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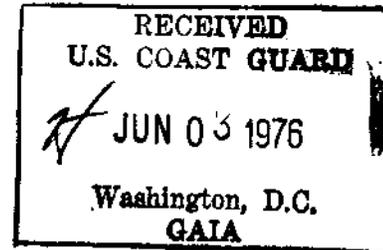


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REGIONAL HARMONIZATION OF BUOYAGE SYSTEMS

1. At its thirty-fourth session the Maritime Safety Committee considered and approved the final text of the "Combined Cardinal and Lateral System (Red to Port) - System A", prepared by IALA and endorsed by the Sub-Committee on Safety of Navigation.
2. It is intended that "System A", which has already been approved by the Executive Committee of IALA will be progressively introduced in the NW European area over a period of approximately three years commencing 1 April 1977.
3. Concern was expressed that a period of three years would not be sufficient to enable hydrographic services and other chart producers to make and distribute the corrections to the affected charts. As requested by the Committee, IALA agreed to keep a close liaison with all the hydrographic authorities involved, including IHO, and to develop its programme in accordance with chart producers' capability.
4. The Committee noted that an alternative System "Lateral System Only (Red to Starboard) - System B" was under consideration by IALA, so that Administrations will eventually have the choice of adopting on a regional basis either "System A" or "System B".
5. At the request of the Committee (MSC XXXIV/18, paragraph 77) "System A", which is attached, is brought to the attention of all Member Governments.

**INTERNATIONAL ASSOCIATION
OF
LIGHTHOUSE AUTHORITIES**

**MARITIME BUOYAGE
SYSTEMS**

SYSTEM 'A'

THE COMBINED CARDINAL AND LATERAL SYSTEM (RED TO PORT)

FEBRUARY, 1976.

February, 1976.

IALA MARITIME BUOYAGE SYSTEMS

System "A" - The Combined Cardinal and Lateral System (Red to Port)

1. GENERAL

1.1 Scope

This system applies to all fixed and floating marks (other than lighthouses, sector lights, leading lights, lightships and large navigation buoys) serving to indicate:

- 1.1.1 The lateral limits of navigable channels
- 1.1.2 Natural dangers and other obstructions such as wrecks
- 1.1.3 Other areas or features of importance to the mariner
- 1.1.4 New dangers

1.2 Types of marks

The system of buoyage provides five types of marks which may be used in any combination:

- 1.2.1 Lateral marks used in conjunction with a conventional direction of buoyage, generally used for well defined channels. These marks indicate the port and starboard sides of the route to be followed
- 1.2.2 Cardinal marks, used in conjunction with the mariners' compass, indicate where the mariner may find navigable water
- 1.2.3 Isolated Danger Marks indicating isolated dangers of limited size that have navigable water all around them
- 1.2.4 Safe water marks indicating that there is navigable water all around that position, e.g. mid-channel mark
- 1.2.5 Special marks not primarily intended to assist navigation but indicating an area or feature referred to in nautical documents

1.3 Method of characterising marks

The significance of the mark depends upon one or more of the following features:

- 1.3.1 By night - colour and rhythm of light
- 1.3.2 By day - colour, shape, topmark

2. LATERAL MARKS

2.1 Definition of conventional direction of buoyage

The conventional direction of buoyage may be defined where required, in one of two ways:

- 2.1.1. The general direction taken by the mariner when approaching a harbour, river estuary or other waterway from seaward: or
- 2.1.2 In other areas it should be determined in detail by the appropriate authority in consultation with neighbouring countries. In principle it should follow a clockwise direction around land masses

In all cases the conventional direction must be indicated in appropriate nautical documents

2.2 Description of Lateral Marks

2.2.1 Port hand:

- Colour - Red
- Shape (Buoys) - Can or Spar
- Topmark (if any) - Single red can
- Light (when fitted):
 - Colour - Red
 - Rhythm - Any

2.2.2 Starboard hand:

- Colour - Green^(a)
- Shape (Buoys) - Conical or spar
- Topmark (if any) - Single green cone^(a), point up
- Light (when fitted):
 - Colour - Green
 - Rhythm - Any

- 2.2.3 Where port or starboard marks do not rely upon can or conical buoy shapes for identification they should, where practicable, carry the appropriate topmark

2.2.4 Numbering or lettering

If marks at the sides of a channel are numbered or lettered, the numbering or lettering shall follow the conventional direction of buoyage.

