Medieval Lighthouses

And Other Lighted Aids To Navigation

From 400 to 1700

Volume 2 in the PHAROLOGY Series

by

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Nomenclature - Conventions and Terms

Definition of Time Periods

Largely for the sake of convenience, historians have placed markers in history such as early, middle and late, Saxon, Norman, Tudor etc. These markers have been accepted as indications of different periods in time throughout British history.

I apologize to readers from other countries for they will have a different concept of history. All labels, however defined, are arbitrary and their use depends to a great extent upon the subject of study and the context within. I hope I can be forgiven for structuring my thesis in my own cultural context.

The historian Whittock[1] has written about the definition of the period of the Middle Ages and concludes that the usual definition from 1066 to 1485 is based upon analysis of the political events. Analysis of the social structures, however, indicates a different time period entirely. The history of lighthouses includes politics, social history and is also about engineering accomplishments.

My intention from the start of this major work (the study of lighthouses is called **pharology**) is to divide the scope of what I loosely call 'medieval' into three phases - ancient, medieval (middle) and late.

We might once have considered the lighthouses of today as belonging to a 'modern' period, but McCormick wrote his popular "The Modern Book of Lighthouses" in 1936. Now, in the 21st century, with technological advances racing ahead, the word 'modern' is inappropriate. I feel inclined to use the phrase 'lighthouses of the industrial age.' It describes a period that is now historical, for we have left that age far behind. I certainly intend to include the latest technology in volume 3.

As a consequence, for this book my terminology implies that 'late medieval' is almost 'pre-industrial' or perhaps 'pre-modern.'

Whilst the histories of the ancient and medieval periods in some ways blend smoothly into each other, there is a yawning chasm between my own declared 'medieval' and 'industrial' periods. (That is the reason I chose these dates.) As you make your way through this volume, you may be unaware of the giant steps forward that are described in detail in Volume 3 so there is no more to say here, only that my short essay in Chapter 13 detailing the evolution of structure acts as a bridge to Volume 3 and explains why the break in the story is made at 1700. In reality, it is the changes in light technology and the physics of optics that create the chasm.

The first volume of this trilogy, *Ancient Lighthouses*, concerned their history from earliest times and terminated with the year 400 when the final phase of the Roman Empire approximately began.

In the history of lighthouses, we find that, afterwards, there was a very long period when lighthouses seem to have been largely forgotten about until the start of the industrial period. In lighthouse terms, this began with the building of a wonderful tower on the Eddystone by John Smeaton in 1756 (although the principle was set by Henry Winstanley's structure of 1698).

Having completed my study of lighthouses in Ancient times therefore, I here propose to use the word Medieval in its broadest sense to cover the period from 400 to 1700 which will become my period of study for this book. Within these centuries I shall consider three further sub-divisions.

I will refer to an early Medieval period as the Dark Ages from 400 to 1000. The peak 'middle' period is indicated by the six centuries between 1000 and 1600, and the term pre-modern or pre-industrial to cover the period from 1600 to 1700.

From that time until the turn of the millenium, I shall call the Industrial Period and volume 3 will therefore be titled *Industrial Lighthouses*. These are terms that approximately correspond to conventional practice, but are used here for my convenience only.

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1 Whittock, Martin: A Brief History of Life in the Middle Ages; Robinson (2009), 320pp. ISBN 978-1-84529-685-8. This reference: xi - xiii

Navigational Aids

For consistency, this book will generally refer to navigational aids using the modern definitions given below and described in Figs. N01 and N02. However, so little is known about many of the structures discussed herein that any distinction between them is often very difficult. We note the following definitions:

Beacon: Any artifact, built or floating, visible or recognizable from a distance, whether by land or sea, that is specifically intended to provide a signal or warning for any purpose not exclusive to navigation.

Navigational aid: Any artifact set up, either in the sea or on land, whether built or floating, with the specific purpose, whether primary or otherwise, of assisting seamen in safe navigation. A navigational aid can be lit or unlit and may or may not have an audible signal. When floating, it is always moored in a fixed position.

Lighthouse: A fully or partially enclosed built structure bearing a light that is used as a navigational aid and that is capable of admitting at least one person who can operate or maintain the light entirely from within.

