

GAZETTEER
OF
BRITISH METEOROLOGICAL STATIONS
USED IN THE PREPARATION OF
SYNOPTIC REPORTS

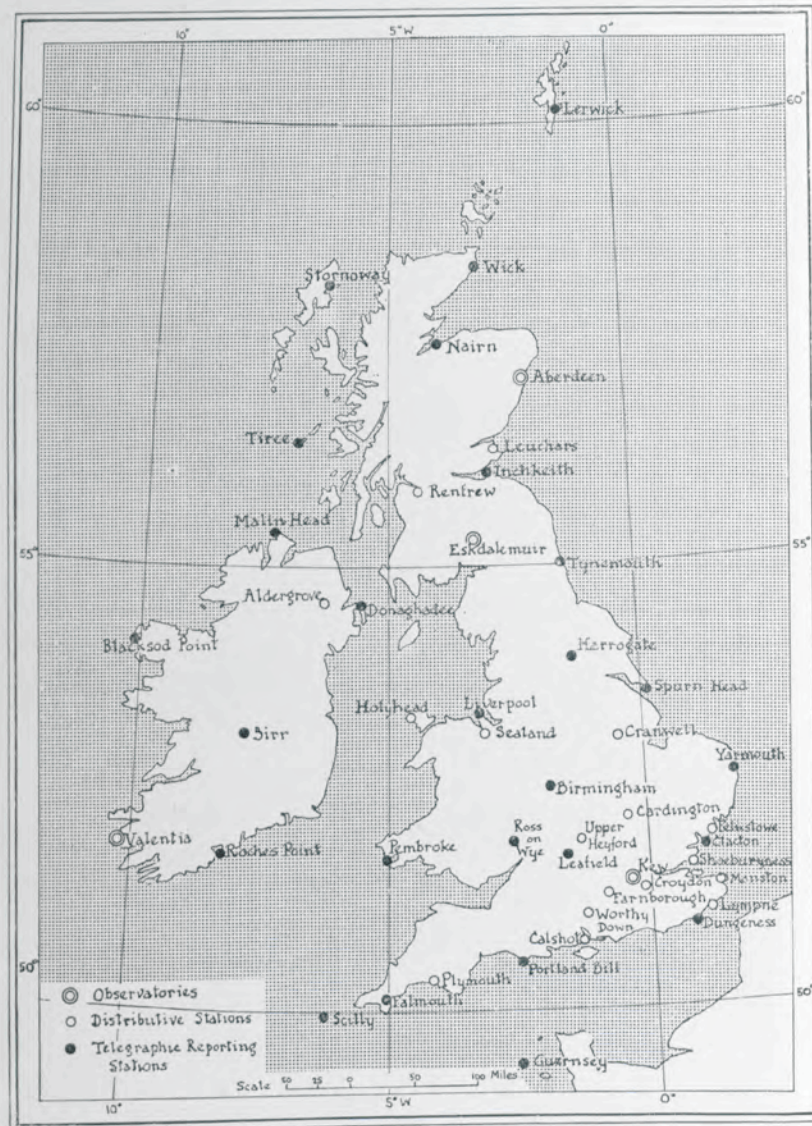
MET 72/11/3/145

M.O. 319

AIR MINISTRY

METEOROLOGICAL OFFICE

Frontispiece.



Gazetteer of British Meteorological Stations *used in the preparation of* Synoptic Reports

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GAZETTEER OF STATIONS USED IN THE PREPARATION OF BRITISH SYNOPTIC REPORTS

INTRODUCTION

The stations used in British synoptic reports are of three classes :—

- (1) Observatories with full equipment and Meteorological Office Staff.
- (2) Distributive Stations which are for the most part situated on aerodromes. The staff are in this case also Meteorological Office personnel.
- (3) Telegraphic Reporting Stations where the equipment is the property of the Meteorological Office, but the observations are taken either by private observers, coastguards or lightkeepers. The last two classes of observers are from the nature of their work in an excellent position for following the changes of weather from hour to hour and a wide look-out over the sea is generally obtainable. Many of these stations are on remote parts of the British coasts.

The stations belonging to the different classes are as follows :—

(1) Observatories :—

| | |
|-------------|----------|
| Aberdeen | Kew |
| Eskdalemuir | Valentia |

(2) Distributive Stations :—

| | | |
|-------------|------------|---------------|
| Aldergrove | Felixstowe | Renfrew |
| Calshot | Holyhead | Sealand |
| Cardington | Leuchars | Shoeburyness |
| Cranwell | Lympne | Upper Heyford |
| Croydon | Manston | Worthy Down |
| Farnborough | Plymouth | |

(3) Telegraphic Reporting Stations :—

| | | |
|----------------|----------------|---------------|
| Birmingham | Inchkeith† | Roche's Point |
| Birr Castle | Leafeld | Ross-on-Wye |
| Blacksod Point | Lerwick* | Scilly* |
| Clacton | Liverpool | Stornoway* |
| Donaghadee* | Malin Head | Spurn Head† |
| Dungeness* | Nairn | Tiree |
| Falmouth | Pembroke* | Tynemouth* |
| Guernsey | Portland Bill† | Wick* |
| Harrogate | | Yarmouth* |

* Coastguard observer.

† Lightkeeper observer.