(a) Where for exceptional reasons an Authority considers that a green colour is not satisfactory, black may be used.

CARDINAL MARKS

3.1 Definition of cardinal quadrants and marks

- 3.1.1 The four quadrants (North, East, South and West) are bounded by the true bearings NW-NE, NE-SE, SE-SW, SW-NW taken from the point of interest
- 3.1.2 A cardinal mark is named after the quadrant in which it is placed
- 3.1.3 The name of a cardinal mark indicates that it should be passed to the named side of the mark

3.2 Use of Cardinal Marks

A Cardinal Mark may be used, for example:

- 3.2.1 To indicate that the deepest water in that area is on the named side of the mark
- 3.2.2 To indicate the safe side on which to pass a danger
- 3.2.3 To draw attention to a feature in a channel such as a bend, a junction, a bifurcation, or the end of a shoal

3.3 Description of cardinal marks

3.3.1 North cardinal marks

- Topmark ^(b) - 2 black cones, one above the other, points upward
- Colour - Black above yellow
- Shape - Pillar or spar
- Light (when fitted):
 - Colour - White ^(c)
 - Rhythm - VQF ^(d) or QF

3.3.2 East cardinal mark

- Topmark ^(b) - 2 black cones, one above the other, base to base
- Colour - Black with a single broad horizontal yellow band
- Shape - Pillar or spar
- Light (when fitted):
 - Colour - White
 - Rhythm - VQF (3) every 5 sec. or QF (3) every 10 sec.

3.3.3 South Cardinal Mark

- Topmark ^(b) - 2 black cones, one above the other, points downward
- Colour - Yellow above black
- Shape - Pillar or spar
- Light (when fitted):
- Colour - White
- Rhythm - VQF (6) + Long flash ^(e) every 10 sec.
or QF (6) + Long flash ^(e) every 15 sec.

3.3.4 West cardinal mark

- Topmark ^(b) - 2 black cones, one above the other, point to point
- Colour - Yellow with a single broad horizontal black band
- Shape - Pillar or spar
- Light (when fitted):
- Colour - White
- Rhythm - VQF (9) every 10 sec. or
QF (9) every 15 sec.

(b) The double cone topmark is the most important feature of every Cardinal Mark by day, and should be used wherever practicable and be as large as possible with a clear separation between the cones.

(c) VQF = Very quick flashing, i.e. a light flashing at a rate of either 120 or 100 flashes per minute.

(d) QF = Quick flashing, i.e. a light flashing at the rate of either 60 or 50 flashes per minute.

(e) Long Flash = a light appearance of not less than 2 seconds duration.

4. ISOLATED DANGER MARKS

4.1 Definition of Isolated Danger Marks.

An Isolated Danger Mark is a mark erected on, or moored on or above, an isolated danger which has navigable water all around it.

4.2 Description of Isolated Danger Marks.

| | |
|------------------------|---|
| Topmark ^(f) | - 2 black spheres, one above the other |
| Colour | - Black with one or more broad horizontal red bands |
| Shape | - Pillar or spar |
| Light (when fitted): | |
| Colour | - White |
| Rhythm | - Group flashing (2) |

5. SAFE WATER MARKS

5.1 Definition of Safe Water Marks

Safe water marks serve to indicate that there is navigable water all round the mark; these include centre line marks and mid-channel marks. Such a mark may also be used as an alternative to a Cardinal or a Lateral mark to indicate a landfall.

5.2 Description of Safe Water Marks

| | |
|----------------------|--|
| Colour | - Red and White vertical stripes |
| Shape | - Spherical, pillar with spherical topmark or spar |
| Topmark (if any) | - Single red sphere |
| Light (when fitted): | |
| Colour | - White |
| Rhythm | - Isophase, Occulting or one Long Flash every 10 secs. |

(f) The double sphere topmark is the most important feature of every isolated danger mark by day, and should be used wherever practicable and be as large as possible with a clear separation between the spheres.

