advice given in this document ("Ship Sale and Purchase") has been developed using the best information currently available, it is intended purely as guidance to be used at the user's own risk. No responsibility is accepted by the Institute of Chartered Shipbrokers (ICS), the membership of ICS or by any person, firm, corporation or organisation [who or which has been in any way concerned with the furnishing of information or data, the compilation or any translation, publishing, supply or sale of the document] for the accuracy of any information or advice given in the document or any omission from the document or for any consequence whatsoever resulting directly or indirectly from compliance with or adoption of guidance contained in the document even if caused by a failure to exercise reasonable care.

Printed and bound in Great Britain by Bell & Bain Ltd, Glasgow



Published by

Witherby Seamanship International Ltd

4 Dunlop Square, Livingston,
Edinburgh, EH54 8SB,
Scotland, UK

Tel No: +44(0)1506 463 227

Fax No: +44(0)1506 468 999

Email: info@emailws.com

Web: www.witherbyseamanship.com

TUTORSHIP COURSE BOOKS

PREFACE

Gain a professional qualification and the knowledge to develop your career in the shipping industry by embarking on a TutorShip course of the Institute of Chartered Shipbrokers (ICS).

The Institute of Chartered Shipbrokers (ICS) is the professional body to commercial shipping worldwide. The ICS syllabus reflects the breadth and complexity of all the shipping sectors. The syllabus aims to be Relevant to and Respected by the shipping industry whilst being a Robust challenge to those candidates embarking on a career in shipping.

The TutorShip series of course books are aimed at preparing students for ICS examinations through a distance learning programme. Each course has a combination of self assessment questions and a tutor marked assignment at the end of each chapter. Additionally students are encouraged to submit a mock examination for marking. On enrolment of a TutorShip programme a student is allocated a tutor – an experienced practitioner in their sector – who will guide a student through the course by marking and providing feedback on the assignments submitted.

Although the TutorShip course books are an invaluable reference to any shipping company library their true value can only be realised by enrolling on a TutorShip distance learning programme supported by the expert knowledge of the approved tutors.

For further details on TutorShip courses please contact tutorship@ics.org.uk or visit www.ics.org.uk

SHIP SALE AND PURCHASE SYLLABUS

THE SHIP

Thoroughly understand that the knowledge of ship design and construction required of a Sale & Purchase Broker is that which is necessary to communicate effectively with a potential Buyer. Think in terms of the sort of information that a successful car dealer or real estate agent need in their respective trades.

Thoroughly understand the fundamental differences between dry bulk cargo ships, general-purpose ships, liners (container, break-bulk and Ro-Ro) and tankers, including Ore/Oil and Ore/Bulk/Oil carriers. (Students are expected to be able produce fairly detailed sketches).

Understand that Tankers sub-divide into several categories including carriers for crude oil, petroleum products, chemicals, liquid gases, vegetable oils etc.

Be aware of size ranges of bulk carriers including Capesize, Panamax, Handy-size.

Understand the purpose also basic design and construction features of decks, holds, hatches, derricks, winches cranes and other cargo handling gear. Be aware of ballasting and ballast systems.

Understand the terminology of measuring ships including:

Displacement	TEU lane metres
DWCC	LOA
DWAT	LBP
GT	Moulded Depth
NT	Draft
Bale & Grain Cube	Air draft

Understand other dimensions used in ships including freeboard, draft, moulded depth, length overall, length between perpendiculars, beam extreme breadth.

Thoroughly understand the importance of displacement (especially light displacement) tonnage in ship sales for demolition.

Understand what information is contained in General Arrangement Plans.

Thoroughly understand the basic characteristics of a ship's propulsion machinery also other machinery and equipment that may feature in ship sale negotiations.

Understand the trends in ship development especially those which are affected by legislation and/or international convention (e.g. double skinned tankers). Be aware of perceptions of future developments which may affect a purchaser's thinking.

GEOGRAPHY

Understand the location of the main areas of current shipbuilding; be aware of the size, capabilities and specialisation of the major yards. Understand the location of the major Buyers of tonnage for demolition.

Understand cargoes, trade routes and meteorological phenomena to the extent that these may influence the types and sizes of ships to be employed.

REGISTRATION AND CLASSIFICATION

Thoroughly understand the need for a ship to be **registered**.