The standard equipment consists of two mercury barometers of the Kew pattern, aneroid barograph, dry and wet bulb thermometers with maximum and minimum instruments mounted about 4 feet above the ground in a Stevenson screen, and an 8-inch rain-gauge with rim 1 foot above the ground. In addition, at stations of classes (1) and (2) there are autographic instruments, and a nephoscope; moreover, pilot balloons are frequently sent up which give material aid in the determination of cloud height. At stations of class (3) pilot-balloon equipment is not available and cloud height can be determined by estimation only. A list of the instruments installed at each station is given in the detailed particulars which follow.

The exposure of the outdoor instruments conforms in general with the requirements set out in the "Meteorological Observer's Handbook" (M.O. 191). All British stations used regularly in the chief synoptic reports are less than 300 feet above the sea so that correction of the barometer readings to mean sea level is not appreciably influenced by the local effects upon air temperature which occur on clear winter nights. Many of the coastal stations are in very exposed situations and there is little to break the force of the wind around the rain-gauge, so that the measured falls may be to some extent affected as noted in the particulars under the individual stations.

Sea disturbance is an observation which requires a specially favourable site for accurate observation to be possible with winds blowing from all quarters, and at many of the coastal stations the reports obtained should not be regarded as necessarily representative of the conditions in the open sea in the neighbourhood.

The information given for each station in the following pages consists of—(1) geographical co-ordinates and height above the sea, (2) list of instrumental equipment, (3) notes on the exposure, (4) a map with contour lines showing the orographic features of the surrounding country (the position of the station is marked by a dot in the centre of the map), and (5) a photograph showing the environment of the station. On each photograph the position of the thermometer screen is indicated at the point of intersection of horizontal and vertical arrows marked T. Similarly the position of the rain-gauge can be found from the horizontal and vertical arrows marked R.

Meteorological Office,
Air Ministry,
October, 1930.

ABERDEEN OBSERVATORY (ABERDEENSHIRE, SCOTLAND)

Latitude $57^{\circ} 10' N.$, Longitude $2^{\circ} 6' W.$ Height of rain-gauge above M.S.L. 37 ft. Height of anemometer vane above ground 42 ft.; above roof of hut 33 ft.

Instrumental Equipment.

| | |
|--------------------------------------|--|
| Barometer (Fortin type). | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum and minimum, grass minimum. |
| Rain-gauge, 8-inch. | Anemographs—pressure tube and Robinson cup (direction and velocity from both). |
| Recording rain-gauge (Beckley type). | |
| Nephoscope (Fineman) | |
| Sunshine recorder. | |
| Hydrograph. | |

Note.—The complete equipment of an Observatory of the First Order is maintained at this station.

General Surroundings.—The Observatory is situated on the north-eastern edge of the city of Aberdeen, which stretches for two miles to the southward and three miles to westward. To the eastward the ground is open, fringed along the seashore with a line of low dunes. To the north-westward is another fairly open space of fields, etc., for about a mile, after which a northern suburb of the town is reached.

Site.—The instrument enclosure is about 200 yards north-eastward of the Observatory Tower and has a fairly open exposure.

Wind.—This is obtained from the pressure-tube anemometer situated about a quarter of a mile east-south-east of the instrument enclosure. It is not in a very exposed position, trees or houses at no great distance obstructing the free passage of the wind, especially when the wind is southerly. Sea breezes are much in evidence during fine summer weather, setting in about 10 a.m. and persisting until the evening; they may extend two or three miles inland.

Temperature.—The sea lies three-quarters of a mile away to the east, and often influences the temperature. A föhn effect causes relatively high maxima with south-westerly winds on the north-west margin of a continental anticyclone.

Visibility.—Smoke from the town affects the visibility, especially with southerly winds. Coastal fog is very liable to occur; it does not usually extend inland for more than two or three miles, and often merely fringes the coast. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|----------|------------------|--------------------------------|---------------------|
| A | 26 yards | — | Telephone insulator |
| B | 55 .. | — | Roof ridge |
| C | 109 .. | About 65° | Wall |
| D | 218 .. | About 90° | Wall |
| E | 550 .. (approx) | $85^{\circ}, 210^{\circ}$ | Roof |
| F | 1,090 .. | 60° | Building |
| G | 2,180 .. | $43^{\circ}, 163^{\circ}$ | Buildings |
| H | 2.6 miles | 131° | Girdleness |
| I* | 3.6 to 5.3 miles | 260° | Building |
| J* | 5.3 to 9.9 .. | Various | Hills or houses |
| K | 12.4 .. | 315° and 90° | Shipping |
| L | 18.6 .. | 25° | Sandbank |
| M† | — | 30° | Hill—Cruden Scaur |

* Visibilities I and J depend upon observation estimates between certain objects at other distances than $4\frac{1}{2}$ and $6\frac{1}{2}$ miles respectively, but can be given with fair accuracy.

† No object is visible at M distance ($31\frac{1}{2}$ miles)—M is used for exceptionally clear detail at the furthest visible point about 20 miles distant, bearing 30° .