6. SPECIAL MARKS

6.1 Definition of Special Marks

Marks not primarily intended to assist navigation but which indicate a special area or feature referred to in appropriate nautical documents, for example:-

- 6.1.1 Ocean Data Acquisition Systems (ODAS) marks
- 6.1.2 Traffic Separation Marks where use of conventional channel marking may cause confusion
- 6.1.3 Spoil Ground Marks
- 6.1.4 Military exercise zone marks
- 6.1.5 Cable or pipe line marks
- 6.1.6 Recreation zone marks

6.2 Description of special marks

- Colour - Yellow
- Shape - Optional but not conflicting with navigational marks
- Topmark (if any) Single yellow 'X' shape
- Light (when fitted):
 - Colour - Yellow
 - Rhythm - Any, other than those described in Sections 3, 4 or 5

6.3 Additional Special Marks

Special marks other than those listed in paragraph 6.1 and described in paragraph 6.2 may be established by the responsible administration to meet exceptional circumstances. These additional marks shall not conflict with navigational marks and shall be promulgated in appropriate nautical documents and the International Association of Lighthouse Authorities notified as soon as practicable.

7. NEW DANGERS

7.1 Definition of New Dangers

The term "New Danger" is used to describe newly discovered hazards not yet indicated in nautical documents. "New Dangers" include naturally occurring obstructions such as sandbanks or rocks or man made dangers such as wrecks.

7.2 Marking of New Dangers

- 7.2.1 New Dangers shall be marked in accordance with these rules. If the appropriate Authority considers the danger to be especially grave at least one of the marks shall be duplicated as soon as practicable
- 7.2.2 Any lighted mark used for this purpose shall have an appropriate cardinal or lateral VQF or QF light character.
- 7.2.3 Any duplicate mark shall be identical to its partner in all respects
- 7.2.4 A duplicate mark may carry a racon, coded "W", showing a signal length of 1 nautical mile on the radar display.
- 7.2.5 The duplicate mark may be removed when the appropriate Authority is satisfied that information concerning the new danger has been sufficiently promulgated.

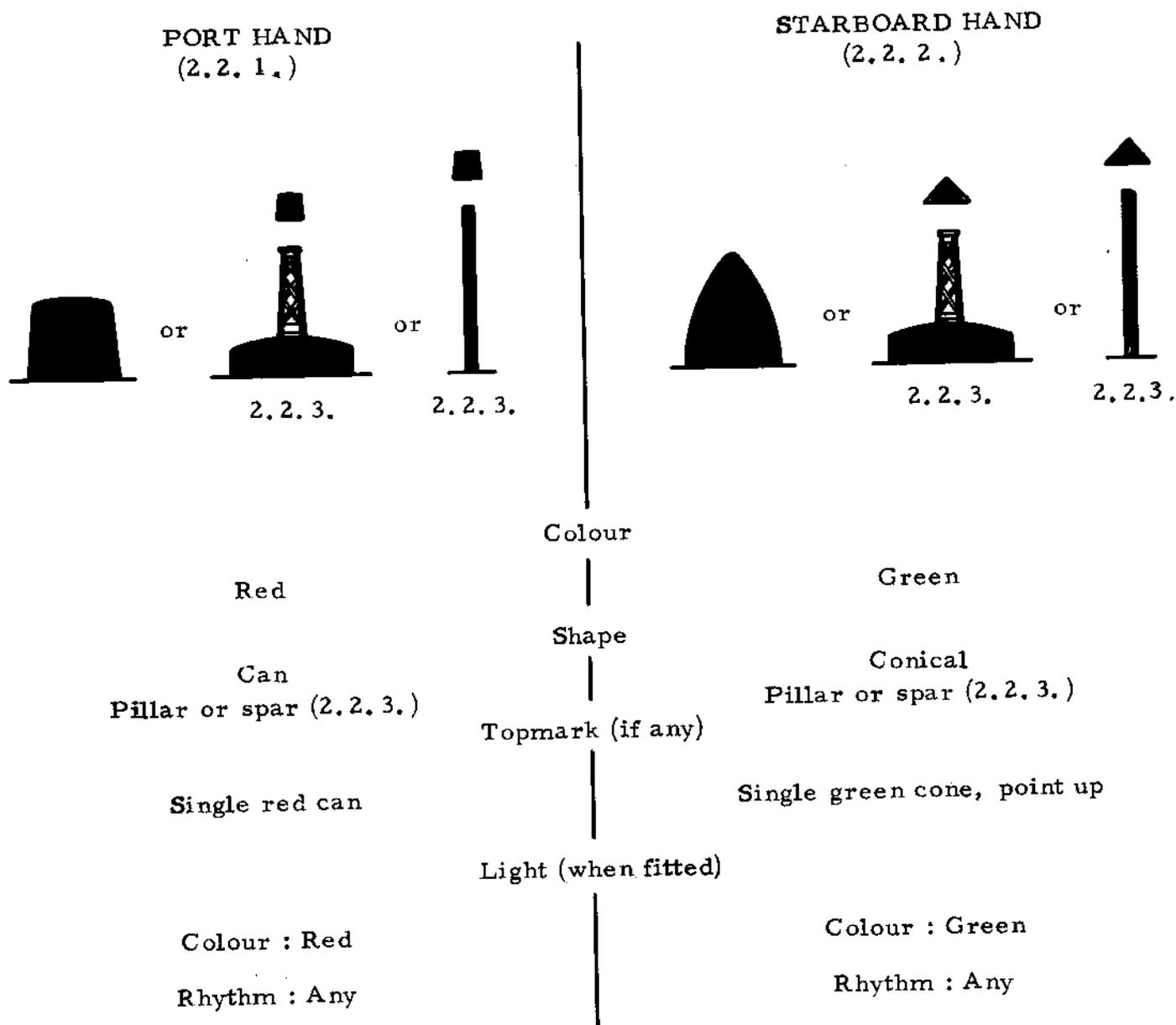
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MARITIME BUOYAGE SYSTEMS