Lightstructure: A built structure bearing a light that is used as a navigational aid. All lighthouses are lightstructures.

Functional Analysis

Whilst accepting that the use of lighted aids to navigation may have developed incrementally, it is possible to identify three stages of development:

A waterborne craft steers at night towards a fire or other light that:

- ***IS NOT intended to act as an aid to navigation***

(Stage 1);

- ***IS intended to act as an aid to navigation***

(Stage 2);

- ***IS intended to act as an aid to navigation AND is set on a purposefully-built, elevated platform***

(Stage 3).

Stage 1:

Would have been possible from the times when fire was first used by hominins (today suggested as around 400 ka ago), together with the first use of waterborne craft. It was opportunistic on the part of the navigators and unplanned by those who lit the fires. This could have been available to any species of homo having fire and the capability of using water-borne transport.

Stage 2:

Could have occurred over a long period of transition after Stage 1. The deliberate maintenance of fires provided a guide to homecoming craft. There is a clear distinction between Stages 1 and 2, for Stage 2 requires a purposeful intent that may have been impossible for species of *homo* other than *homo sapiens*, although we cannot rule out its use by Neanderthals. It is therefore likely that Stage 2 was implemented at about the same time or soon after *homo sapiens* began to travel by water. In the English language, this would commonly be referred to as a beacon.

Stage 3:

Is the point at which the idea of a lighthouse finally emerged as a discrete, built, purposeful structure. It seems to have not occurred until a long time after Stage 2, probably in the second millennium BCE.

All of these significant events in human history remain vague and subject to change as new evidence comes to light. In particular, the placement of Stage 3 into the time-line of the figure on p2 is challenging, given the time gap that clearly exists since Stage 2. However, this analysis concludes that the Pharos of Alexandria was the first true lighthouse, rather than simply a Stage 2 lightstructure.

Names of People and Places

A number of civilizations and cultures are covered by the contents of this book and so the names of people and places can vary with context. Likewise, there are many sites that had different names throughout history. Perfect precision requires a level of detail that becomes cumbersome and renders the text clumsy and difficult to read. I have tried to use a common-sense approach that, on the whole, uses the commonest form and gives alternatives where it seems sensible to do so. The site survey of lighthouse and lightstructure sites gives all of the alternatives that I am aware of.

I have used italics for the names of ancient places or terms in non-English languages. Any inconsistency is unintended.