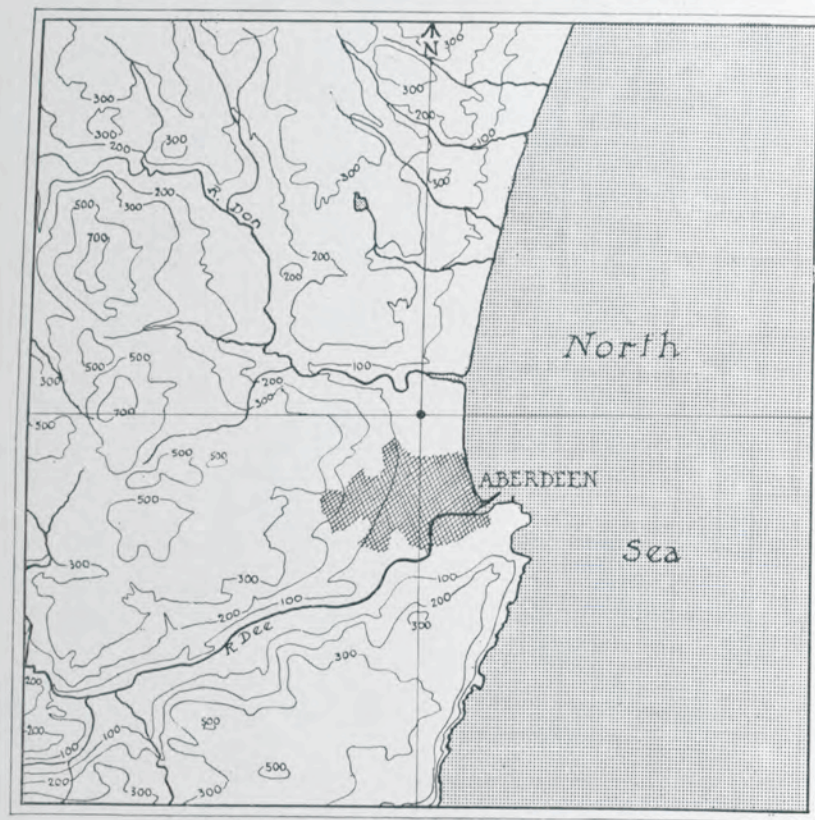
Sea Disturbance.—Can be estimated satisfactorily.

Rainfall.—The exposure of the gauge is satisfactory.

July, 1929.

ABERDEEN

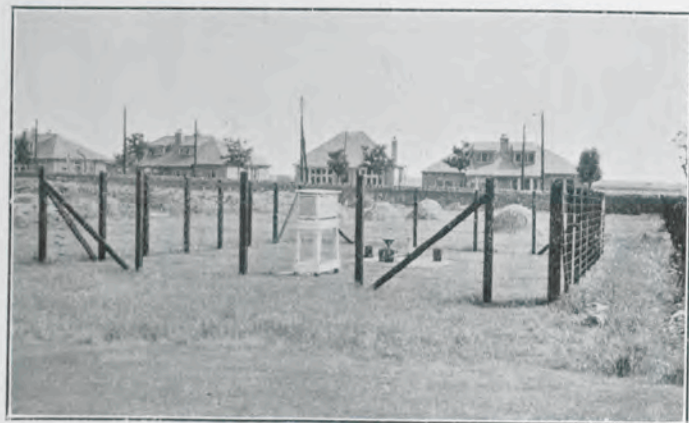
(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Aberdeen.

↓ T ↓ R



Looking E.N.E.

(1928).

ALDERGROVE (Co. ANTRIM, IRELAND)

Latitude 54° 39'N., Longitude 6° 13'W. Height of rain-gauge above M.S.L. 238 ft. Height of anemometer vane above ground 40 ft. Height of anemometer vane above roof 27.5 ft.

Instrumental Equipment.

Barometer (Kew pattern).
Barograph.
Rain-gauge, 8-inch.
Hyetograph.
Nephoscope—Besson.
Sunshine recorder.
Thermograph.
Hygrograph.
Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.

Anemograph, pressure tube, direction and velocity.
Theodolites (2), Cary Porter type, and equipment for upper wind observations.
Psychrometer—acropole.
Barometer—aneroid.

General Surroundings and Site.—The station is situated about two miles to eastward of Lough Neagh, and in the vicinity of the Royal Air Force aerodrome at Aldergrove. The surrounding country is undulating and the exposure of the instruments very open.

Wind.—The exposure of the anemometer is affected to a slight degree by buildings to south and east.

Temperature.—Temperature is read from a large Stevenson screen, in which are also exposed the thermograph and hygrograph. The Stevenson screen is situated in the enclosure to the west of the office and several feet lower.

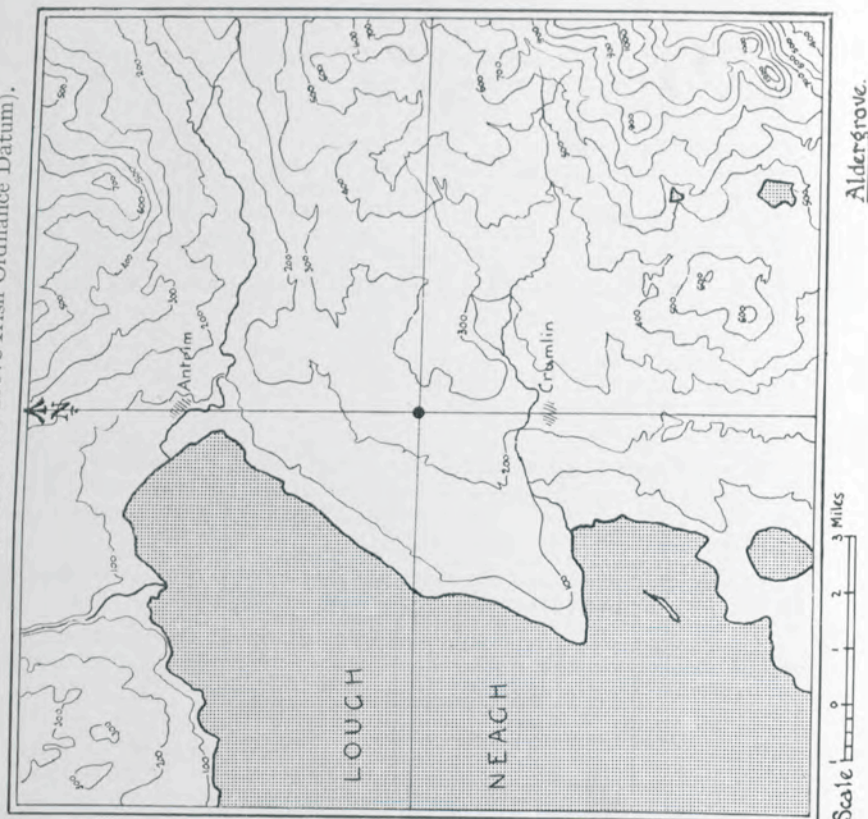
Visibility.—The ground in the vicinity of the station is generally waterlogged during the winter months and radiation fogs are therefore fairly frequent. The objects used in estimating the visibility are:—