Thoroughly understand the differences between registration in the Owner's own country (flag state) and registration in another country (offshore registration). Understand the differences between flags of convenience and "open registers" operated by traditional maritime nations.

Understand the advantages and disadvantages of each form of registration.

Be aware of the advantages both real and hoped-for arising out of the introduction of tonnage tax.

Be aware of the manner in which an S & P Broker may become involved in changing a ship's registration.

Thoroughly understand the need for a ship to be **classified** and what classification entails.

Understand the role and function of classification societies and the names of the principle societies. Understand what membership of the International Association of Classification Societies (IACS) entails. Be aware of the considerable number of real and quasi-classification societies which do not qualify for membership of IACS.

Be aware of the manner in which an S & P Broker may become involved in changing a ship's classification.

THE PARTIES INVOLVED

Understand how an S & P Broker must be able to differentiate among the different types of Shipowners – the Buyers and the Sellers – including individual entrepreneurial Owners; limited companies large and small; divisions in conglomerates; investment groups which may purchase for immediate bareboat charter to an Operator; shipping pools. Understand how their attitude in S & P negotiations may differ.

Understand the role and function of other major players in the S & P market including other Brokers; ship breakers; Charterers (for example a ship may be sold with an existing charter commitment); bankers and other financiers.

Understand the role and function of those who may become involved at the time of completion of a sale including lawyers; notaries; consuls; registrars; classification society representatives.

Be aware of the structure of a typical S & P Broker's office and the importance of record-keeping.

MARKETS

Thoroughly understand the differences and interrelationships between the markets for newbuildings, second hand tonnage and demolition. Be aware of how the information each requires differs in emphasis.

Understand what factors influence the state (firmness or weakness) of the S & P Market generally and what factors influence each of these markets particularly.

Understand what factors influence the chartering market and how these directly impinge on the second hand market and indirectly on the demolition market and how current views on the future of world economy affect the newbuilding market.

Understand the influence on markets of external factors including natural catastrophes; political crises; environmental disasters; aid programmes.

Be aware of the markets for tramps, liners and tankers and how different countries may react to different factors.

Understand the skill required to prepare and to interpret market reports including both statistical and written reports.

CONTRACTS AND DOCUMENTATION

Thoroughly understand the basic anatomy of an agreement to sell a ship and the essential differences depending upon whether it is for a newbuilding, a second hand ship or a ship destined for scrap.

Understand the existence of all the standard Memorandums of Agreement in current use. Thoroughly understand the most widely used namely **Norwegian Saleform**.

Understand that there are two Norwegian Saleforms in current use, the 1987 version and the 1993 version. NB. Because many practitioners prefer the tried and trusted to the new and improved, students should be able to compare the two versions.

Understand the intention of each clause in a saleform, be aware of the Clause numbers of the more crucial clauses.

Understand the practicalities of the inspection and dry-docking clauses and when these are customarily carried out.

Understand how to compile additional clauses when these are desirable to supplement or replace those in the printed form.

Understand the role and function of all other documentation which Buyers and Sellers normally must produce at the time of completing the sale and the legal transfer of the ship. Including safety and other compliance certificates. Be aware of the issuing authorities for these documents. Be aware of representatives of other parties whose presence or electronic contact may be required at time of handover.

NEGOTIATION

Thoroughly understand the basics of firm offer and counter offer in the negotiating process and the manner in which it is customary for the two parties each having their respective Brokers. Understand the importance of time limits in offers.

Understand how to draft an opening offer encompassing all the Principal's requirements including the wording of any clauses not covered by the printed form and which may have to be specifically compiled.

Understand how the negotiating process leads to a conclusion necessitating a recapitulation together with a completion agenda. Be aware of the various "subjects" particularly "subject inspection" which have to be lifted before the sale is finally complete.

Understand the manner in which a ship's particulars are usually compiled when placing a ship on the market for sale. Thoroughly understand that such primary information is given on a "believed to be correct but not guaranteed" basis.

Be aware of the etiquette and ethics customary among S & P Brokers including the commitment to clients when certain information has been requested and given.

FINANCE AND INSURANCE

Thoroughly understand the different ways a Buyer may raise the funds to finance the purchase.

Understand the sources of such funds and the type of information such financiers will require.