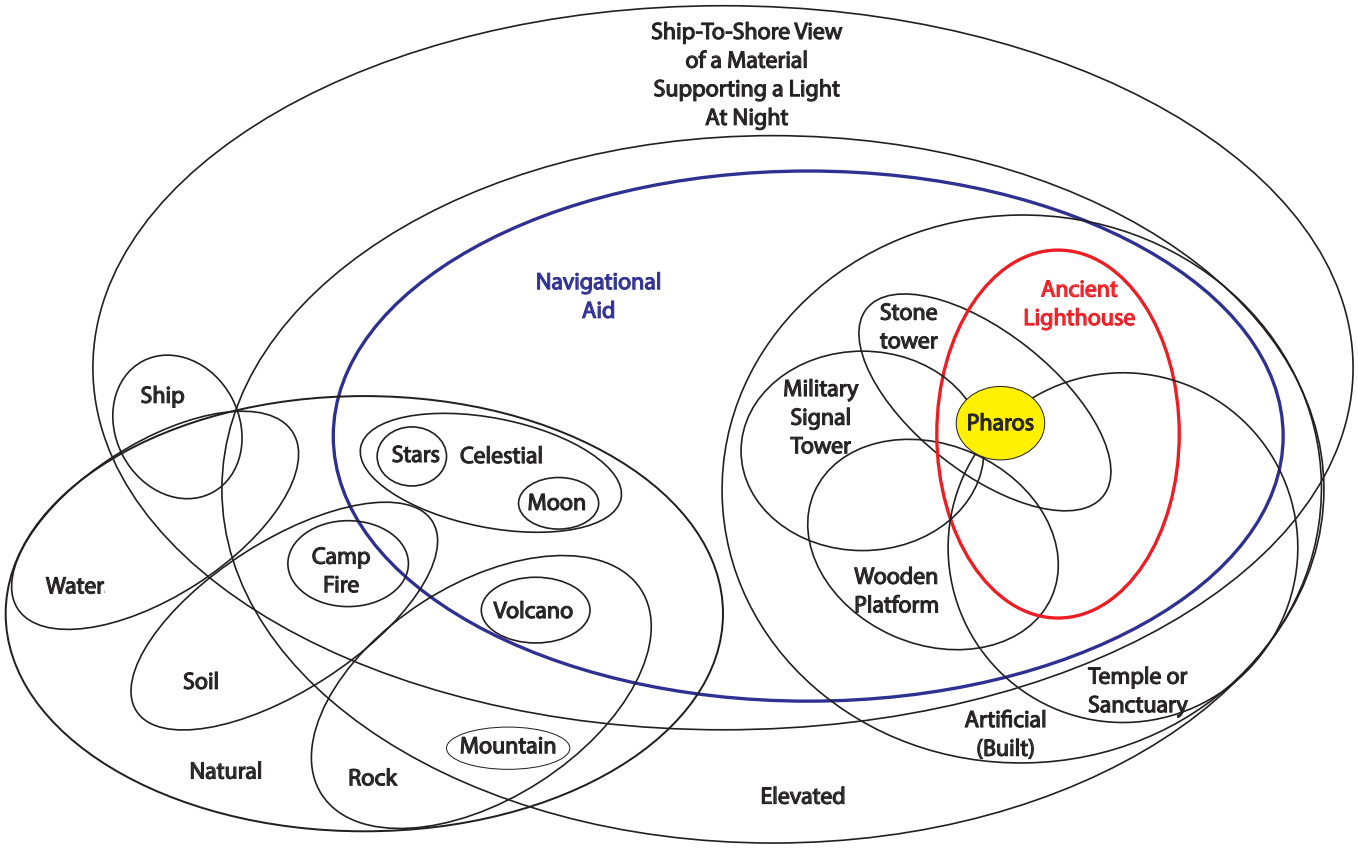

Fig. N01: Ship-To-Shore View at Night. This Venn Diagram illustrates the relevant visual and functional properties of lights viewed at night by mariners as aids to navigation. In particular, the diagram defines the world's first accepted ancient lighthouse.

The diagram applies to night; varying degrees of reflected moonlight have not been included.

Elevated is above ground level on the shore.

Sizes of ellipses and sectors have no significance. Overlap is a visual allusion to shared visual and functional properties.

A volcano is a navigational aid if it is visible at night.

A ship may carry a light but because it moves is not a navigational aid.

A camp or domestic fire can be a navigational aid if it helps a mariner to return to a place from where he departed.

A temple or sanctuary or other altar is by definition elevated and can be considered to be an ancient lighthouse as a secondary function.

The Pharos of Alexandria is the first artificial (built) stone tower that was used as a lighthouse for its primary function. It may also have been used for religious and military purposes, but these were secondary functions.