| Object | Distance | Bearing | Nature of object |
|---------|----------|---------|------------------|
| A | 27 yards | 360° | Tree |
| B | 55 .. | 300° | Hedge |
| C | 110 .. | 245° | Building |
| D | 220 .. | 175° | Telegraph post |
| E | 550 .. | 315° | Building |
| F | 1,100 .. | 358° | Trees |
| G | 2,200 .. | 220° | Trees |
| H | 2½ miles | 55° | Crossroads |
| I | 4½ .. | 82° | Carmavy Church |
| J | 6¼ .. | 36° | Donegore Hill |
| K | 13 .. | 275° | Crossroads |
| L | 17 .. | 40° | Agnews Hill |
| M | 30 .. | 285° | Carnanelly Hill |

Rainfall.—The exposure of the rain-gauges is satisfactory.

July, 1929.

(The contours are given in feet above Irish Ordnance Datum).



Looking W.

T →
R →



Looking N.W.

(November, 1928).

↑ ↑
T R

BIRMINGHAM (WARWICKSHIRE, ENGLAND)

Latitude $52^{\circ} 29' N.$, Longitude $1^{\circ} 56' W.$ Height of rain-gauge above M.S.L. 535 ft. Height of anemometer vane above ground 110 ft. Height of anemometer vane above roof 18 ft.

Instrumental Equipment.

Barometer.
Barograph (mercurial).
Rain-gauge, 8-inch.
Hyetograph.
Nephoscope (Besson).
Sunshine recorder.
Hygograph.

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Thermograph.
Anemograph, pressure tube and direction recorder.

General Surroundings.—The station is in the residential district on the south-west outskirts of the City. The general level of the surrounding country is above 400 ft. and to the south-west and west, above 500 ft. An isolated area is found above 700 ft. within $2\frac{1}{2}$ miles to the west-south-west and considerable areas above 800 ft. at from five to seven miles distance to the south-west and north-west.

Site.—Height above M.S.L. 535 ft., on grass which grows on the top of a large covered reservoir. For a town site the exposure may be regarded as open. There are houses a few hundred yards away to the north-east and south. To the westward there is open ground and to the north-west a large reservoir. A large pumping station lies 200 yards away to the south-east.

Eye observations are taken from the top of a tower 100 ft. high which commands an excellent view of the surrounding districts. The barometer and barograph are placed in the tower.

Wind.—The wind is estimated with the help of the pressure-tube anemometer exposed above the top of a 100 ft. high tower. This provides a much more unobstructed exposure than can normally be obtained in a town site.

Temperature.—The temperature must be affected by the position of the site in a large town.

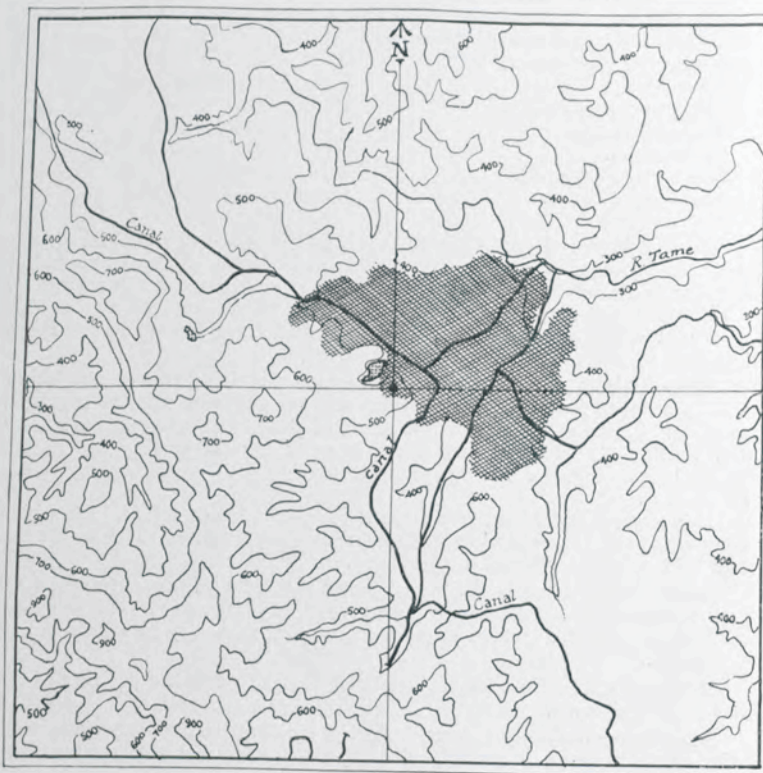
Visibility.—Visibility is much affected by town smoke, especially with winds from between N. and E. The objects used to estimate the visibility are :—

| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------------|------------------------------------|
| A | 25 yards | 112° | Telegraph pole |
| B | 55 .. | 112° | Chimney |
| C | 110 .. | 135° | Lamp standard |
| D | 220 .. | 315° | Chimney stack |
| E | 550 .. | 281° | Magdalen Homes building |
| F | 1,100 .. | 262° | St. Augustine's Church spire |
| G | 1.3 miles | 212° | School Clock tower |
| H | 2.5 .. | 193° | St. Mary's Church spire, Selly Oak |
| I | 4.3 .. | 220° | Frankley Beeches, Ley Hill |
| J | 6.3 .. | 202° | Chimney stack, Longbridge |
| K | — | — | — |
| L | — | — | — |
| M | — | — | — |

Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Birmingham.

↓ TR



Looking N.W. (Enclosure behind tower.) (September, 1926).

Latitude 53° 6' N., Longitude 7° 56' W. Height of rain-gauge above M.S.L. 173 ft.

Instrumental Equipment.

Barometer.
Rain-gauge, 8-inch.
Sunshine recorder.

Stevenson screen.

Thermometers—dry bulb, wet
bulb, maximum, minimum,
grass minimum.

General Surroundings.—The surrounding country is gently undulating, but there are hills ranging up to 1,700 ft. in height about 10 miles to east-south-east and extending at a greater distance from east round to south.

Site.—Height 173 ft. above M.S.L. The station is in a well wooded park studded with large trees. There is a small lake about 150 yards to west with the ground sloping gently down to it. About 200 yards to south there is a river flowing from east to west, the ground being level almost up to it and then dropping steeply about 20 ft.

Wind.—This is estimated without instrumental assistance. The trees in the immediate neighbourhood of the station give shelter from strong winds from any direction, more especially from S. and SW. and from NE.

Temperature.—There seems little to make temperature readings abnormal.

Visibility.—Owing to the shut-in nature of the site, distant visibility objects cannot be fixed and estimation of the higher visibilities presents some difficulty. The objects in use for estimating visibility are :—

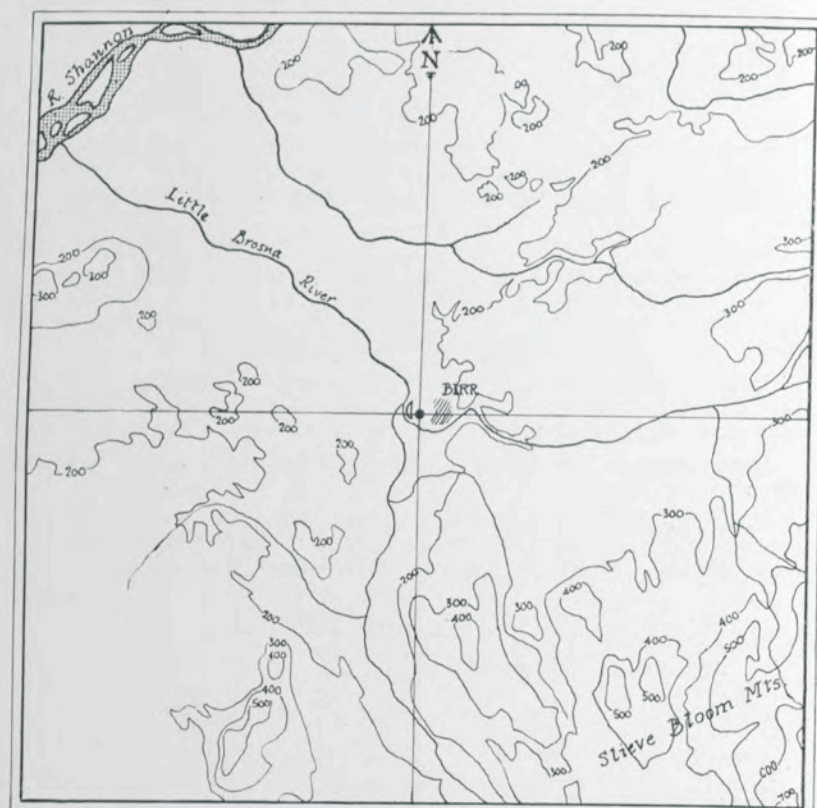
| Object | Distance | Bearing | Nature of object |
|---------|----------|---------|---------------------------|
| A | 27 yards | 270° | Screen |
| B | 50 " | 180° | Notice board |
| C | 110 " | 270° | Tree near lake |
| D | 220 " | 315° | Tree |
| E | 550 " | 135° | Church spire |
| F | 1,030 " | 135° | Trees of Moor Park |
| G | — | — | — |
| H | — | — | — |
| I | — | — | — |
| J | — | — | — |
| K | 11 miles | 112° | Slieve Bloom Mountains |
| L | — | — | — |
| M | — | — | — |

Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

BIRR CASTLE

(The contours are given in feet above Irish Ordnance Datum.)