Thoroughly understand the role and function of a mortgage when used as security for a loan to finance the purchase.

Understand the procedures of leasing and bareboat chartering as methods of acquiring tonnage.

Be aware of the effect of interest rates, foreign currency and currency fluctuation on the raising of finance and servicing the loan.

Understand the manner in which the Seller's and Buyer's insurable risk changes as the negotiations progress and the importance of ensuring cover is obtained at the correct time. Be aware of the providers of insurance including the role of a P&I Club.

VALUATIONS

Thoroughly understand the duties of a valuer in ship sale and purchase be aware of the reasons for and types of bodies requiring valuations.

Understand the legal liabilities upon and protection needed by valuers. Understand how a valuation is presented with particular attention to appropriate caveats.

Understand the information upon which a valuation is based and the method of assessing a value. Be aware that it does not involve physically surveying the actual vessel.

LEGAL ASPECTS OF SALE AND PURCHASE

Thoroughly understand the legal position of the Broker in S & P and the relationship with the Principal.

Understand the principle of the Broker acting under the specific authority of the Principal and the liability likely to arise if this authority is not acted upon meticulously.

Understand what is involved in breach of warranty of authority both with and without negligence.

Understand what is implied with the words "free of all encumbrances and maritime liens".

Understand the importance of a valid Notice of Readiness and of the ship arriving within her cancelling date.

Be aware of the principle areas of dispute including alleged misrepresentation in the description of the vessel, condition of the vessel on delivery, quantity of bunkers on delivery, alleged absence of items of equipment on delivery.

Be aware that the Buyer is not obliged to give any reason for declining a ship on inspection.

Understand the Broker's right to a commission and the manner of ensuring this right is protected.

Be aware of the effect of international conventions and legislation on existing and new ships.

CONTENTS

	Preface	iii
	Ship Sale and Purchase Syllabus	v
1	THE SHIP	1
1.1	Introduction	1
1.2	Size and Tonnage	1
1.3	Cargo Categories	4
1.4	Ship Types	5
1.5	Bulk Cargo Carriers – Tankers	5
1.6	Tankers and Oil Pollution	10
1.7	Bulk Carriers – Dry Cargo	11
1.8	General Cargo Ships	12
1.9	Refrigerated Cargo Ships	13
1.10	Container Ships	14
1.11	Ro-Ro Cargo Ships	15
1.12	Passenger Ships	15
1.13	Miscellaneous	16
1.14	Types of Machinery	18
1.15	General Arrangement Plans	19
1.16	Self-Assessment and Test Questions	20
2	SHIP REGISTRATION	21
2.1	The Need for Registration	21
2.2	The Growth of 'Open' Registries	22
2.3	The Current Scene	23
2.4	The Positive and Negative Elements of Flags of Convenience (FOCs)	23
2.5	The Response by Traditional Maritime Nations	25
2.6	Ship Registration and the Ship Sale and Purchase Broker	26
2.7	Self-Assessment and Test Questions	26

3	CLASSIFICATION	27
3.1	Classification Societies	27
3.2	Other Functions of Classification Societies	32
3.3	Tonnage Measurement Regulations	34
3.4	Practical Application for the Sale and Purchase Broker	34
3.5	Classification Society Records	35
3.6	Self-Assessment and Test Questions	35
4	THE SHIP SALE (PART 1)	37
4.1	The Offer	37
4.2	The Structure of an Offer	38
4.3	Inspection and Inspection of Records	40
4.3.1	Records Inspection	41
4.3.2	Reply Time for Inspection of Vessel and Records	41
4.4	Delivery – Where and When?	41
4.5	Dry-Docking or Diver's Inspection	42
4.6	What is Included in The Price?	43
4.7	Bunkers and Lubricating Oils	43
4.8	Buyer's Crew on Board before Delivery	44
4.9	Same Condition as When Inspected	44
4.10	English Law/Arbitration London	45
4.11	With Class Maintained Free of Recommendations and Free of Average Damage Affecting Class	45
4.12	The Offer and Counter Offer	46
4.12.1	The First Counter Offer	46
4.13	Self-Assessment and Test Questions	48
5	THE SHIP SALE (PART 2)	49
5.1	Introduction	49
5.2	Concluding the Sale	49
5.3	Signature on Contracts	58
5.4	Other Sale Contract Forms	58