SYSTEM A

DIAGRAMS OF MARKS DESCRIBED
IN THE COMBINED CARDINAL AND LATERAL SYSTEM
(red to port)

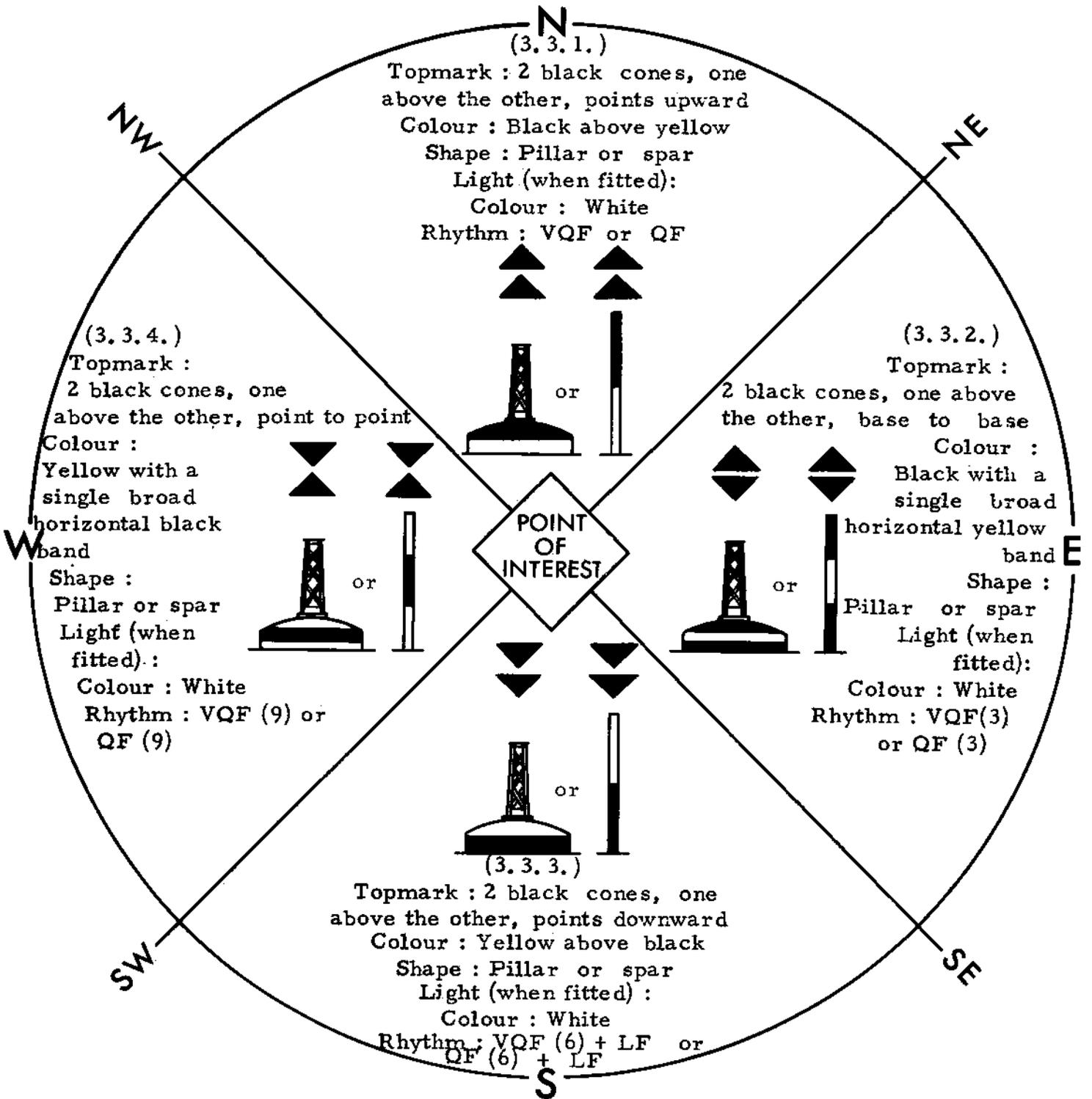
LATERAL MARKS
(2.2.)