Scale 0 1 2 3 Miles

Birr Castle.

↓ T ↓ R



T →

R →

Looking W.N.W.

(1929).

BLACKSOD POINT (Co. MAYO, IRELAND)

Latitude 54° 6' N., Longitude 10° 4' W. Height of rain-gauge above M.S.L. 18 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum.

General Surroundings.—The station is on the eastern side and near the southern end of a long narrow irregular promontory projecting towards south-south-west from the mainland. The promontory is about two miles in breadth on the average, but much narrower in places; it is meteorologically equivalent to a low flat island. The only hills on the promontory are at the southern end, and lie to south-west and west of the station; Termon Hill rises to 345 ft. within a little over a mile to the west-north-west. Eastwards of the station lies Blacksod Bay and across this, at about four miles distance, the mainland. To south and south-west at a distance of some eight miles across the water, the Achill mountains rise to above 2,000 ft.

Site.—The station is on ground which slopes down towards Blacksod Bay and is within 100 yards of the water of this bay at high tide. The site is an open one apart from the hills mentioned above.

Wind.—This is estimated without instrumental assistance. Although the hills to the westward have an appreciable effect upon winds with a westerly component, and possibly also upon winds from other directions, the situation is a good one.

Temperature.—The sea affects the temperature, but less with winds from between E. and S. than with winds from other quarters.

Visibility.—The site is far removed from smoky industrial areas. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|------------|-----------|---------|-------------------------|
| A | 25 yards | 225° | Screen |
| B | 50 " | 45° | Boundary wall |
| C | 100 " | 135° | House |
| D | 205 " | 337° | White house |
| E | 550 " | 90° | Building |
| F | 1,100 " | 360° | Headland—Doobeg Point |
| G | 2,200 " | 315° | Building |
| H | 2.5 miles | 337° | Clogher post office |
| I (sea) .. | 4.3 " | 135° | Headland—Kinrovar Point |
| J | 6.3 " | 180° | Slieve More Mountain |
| K | 12 " | 22° | Hill |
| L | 19 " | 22° | Headland—Benwee Head |
| M | — | — | — |

Sea Disturbance.—There is no outlook over the open sea and the sea disturbance cannot be properly estimated.

Rainfall.—Rather too little rain is likely to be recorded in strong winds, owing to insufficient shelter from the wind.

July, 1929.

(40464)

BLACKSOD POINT

(The contours are given in feet above Irish Ordnance Datum.)



Scale 0 1 2 3 Miles

Blacksod Point

R T
↓ ↓

T
R →



Looking S.E.

(October, 1925).

CALSHOT (HAMPSHIRE, ENGLAND)

Latitude 50° 49' N., Longitude 1° 18' W. Height of rain-gauge above M.S.L. 8 ft.

Instrumental Equipment.

Barometer.
Barograph.
Microbarograph.
Rain-gauge, 8-inch.
Recording rain-gauge (natural syphon).
Nephoscopes (Besson and Fineman).
Sunshine recorder.
Hydrograph.
Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum, solar radiation.
Thermograph.
Psychrometer (Assmann).
Anemograph, pressure tube.
Swinging-plate anemometer.
Pilot-balloon equipment.

General Surroundings.—The station is situated at the Royal Air Force Seaplane Base at Calshot.

Site.—The Meteorological Office is situated on Calshot Spit at a point some 740 yards south of Calshot Castle and 700 yards from the mainland.

At high water, the width of the spit varies from 270 yards near the Castle to about 70 yards in the vicinity of the Meteorological Office, the average height of the ground above mean sea level being 8 ft. On the mainland in a northerly direction, towards Winchester, the ground rises to an average altitude of 600 ft., while Butser Hill, 18 miles to the north-east of Calshot, reaches 889 ft.

Wind.—This is measured by a pressure-tube anemometer, the head of which is 50 ft. above ground level, 58 ft. above mean sea level and 32 ft. above the building. The general exposure is satisfactory.

As a result of this high ground to the northward, a weak but well defined northerly katabatic is experienced at Calshot. The sea-breeze effect is well defined and varies in direction from SE. to SW. In the summer the sea breeze from SW. may often attain a considerable velocity.

Remarks.—The station, being almost insular, probably does not yield records which are very representative of the climatic conditions of even the immediately surrounding country. For instance, snow, sleet and thunderstorms are comparatively rare at Calshot, but occur much more frequently a little distance inland.

Visibility.—From the station an uninterrupted view is obtained seawards along Spithead out to the English Channel, and landwards up Southampton Water to the hills north-west of Romsey. Visibility landwards is often marred by the smoke haze formed over Southampton. The objects used to estimate visibility are :—