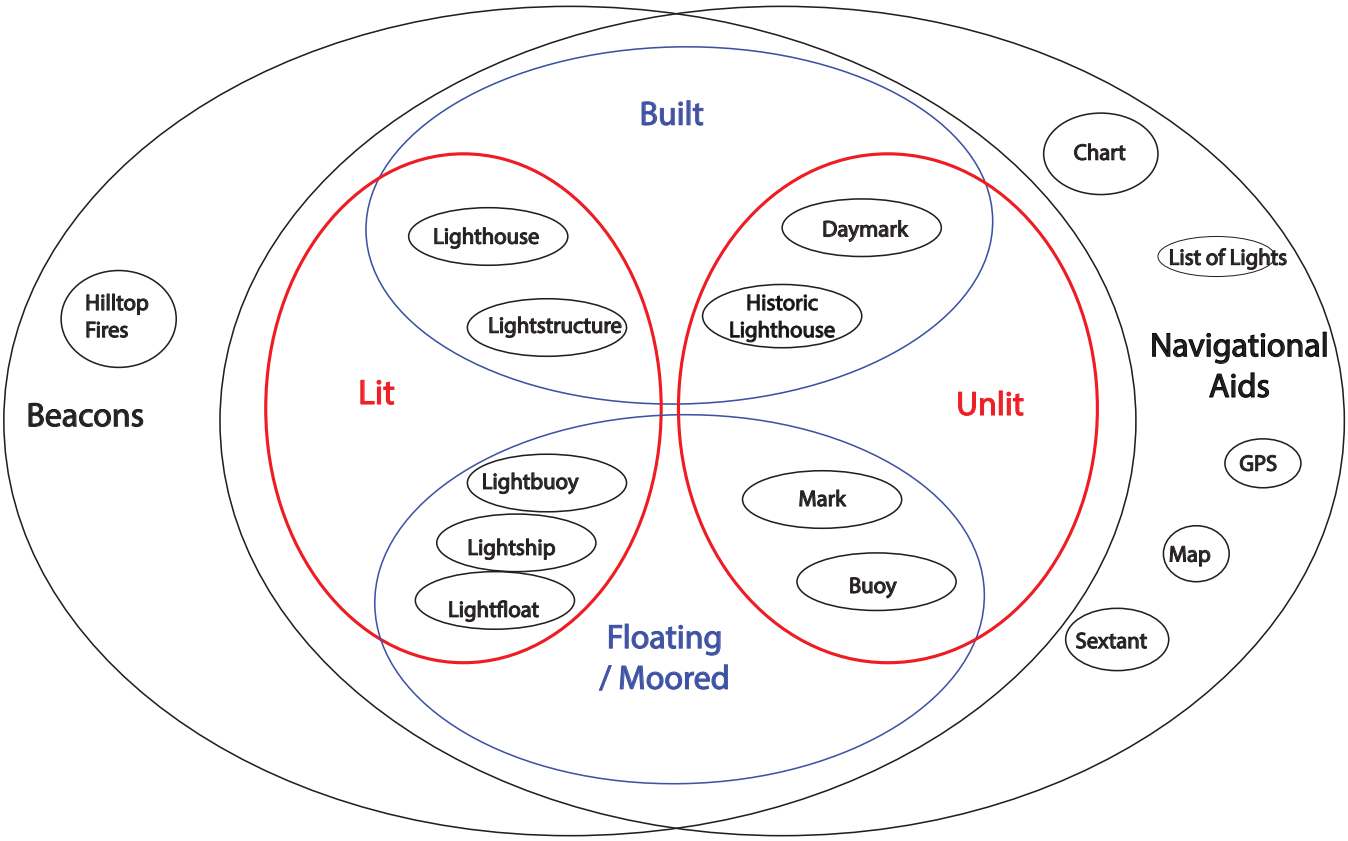

Fig. N02: A Venn Diagram that considers modern navigational aids in terms of their visual properties.

Those structures that are both lit and built are lighthouses and lightstructures.

A historic lighthouse is unlit.

Symbols Used on Maps

Throughout this book I have tried to use the following icons on maps:

Red pins indicate medieval sites

Yellow pins indicate modern lightstructure sites, possibly disused.

Purple pins indicate current lighthouse sites

Different colour balloons represent other fetaures.
Green = Places of Note; Blue = Waterways

Contents

Nomenclature - Conventions and Terms viii

Definition of Time Periods viii
Navigational Aids ix
Functional Analysis ix
Names of People and Places ix
Symbols Used on Maps xi

Introduction 1

Objectives 1
The Timeline 1
The End Of Rome 3

The Oldest Lighthouse 7

Introduction 7
Objectives 7
Ancient Lighthouses 7
The Pharos At *Portus Dubris* 9
The Tower of Hercules 14
Conclusions 16

Why Build A Lighthouse? 17

Objectives 17
People On The Sea 17
Fishers 17
Explorers 17
Travellers 20
Fighters 20
Traders 20
Professionals 21
People On The Land 21
What's Involved In Providing A Light? 21
The Desire For Safety At Sea 22
Fighting Forces 23
Medieval Traders 23
Methods And Practices 24