Note : the reference numbers refer to the appropriate paragraph in the text.

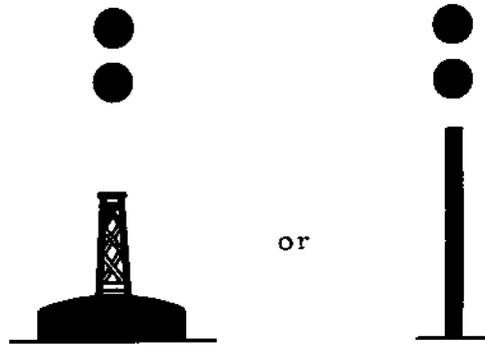
CARDINAL MARKS

(3.3.)



ISOLATED DANGER MARK
(4.2.)

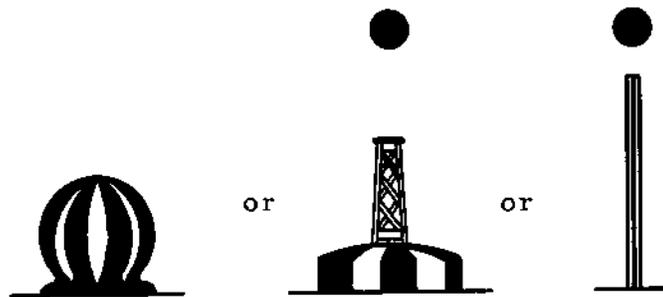
Topmark : 2 black spheres, one above the other



Colour : Black white one or more broad horizontal red bands
Shape : Pillar or spar

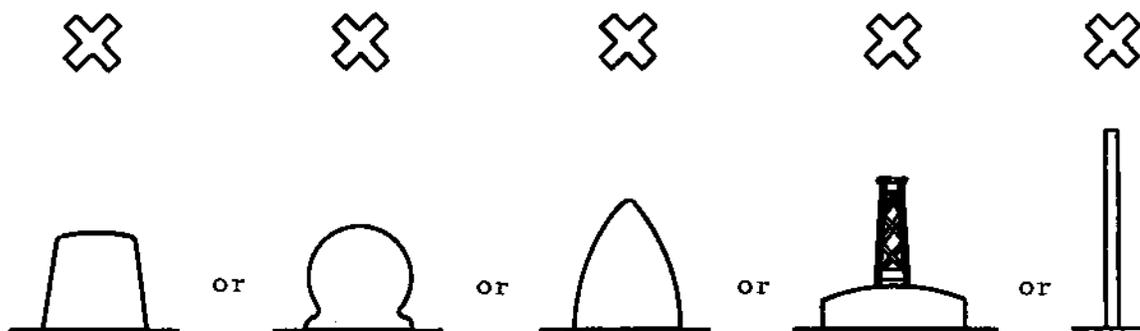
Light (when fitted) :
Colour : White
Rhythm: Group flashing (2)

SAFE WATER MARKS
(5.2.)



Colour : Red and white vertical stripes
Shape : Spherical or
pillar or spar with spherical topmark
Topmark (if any) : Single red sphere
Light (when fitted) :
Colour : White
Rhythm : Isophase, Occulting or Long flashing

SPECIAL MARKS
(6.2.)



