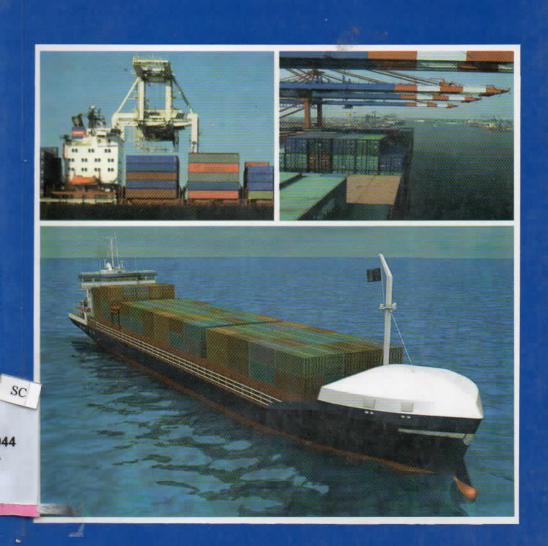
CARGO HANDLING AND STOWAGE 1

(Carriage of Non-Dangerous Goods)



Florencio D. Cosare

TABLE OF CONTENTS

Foreword	iii
Preface I was a series for the property of the series of t	vi
Chapter 1 – Dry Cargo	
1.1 How to Conduct General Inspection of Cargo Hold	1
1.2 Why Cleaning of Holds is Carried Out	4
1.3 The Reasons for Using Dunnage	7
1.4 How to Conduct Proper Dunnaging on Various Cargoes and	
Dispose Useless Dunnage	10
1.5 The Consequences of Using Dirty Dunnage and Possibility of	
Contaminating the Cargo	13
Chapter 2 – General Inspection of Holds	15
2.1 Bilge Suctions and Ballast Line Preparation Prior Loading	15
2.2 Hydraulic Bilge and Ballast Value	10
2.3 Functions of Cargo Surveyors	21
Chapter 3 – Cargo Protection	23
3.1 Stowing and Securing of Cargoes	23
3.2 Blocking, Lashing, and Shoring of Cargoes	31
3.3 Lashing Methods for General Cargoes	32
Charter 4 – Ventilation and Control of Sweat	37
4.1 How to Avoid Sweat and Achieve Proper Ventilation	37
4.2 Equilibrium Relative Humidity (Water Activity)	39
4.3 Sailing from Warmer to Cooler Areas	42
4.4 The Rate of Moisture Migration	43
4.5 How to Prevent Condensation	49
4.6 Difference Between Ship Sweat and Cargo Sweat	51
4.7 The Difference Between Natural Ventilation and Force Ventilation	52
Chapter 5 – Deck Cargo	54
5.1 What is Deck Cargo?	55
5.2 How Deck Cargo can be Efficiently Secured	56
5.3 Important Items to be Cleared when Securing Deck Cargo	58
5.4 Permissible Load on Deck	58
5.5 Effect of Deck Cargo on Stability of Ship	59

	5.6	Timber Deck Cargoes	59
	5.7	Weight and Height of Cargo (Stress and Stability Aspects)	64
	5.8	Safe Access from Deck to Top Stow	65
	5.9	How to Stow Containers in Non-Cellular Shops	66
	5.10	Care of Cargo During Voyage	76
C	hapter	6 – Refrigerated Cargo	77
	6.1	Safe Carriage on Refrigerated Cargoes	77
	6.2	Preparations of Cargo Holds Prior Loading	79
	6.3	Pre-Cooling and Proper Dunnaging	80
	6.4	Examples of Chilled Products and Frozen Cargoes	80
	6.5	The Use of Brine Traps	87
	6.6	The Purpose of Temperature Recording	88
	6.7	Care of Cargo During Voyage	88
C	hapter '	7 – Cargo Handling Equipment	91
	7.1	Advantages and Disadvantages of Cranes and Derrick	91
	7.2	Safe Working Load on Cargo Handling Equipment	94
	7.3	How to Rig a Union Purchase and a Single Swing Derrick	95
	7.4	Ship's Rigging Plan	99
	7.5	Fencing of Hatches	100
	7.6	Deck Lighting and Portable Lights	100
C	hapter 8	8 - Cargo Handling Safety	102
	8.1	Inspection and Checking of Cargo Gears	102
	8.2	Safe Working Load Limit	104
	8.3	Checking of Cargo Gears During Operations	105
	8.4	Precautions in Operating Hatch Covers	105
	8.5	Testing Weather-Tight Integrity of Hatch Covers	106
	8.6	Coded Signs to be Used When Operating Cargo Gears	108
C	hapter 9	9 - Damage to Cargo Spaces, Hatch Covers, and Blast Tanks	112
	9.1	Damages and Defects Most Commonly Found on Bulk Carriers	113
	9.2	Purpose of Enhancement Survey	120
	9.3	Communication During Cargo Operation	121
Bi	bliogra	phy	122