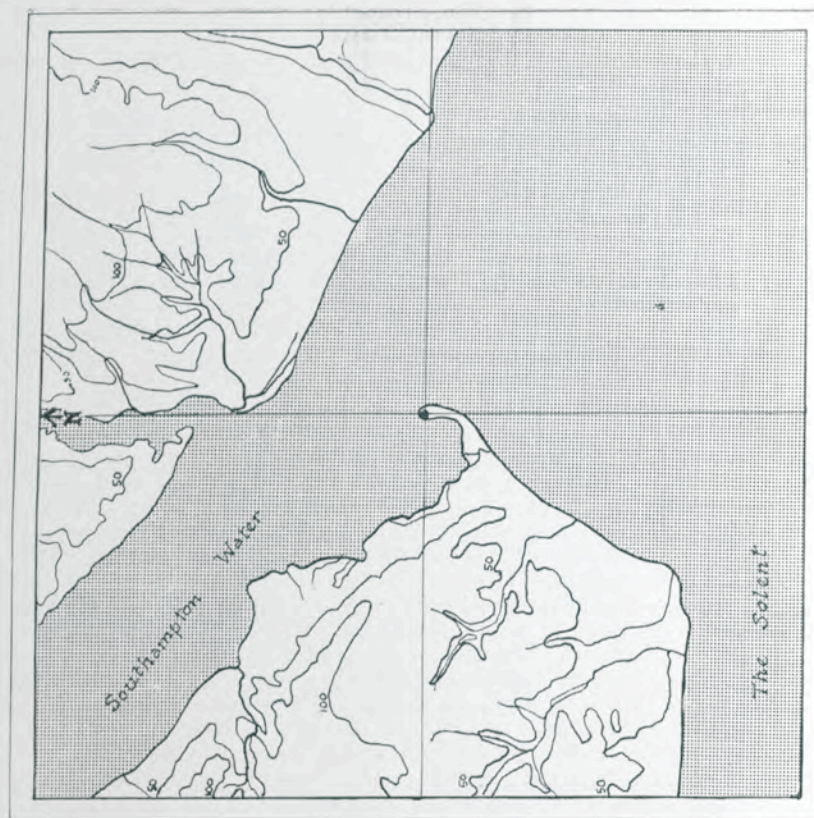
| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------|------------------|
| A | 26 yards | 268° | Building |
| B | 54 " | 200° | Building |
| C | 105 " | 201° | Lamp standard |
| D | 220 " | 341° | Pier |
| E | 580 " | 214° | Notice board |
| F | 1,050 " | 227° | Buildings |
| G | 1.4 miles | 114° | Buoy |
| | 1.2 " | 226° | Tower |
| H | 2.5 " | 216° | Stone point |
| | 2.5 " | 90° | Haven |
| | 2.5 " | 329° | Cape |
| I | 3.8 " | 338° | Building |
| | 5.9 " | 171° | Crane |
| | 4.5 " | 99° | Sheds |
| J | 6.2 " | 326° | Docks |
| | 5.75 " | 148° | Woods |
| | 11.0 " | 115° | Ports |
| K | 12.2 " | 120° | Warner Lightship |
| | 11.2 " | 198° | Downs |
| L | No object | | |
| M | | | |

July, 1929.

(40464)

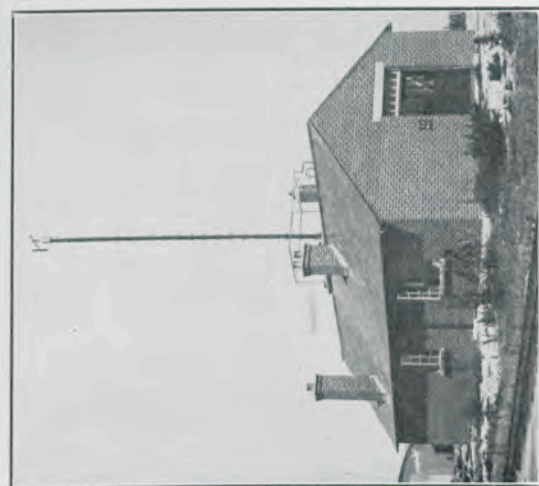
CALSHOT

(The contours are given in feet above mean sea level.)



Calshot

Scale 1 0 1 2 3 Miles
(Photographs taken July 1929).



Looking S.



Looking E.S.E.

T →
R →

CARDINGTON (BEDFORDSHIRE, ENGLAND)

Latitude 52° 07' N., Longitude 0° 25' W. Height of rain-gauge above M.S.L. 100 ft.

Instrumental Equipment.

Barometer.
Barograph (Short Mason open scale with daily clock).
Barograph (Dines float).
Rain-gauge, 8-inch.
Rain-gauge (self-recording siphon).
Nephoscopes (Besson and Fine-man).
Two anemometers, Dines pressure-tube (height of vanes above ground, 150 ft. and 50 ft.), with "quick-run" attachments.
Thermometers—maximum, minimum, grass minimum, dry bulb, wet bulb.
Thermograph } Daily charts.
Hydrograph }

Electrical temperature recorder. (Recording dry-bulb temperatures at 4 ft. above the ground on open aerodrome, and at top of meteorological tower, 150 ft. above ground.) Platinum resistance thermometers; Cambridge triple thread recorder in forecast room.
Pilot-balloon station with equipment for tail method.
Sunshine recorder (Campbell Stokes).
Electrical system for making synchronous time marks on all autographic records.

General Surroundings.—The enclosure containing the rain-gauges and ordinary thermometers is situated at the Royal Airship Works, Cardington, about two miles south-east of Bedford. It lies at the top of a low ridge. The ground slopes down on all sides, the steepest slope lying to the north-west where the ground falls about 40 ft. in 1,500 ft. before rising again.

Site.—The site of the enclosure is level. It is situated close to and on the east side of the Bedford-Shefford road; it has an open exposure to the southward between south-east and south-west. From south-west through west to north-west on the other side of the road are situated the houses of Shortstown, while from north-west through north to south-east stand the offices and workshops of the Royal Airship Works.