Colour : Yellow

Shape : Optional but not conflicting with navigational marks (1)

Topmark (if any) : Single yellow "X" shape

Light (when fitted) :

Colour : Yellow

Rhythm : Any, other than those described in sections 3, 4 or 5

(1) The shapes shown on the sketch are given as examples

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MARITIME BUOYAGE SYSTEMS
SYSTEM A

DIAGRAMS OF USUAL CHARACTERS DESCRIBED
IN THE COMBINED CARDINAL AND LATERAL SYSTEM
(red to port)

LATERAL MARKS
(2.2.)

PORT HAND
(2.2.1.)
Colour : Red
Rhythm : Any

STARBOARD HAND
(2.2.2.)
Colour : Green
Rhythm : Any

For example



Quick flashing

For example



Flashing



Group flashing (2)



Long flashing



Isophase

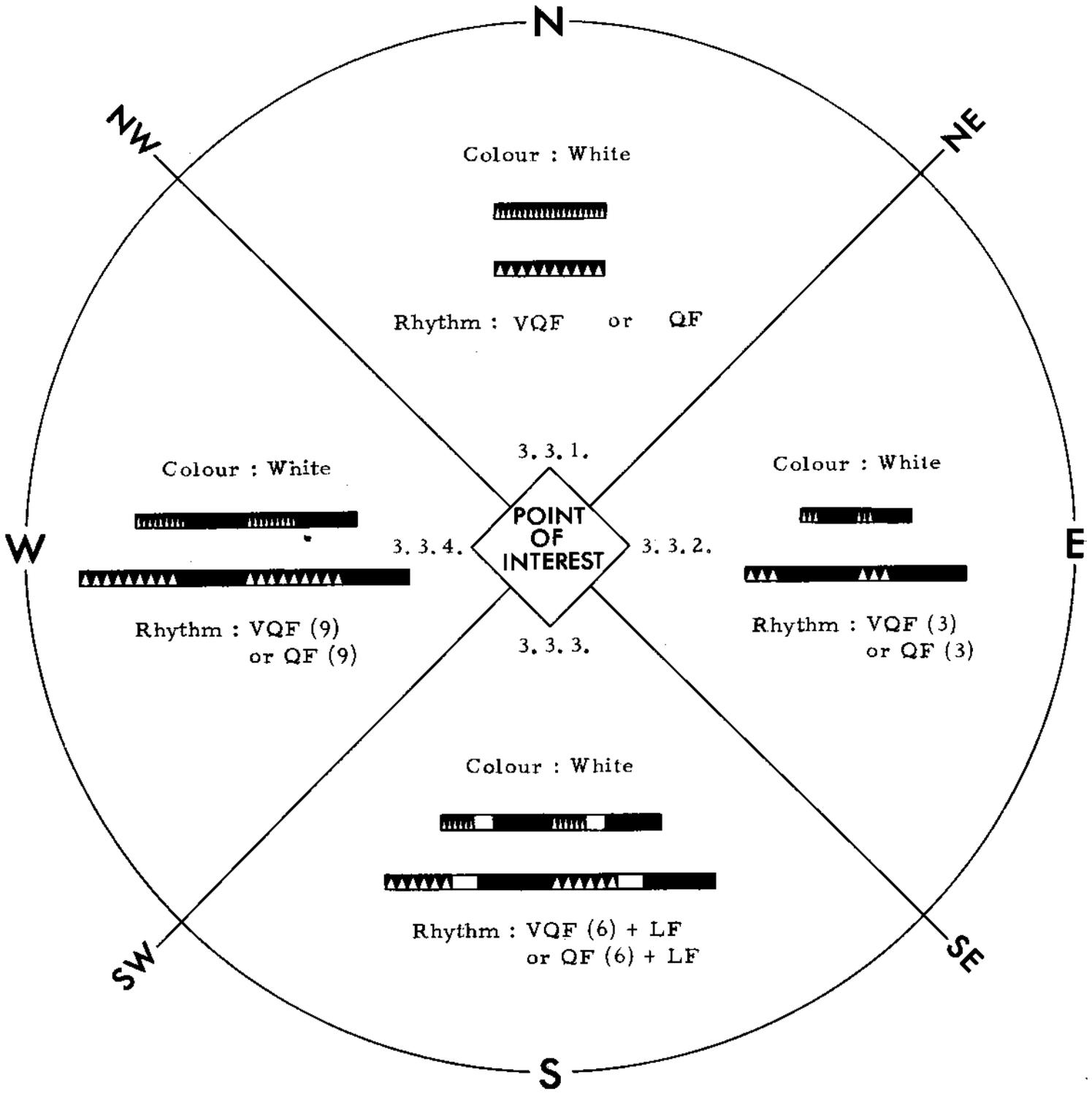


Group occulting (3)



Note : the reference numbers refer to the appropriate paragraph in the text.