5.5	To Sum Up	58
5.6	Brokers' Commissions	59
5.7	Self-Assessment and Test Questions	59
6	DEMOLITION	61
6.1	Introduction	61
6.2	The Ship-Breaker's Work Place	61
6.3	The Basic Principles of a Demolition Contract	62
6.4	Selecting the Right Buyer	63
6.5	The Sale Contract	64
6.6	Other Sale Forms for Demolition	66
6.7	The Demolition Market	67
6.8	Self-Assessment and Test Questions	68
7	FINANCE, NEWBUILDINGS AND INSURANCE	69
7.1	Introduction	69
7.2	Funding the Purchase from Own Resources	69
7.3	Borrowed Money	69
7.4	Incentives to Borrowers and Lenders	71
7.4.1	Shipbuilding	71
7.4.2	Leasing	73
7.4.3	Other Methods of Finance	73
7.5	Newbuildings	73
7.5.1	The Sale Contract	74
7.6	Insurance	75
7.7	Insurance for the S & P Broker	76
7.8	Self-Assessment and Test Questions	76
8	LEGAL ASPECTS OF SHIP SALE AND PURCHASE	79
8.1	Introduction	79
8.2	The Ship Sale and Purchase Broker	79
8.3	The Broker's Commission	80

8.4	The Law and the Saleform	81
8.4.1	When Does a Binding Contract Exist?	81
8.4.2	Identifying the Parties	81
8.4.3	The Price and Payment	82
8.4.4	Inspections	82
8.4.5	Cancelling Date	82
8.5	Spares, Bunkers etc.	83
8.6	Maritime Liens and Encumbrances	83
8.6.1	At Place of Delivery	84
8.6.2	Default by Either of the Parties	85
8.7	Dispute Resolution	85
8.8	The S & P Broker's Role When Principals are in Dispute	86
8.9	Ethics Among S & P Brokers?	87
8.10	Self-Assessment and Test Questions	87
9	THE MARKETS AND THE PARTIES INVOLVED	89
9.1	Introduction	89
9.2	Shipowner Personalities	89
9.3	Dry Bulk Carriers	90
9.4	General Purpose Ships	92
9.5	Small Ships	92
9.6	Passenger Ships and Ferries	93
9.7	Obsolete Tonnage	93
9.8	Who Should an S & P Broker Know?	93
9.9	What Should an S & P Broker Know?	95
9.10	Test Questions	95
10	DOCUMENTATION AND SHIP VALUATION	97
10.1	Part One – Documents and Procedures on Delivery	97
10.2	Part Two – Ship Valuations	100
10.3	Self-Assessment and Test Questions	102
	APPENDICES	103
	MOCK EXAMINATION	164

THE SHIP

1.1 INTRODUCTION

The Sale and Purchase Broker is concerned – as an intermediary – with the selling and buying of ships and anyone intending to pursue a career in this area of shipping business, or to understand how it operates, must have a strong knowledge base in respect of the product being sold. A proper understanding of ship details is therefore an essential part of the Sale and Purchase Broker's armoury. It is important to understand fully and to memorise what is meant by the following.

1.2 SIZE AND TONNAGE

A ship can have five different tonnage measurements and it is vital when comparing one vessel with another that the same tonnage measurements are used. Most of the following measurements can be found on the ship's plans. Tonnage can be expressed in long tons (2240 lbs.) or metric tonnes (1,000 Kg). Tonnages are:

- i) **Deadweight (dwt).** The weight of cargo, stores, fuel, passengers and crew carried by the ship when loaded to her maximum permissible draught in salt water.

The abbreviation dwt will often be encountered as it stands for deadweight all told. This is to differentiate it from dwcc which refers to deadweight cargo capacity.

- ii) **Gross Tonnage (GT).** The use of the word "tonnage" here is really a misnomer as **gross tonnage** is essentially a measure of **volume**. Originally Gross tonnage was calculated at 100 cubic feet to the ton but, under the International Convention on Tonnage Measurement of Ships 1969 which came into full force in 1994, Gross Tonnage is defined broadly as the capacity in cubic metres of all the spaces within the hull, and of the enclosed spaces above the deck available for cargo, stores, fuel, passengers and crew with certain exceptions. A Gross Ton is between 2.5 and 3 cubic metres; there is a scale depending upon the ship's size which determines exactly which figure of cubic metres shall be used to calculate the **GT**.