Medieval Navigation 26

Objectives 26
Introduction 26
The Mariners' Tools 27
The Lead Line 27
Compass 27
Maps and Charts 27
Quadrant 27
Celestial Navigation 27
Cross-staff 27
Pilot Books and Sailing Directions 29
Traverse Board 29
Tide Computer 29
Log-line and Chip Log 29
Nocturnal or Night-time Clock 29
Astrolabe 29
Navigating in the Middle Ages 29
Maps and Charts 32
Sailing Directions 36
Practical Lighting Methods In The Medieval Period 39
Fuels 39
Tallow Candles 39
Beeswax Candles 39
Oil Lamps 39
Rushlights 39
Wood and Biomass 39
Oil 39
Coal 40
Knowledge and Technology 41
Alternative Fuels 41
Quality of Coal 41
Social and Economic Factors 41
Inescapable Fire 41
Sailing In A Dark Age 42

The Dark Ages 44

Exit Romans, Stage Right 44
Objectives 45
The Early Medieval Period 46
The Fog Of Time 47
The Possibilities For Lights 48
The Stink of Decay 50
A Measure of Civilization 51
The Re-Making Of Europe 52
Post-Roman Italy 54
The Roman Legacy 55
Beyond Rome 56
The Contribution of Islam 58
Christianity Arrives In Europe 60
Celts 62
The Early Structure of England 64
The Sutton Hoo Discovery 65
Alfred the Great of England 66
What Makes A 'Sea People'? 68
Frisians 69
Vikings 70
The Great Navigators 72
Religious Ethics 74
Monks and Missionaries 75
Benedictines 75
Augustinians 75
Cistercians 75
Carthusians 75
Franciscans and Dominicans 75
Literacy and Law 76
The Significance of Fire 77
Fire is a sign of: 77
Purification 77
Transformation 77
Divine Presence 77
Sacrifice 77
Symbol of Life 77
Light? What Light? 78
The Conundrum 79
Final Remarks 80
Conclusions 80

Ecclesiastical Lights 84

The Light Of Christianity 84
Objectives 85
The Task 85
The Role Of Ireland 85
Early Monasteries Of The British Islands 87
Ireland 89
Wales 89

Scotland 89
England 91
Hermits And Anchorites 92
Irish Round Towers 93
Hook Point 94
Tynemouth Priory 96
St Edmund's Chapel 99
St Nicholas, St Michael & St Ia 100
Anglican Churches 104
The Value Of Height 105
Ecclesiastical Lights In Europe 106
Atlantic And Mediterranean 107
Scandinavia And The Baltic Coasts 107
Cordouan 110
Religious Lighthouses In Asia 115
Japan 115
China 116
Korea 116
Vietnam 116
Conclusions 117

The Hanseatic League 120

Inventing The Single Market 120
Objectives 120
Over Land And Sea 123
Lübeck 124
Civic Alliances Grow Strong 124
The Consequences for Seafaring of Increased Trade 125
Travemünde - The Hanseatic Lighthouse 126
Britain and the Hanseatic League 130
Conclusions 131

Guilds, Brotherhoods & Fraternities 132

Objectives 132
The Christian Tradition 132
The History of Guilds 134
The Trinity Houses 134
21st Century Lighthouse Authorities 136
The Trinity House Of Deptford Strond 137
Elizabeth's Act of 1566 140
The First Use Of The Word Lighthouse 141
The Trinity House Of Newcastle Upon Tyne 142
Tyne Lighthouses 145
The Trinity House Of Kingston Upon Hull 148
Early Records Of Buoyage And Beacons 150
The Trinity House Of Leith 154
The Cinque Ports 155
Conclusions 157

The Baltic Sea 160

Bornholm 163
Sweden 164
Falsterbo Lighthouse 165
Nidingen 165
Poland Is Not Holland 167
The Unusual Polish Coastline 168
To Light Or Not To Light? 171
Travemünde 172
The Teutonic Order 172
Skaggerak And Kattegat 174
Conclusions 177