CARDINAL MARKS
(3. 3.)



ISOLATED DANGER MARKS

(4.2.)

Colour : White

Rhythm : Group flashing (2)



SAFE WATER MARKS

(5.2.)

Colour : White

Rhythm : Isophase, occulting or long flashing

Isophase

Occulting

Long flashing

SPECIAL MARKS

(6.2.)

Colour : Yellow

Rhythm : Any, other those described in sections 3, 4 or 5

For example :

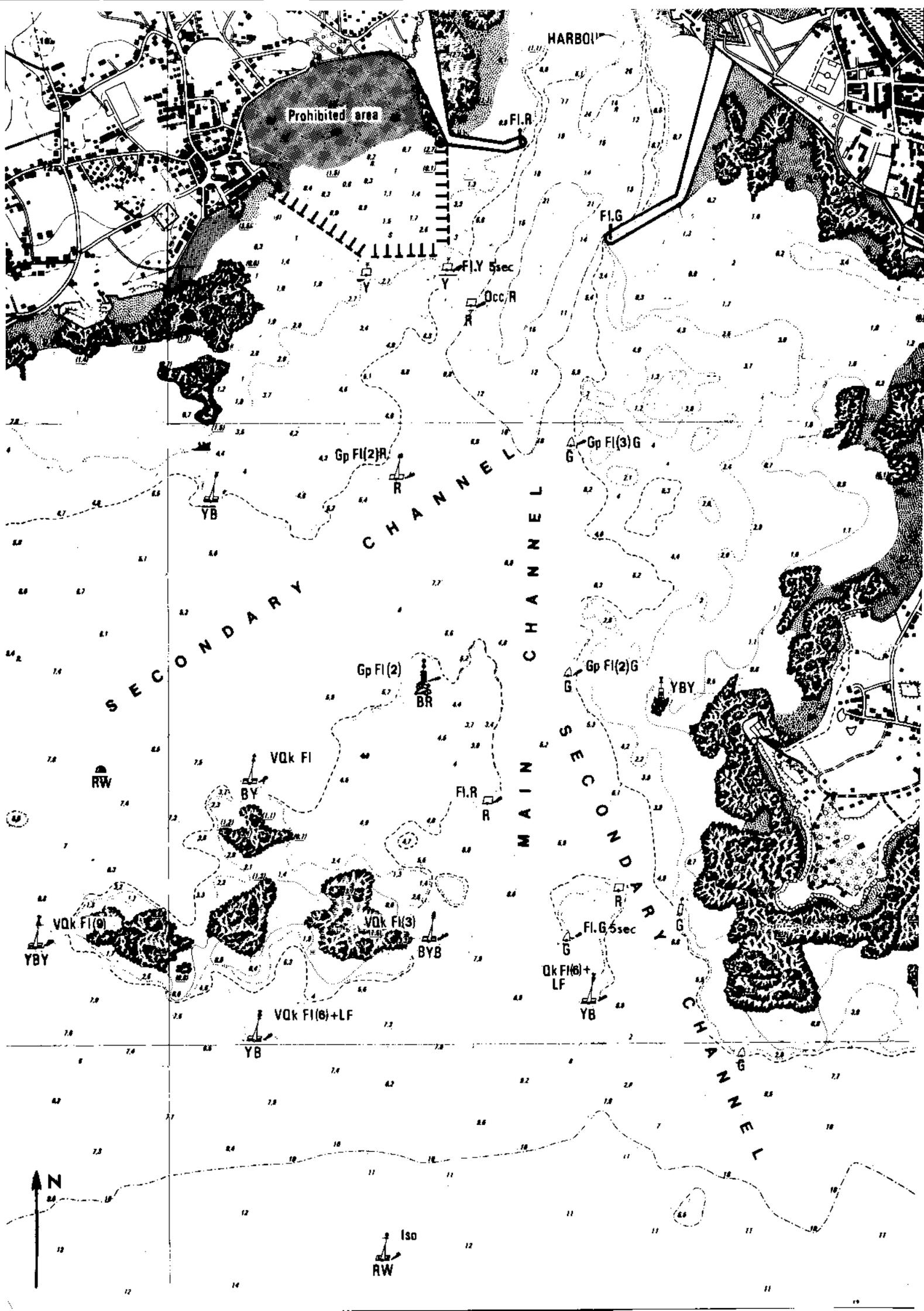