- iii) **Net Tonnage (NT).** Is based upon the same scale as for gross tonnage as defined above but it is the interior volume less deductions for crew, engine, propelling and navigating spaces. It can be considered as a crude measurement of the revenue earning capacity of the ship. NT shall not be less than 30% of the GT.

GT and NT are not accurate measures of a ship's carrying capacity, a better method is the measure of grain and bale cubic (see later). However, GT and NT are favoured by many port authorities as a convenient measure upon which to base port dues. GT is also used when seeking to enhance the sheer size of a passenger/cruise liner.

- iv) **Light Displacement or Lightweight (ldt).** The actual weight of the vessel in long tons or tonnes. It includes full equipment plus the weight of the machinery, boilers, and spare parts, but excludes bunkers, cargo, dunnage, provisions, water and other consumables.

This is a **very important measurement** for ship sale and purchase brokers because it is a measure of the actual weight of metal (mainly steel) which is a vital figure when a ship is being sold for demolition.

- v) **Displacement.** This represents the total weight of the ship and everything on board. The volume of water displaced will vary according to whether it is salt water or freshwater but not enough to make much difference. This tonnage is **not** used for merchant ships but **always** for warships.

Capacity

Another important measurement of merchant ships is that of the actual volume of the holds. This is because many cargoes are so light that the ship can be physically full before being loaded down to her permissible draught. There are two such measurements, Grain capacity and Bale capacity which can be expressed in cubic metres or cubic feet.

Grain capacity is the volume of cargo spaces measured to the outside of frames, to the top of ceiling and to the top of beams, including hatchways (insulated spaces are not included). NB the word "ceiling" in maritime terms means the **bottom** of the hold, **not** the part overhead.

Bale capacity extends to the inside of cargo battens and to underside of beams. The names become self explanatory when one considers the fact that a bulk cargo such as grain can flow around beams and frames and fill every part of the hold whereas cargo which comprises individual pieces (such as bales) will not be able to flow into spaces between frames etc.

TEU This is the customary method of referring to the carrying capacity of a container ship; the initials stand for Twenty Foot Equivalent Units. Despite widespread standardisation of metric measurements in the maritime world, because containerisation began in the USA, which still retains pre-metric standards of measurement, freight containers are referred to in feet and inches. Except for specialist units, containers are either 20 feet or 40 feet long by 8 feet wide and 8 feet 6 inches high. A 20 foot container is one teu and a 40 foot container, two teus. Occasionally one may encounter reference to FEUs (forty foot equivalent units).

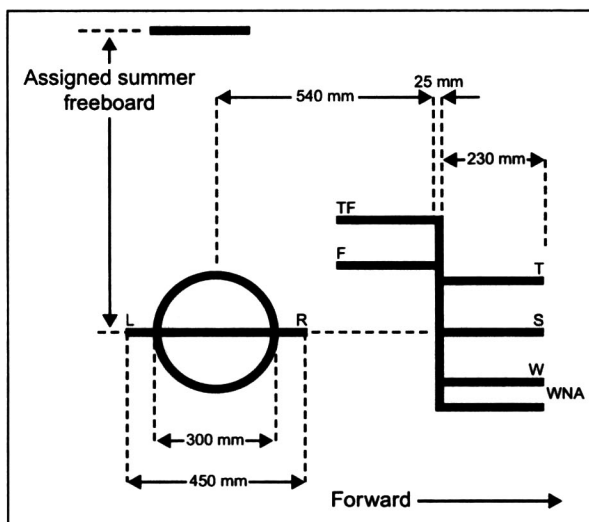
Lane Metres (LM) This is the manner in which ships designed to carry wheeled cargo are measured. These include car carriers and Roll-on Roll-off (RoRo) ships and as the name implies, it is measure of the length of the lanes in the cargo decks. In the case of car carriers one would need also need to know the headroom to get a meaningful measure of the ship's carrying capacity.

Freeboard

Reference has already been made to 'permissible draft' (this may also be spelled **draught**) but it is the **freeboard** with which the international safety authorities are concerned. Freeboard is the vertical distance between waterline and the uppermost continuous deck equipped with permanent means of closing all openings which are exposed to the elements. The waterline is that which is dictated by the **load line**.