Southern North Sea 178

Germany 179
Ochsenturm 180
Wangerooge 181
Brandaris on Terschelling 182
Hindeloopen 182
Two Important Channels 183
To Amsterdam ... 184
Katwijk and Noordwijk 189
Stenen Baak At Brielle 192
Westkapelle 196
West Schouwen 196
The Unusual Geography of the Netherlands 199
The Church Tower 200
Heist (Knokke) 201
The Vierboet - Fire Tower 203
Blankenberge 203
The Low Countries 204
Dunkerque 204
In The Real World 205

The Mediterranean 206

Objectives 206
Lighthouses And Their Mediterranean Roots 207
The Evolution Of Mechanisms: Basic Economics 208
Lights Go Out 209
The Crusades 210
Islamic Practices 210
The Contrast Between Southern Spain And France 211
City-states Show Lights 213
The Byzantine Period 213
The Iconoclasm Controversy 214
Byzantine Decline 214
Norman Ventures 215
Crusader Outcomes 215
Norman Contributions 216
The Very Famous City of Genoa 218
Unique Lighthouse Inspiration 220
Evolution And Development 221
Torre Dei Greci 222
Light From Burning Oil 223
Glazing 224
The Impossible Lighthouse 226
Competition From Pisa 234
Meloria, Leghorn And Livorno 234
A Plethora Of Towers 236
Meloria 237
The Uniqueness Of Venice 238
An Early Adriatic Network 240
Greece 242
A Broader Comparison 243
Crete 245
Turkey 247
The Black Sea Portal 247
Istanbul 249
The Black Sea 254
The Phoenician Coast 256

The Crusader Coast 256
North Africa 257
Final Comments 258
Conclusions 263

Lights of Empire 266

Objectives 266
Lights During The Age Of Discovery 267
The Legacy Of Empire 268
Colonial Lights 269
Portuguese Empire 269
Ceuta (1415) 269
Madeira (1420s) and Azores (1430s) 269
São Tomé and Príncipe (1470s) 269
Elmina (1482) 270
Goa (1510) 270
Brazil (1500) 270
Spanish Empire 271
San Juan (1508-1521) 272
Havana, Cuba (1515) 273
Veracruz (1519) 274
Panama City (1519) 274
Acapulco (1565) 275
Lima (1535) 276
British Empire 277
St. John's (1583) 277
Roanoke (1585-1590) 277
Jamestown (1607) 277
Bermuda (1610s) 277
Barbados, Jamaica and St Kitts (1627) 277
Tangier (1661–1684) 277
Bombay, Madras, St Helena (1660-80) 277
French Empire 278
Port Royal, Quebec (1605-8) 278
French Caribbean (1660s) 278
Dutch Empire 279
Conclusions 280
Table Bay (1650) 280
Batavia (1619) 280
Galle and Colombo (1640) 280
New Amsterdam (1625) 280

The Pre-Industrial Age 282

Objectives 282
A Very British Revolution 283
The Entrepreneurs 285
The Birth Of The Modern Lighthouse 286
Ravenserspurne - Spurn Head 288
The Angells of Spurn 289
Progress On The East Coast 295
Hunstanton 296
The Winterton Saga 298
Lessons Learned? 299
Lowestoft 301
Orfordness 304
Harwich 306
Objectives 312
What Could Be Simpler? 313
Lighthouse Design In The Middle Period 314
The Pharos of Alexandria 316
Portus Dubris - Dover 316
The Torre d'Hercules 317
Cordouan 317
The Eddystone Seed 318
A Rapid Increase Of Momentum 320
Notes 321

Site Survey 322

Lists Of Lights 324
A Survey Of Sites 324
A Study Of Signalling Systems 326
How Did The Signalling System Work? 326
Examples Of Signalling Networks 326
In Summary 327
Notes To Explain The Database Structure 328
Final Comment 329
Site Survey Statistics 330
Disclaimer 330
Explanation of the statistics 330
Totals 330
331

Site Surveys

The British Isles and Ireland 332

Northern Europe 342

Atlantic Coast 358

The Northern Mediterranean 366

The Black Sea and Turkey 430

The Middle East and North Africa 450

Conclusions 460

Bibliography 461

Acknowledgements 466

Picture Credits 467

The Last Word 500