Flashing

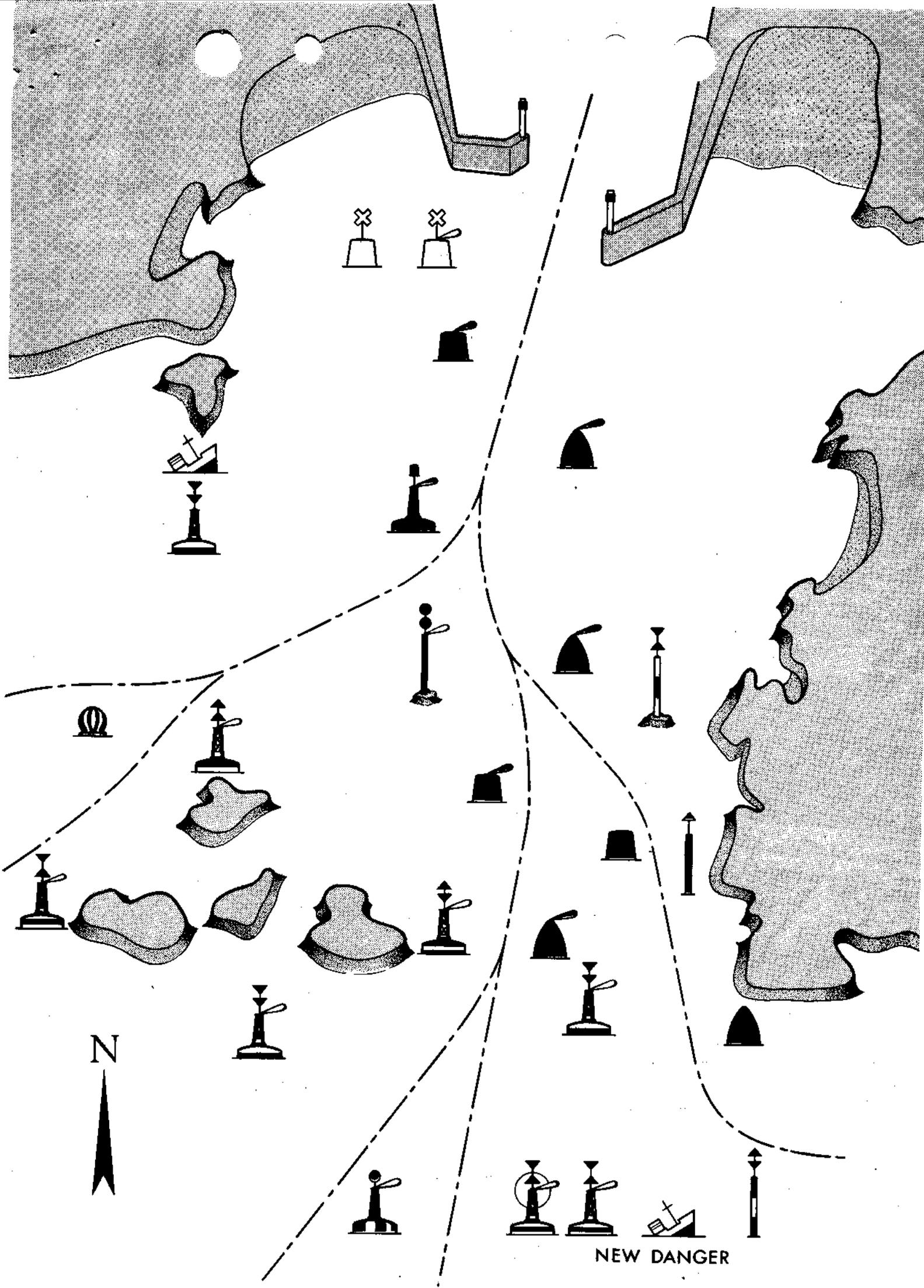
Group flashing (3)

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MARITIME BUOYAGE SYSTEMS
SYSTEM A

CHART AND DIAGRAMS ILLUSTRATING THE APPLICATION
OF THE COMBINED CARDINAL AND LATERAL SYSTEM
(red to port)

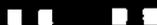




NEW DANGER



2000



2000



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