Load Line

By international convention, all merchant ships must be marked with a load line. The upper edge of this line indicates the maximum permissible draught. The load lines – known as the **Plimsoll Mark** – are set off amidships, on both sides of the ship, at specified distances below a deck line thus:

Diagram 1.1

TF = Tropical Fresh Water F = Fresh Water T = Tropical
 S = Summer W = Winter WNA = Winter North Atlantic
 (Except where stated the marks refer to normal salt sea-water)

The reason for the variations is that the more severe the expected weather, the greater the amount of freeboard that is needed for safety. Thus WNA (Winter North Atlantic) being the area of the most treacherous weather is where the greatest freeboard is required.

The upper edge of the summer line, if continued, passes through the centre of the load line disc and is the basic line.

On the line you will see the initials LR which relate to the classification society which surveyed the ship to determine the positioning of the mark. In this case the LR relates to Lloyds Register, but there are many more such as AB (American Bureau), BV (Bureau Veritas), RI (Registro Italiano) and so on.

Light Draft (draught)

The vessel's draft at light displacement is called "light draft".

Suez and Panama Canal Tonnage

Both of these authorities have their own rules for the measurement of gross and net tonnage and ships using the canals are charged on these tonnages.

Moulded Depth

The vertical distance amidships from the top of the keel to the top of the upper deck beam at the side.

Overall Length (l.o.a.)

The extreme length of the ship. When the overall length is followed by the notation (BB) it indicates that the ship has a bulbous bow and the overall length includes that bow.

Length B.P (between perpendiculars)

The distance on the summer load waterline from the fore side of the stem to the after side of the rudder-post, or to the centre of the rudder stock if there is no rudder-post.

Extreme Breadth

The maximum breadth to the outside of the ship's structure and in paddle ships includes the paddle boxes.

Moulded Breadth

The greatest breadth amidships from heel of frame to heel of frame.

Scantlings

All structural parts such as frames, beams, shell plating, bulkheads used in the construction of ships are covered under this heading. The classification societies have fixed rules and tables for the construction of steel ships, which must be observed by shipbuilders in order to obtain the required certificates.

Air Draft

This is an unofficial measurement but one that S & P Brokers may encounter. It is the measurement from the waterline to the ship's highest point (usually the top of a mast). Its importance comes into effect in trades which involve negotiating waterways where bridges may be a problem.

1.3 CARGO CATEGORIES

A general understanding of different cargo categories and the cargo-handling modes should be considered before a study is made of the various types of merchant ships involved in their carriage.

Cargo categories may be defined as follows:

- i) **GENERAL CARGO** – diverse types and forms of cargo (which may be carried simultaneously or alternatively depending upon the ship's trading pattern). General cargo often involves manufactured or semi-manufactured goods.
- ii) **CONTAINER CARGO** – cargo carried in purpose-built cargo containers constructed according to ISO container standard dimensions and strength requirements.
- iii) **RO-RO CARGO** – general cargo which can be loaded/unloaded to or from cargo decks; in/on wheeled vehicles; cargo loaded or unloaded by wheeled transport (e.g. fork lift trucks, tractor units).
- iv) **BULK CARGO** – liquid or loose cargo (of a homogeneous nature) which is not in any form of packing within the ship's tanks/holds.

Cargo Handling Modes may be defined as follows:

LIFT-ON/LIFT-OFF – the loading/unloading of dry cargo by the ship's own derricks/cranes, or by shore-based cranes or gantries.

ROLL-ON/ROLL-OFF – the loading/unloading of cargo by way of the ship's doors/ramps (and in conjunction with shore-based cargo handling facilities).

PUMP-ON/PUMP-OFF – the loading/unloading of liquid cargo by way of shore based/ship based pumping and pumping equipment. Almost invariably the shore facilities pump the cargo IN and the ship pumps the cargo OUT.

FLOAT-IN/FLOAT-OUT – the loading/unloading of floating cargo by way of either the ship's bow door or the ship's stern door/ramp, whilst the ship is in a semi-submerged state.

FLOAT-ON/FLOAT-OFF – the loading/unloading of floating cargo to/from the ship's weather deck cargo space whilst the ship is in a semi-submerged state.

SPECIALISED HANDLING – with the growth of modern technology a wide variety of highly specialised equipment has evolved which may include one or more of the main modes of cargo handling. For example, coal and ore may be discharged by an "Archimedes Screw" device which feeds a conveyor belt. Bulk grain may be discharged by suction or by a system

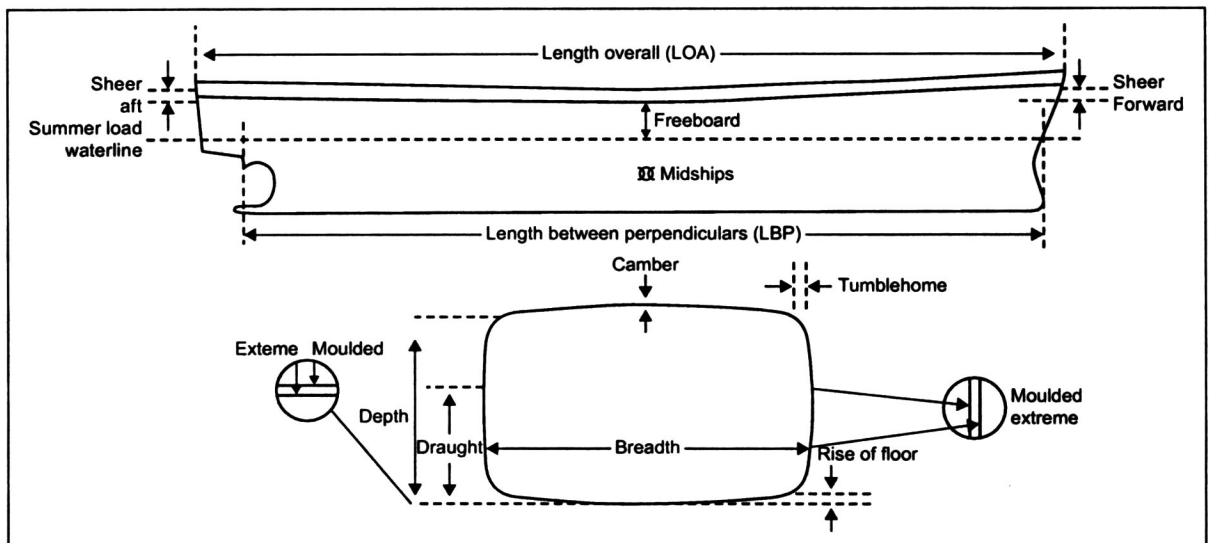
of dredger type buckets feeding a conveyer into the grain elevators. Some modern bulk carriers designed for a particular trade (e.g. coal) are “self-unloaders” having the discharging equipment as part of the on-board equipment.

1.4 SHIP TYPES

Refer to **Appendix 1** and locate the profile of each of the ships described below. In some cases the sketches include arrows showing the manner in which the cargo is loaded.

When considering ship types it is important to have a clear mental picture of the vessel concerned and the best way to do this is to develop the skill of producing sketches. The basic points to display in such a sketch can be seen from the following outline.

Diagram 1.2 – A Basic Ship Type



1.5 BULK CARGO CARRIERS – TANKERS

Tankers are designed for the carriage of oils, chemicals, liquefied gases, edible liquids (e.g. vegetable oil, wine, orange juice etc) fresh water and other liquids. They are almost invariably described in terms of deadweight tonnage (dwt) because this is the basis on which they are chartered.

The cargo-handling mode for tankers is pump on/pump off. Almost invariably shore pumps are used for loading and the ship's own pumps for discharging, this is because pumps are far less efficient 'sucking' than they are pushing.

Tanker types include **Oil Tankers** – for the carriage of crude oil, refined petroleum products and similar flammable liquids. The pattern of the oil trade is for the **crude oil** to be loaded near the point of production (the oil wells) and taken to refineries near the areas of consumption. It has, therefore been possible for oil companies to take full advantage of economies of scale in connection with the size of crude carriers and S & P brokers will encounter the term VLCC (Very Large Crude Carrier) and ULCC (Ultra Large Crude Carrier). Both VLCCs and ULCCs can sometimes be described as “Capesize” because they are too large to transit either the Panama or the Suez Canals and thus have to be routed round Cape of Good Hope or Cape Horn.