Wind.—Wind readings, for telegraphic reports, are taken from a Dines pressure-tube anemometer, recording in the forecast room which is situated 350 ft. north by west of the rain-gauge and on the east side of the main office buildings. The vane is 150 ft. above ground level; a suitable reduction is applied to the speed readings before converting them into Beaufort equivalents. The wind exposure is good from all points. The anemometer recording the wind at 50 ft. above ground is situated well away from buildings in a very open exposure on flat land.

Visibility.—Is taken from the forecast room some 60 ft. above the ground having an uninterrupted view all the way round.

The objects in use for estimating visibility are:—

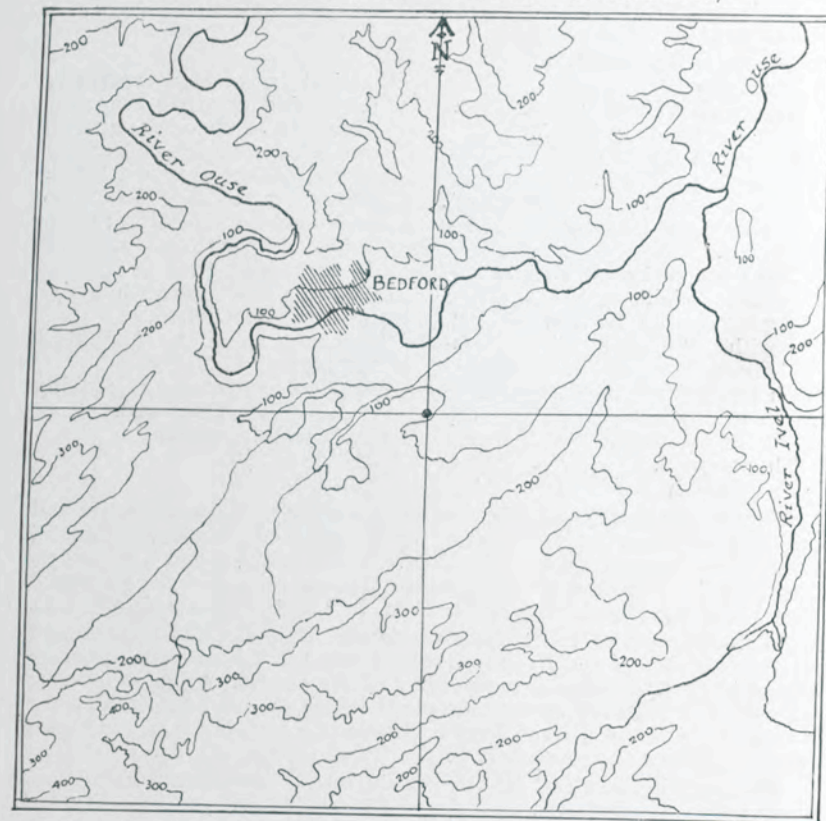
| Object | Distance | Bearing | Nature of object |
|---------------|-----------|---------|----------------------------|
| A | 27 yards | 180° | Chimney |
| B | 55 " | 65° | Workshops girder |
| C | 110 " | 360° | Wireless pole |
| D | 233 " | 65° | End of workshops |
| E | 590 " | 125° | No. 1 Airship shed |
| F | 1,080 " | 40° | Cottages |
| G | 1,930 " | 150° | Cotton End Village |
| H | 2.3 miles | 315° | St. Paul's Church, Bedford |
| I | 4.3 " | 235° | Pillinge Brick Works |
| J | 6.5 " | 245° | Marston Thrift |
| K, L and M .. | — | — | — |

General.—The station is a fully equipped forecasting centre keeping watch day and night for this purpose during all periods of airship operations.

Observations are transmitted to the Air Ministry as a routine at 0700, 1000, 1300, 1600 and 1800 G.M.T. always and also at 0100 G.M.T. when a night-forecasting watch is kept.

July, 1929.

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Cardington

R ↓ ↓ T



Looking S.S.W.

(April, 1930).

CLACTON (ESSEX, ENGLAND)

Latitude $51^{\circ} 47' W.$, Longitude $1^{\circ} 9' E.$ Height of rain-gauge above M.S.L. 54 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-in.

Sunshine recorder.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.

General Surroundings.—The country in the neighbourhood is flat and does not rise above 100 ft. within seven miles. The shore line faces south-east at Clacton and the outlook seawards is over the open sea off the Thames Estuary broken only by sandbanks at low tide.

Site.—The station is on a sloping grass bank 54 ft. above M.S.L., separated from the shore by a road, and lies near the south-west end of the sea front. The town lies mainly to the north and north-east. Buildings in the immediate vicinity consist of a Martello tower 20 ft. high and 30 yards to the west and some coastguard houses 40 yards to the north.

Wind.—Wind is estimated without instrumental aid.

Temperature.—The immediate proximity of the sea must affect the temperature.

Visibility.—The site is very suitable for visibility observations. The objects employed in estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|-------------|-----------|---------------|------------------------|
| A | 30 yards | 68° | Building |
| B | 50 " | 68° | Building |
| C | 160 " | 68° | Building |
| D { land .. | 230 " | 68° | Shelter |
| { sea .. | 248 " | 180° | Groyne |
| E { land .. | 459 " | 68° | Hotel |
| { sea .. | 587 " | 112° | Pier head |
| F | 1,100 " | 68° | Hotel |
| G { land .. | 1,994 " | 68° | House |
| { sea .. | 1,905 " | 225° | West Sewer buoy |
| H | 1.8 miles | 68° | Cliff at East Sewer |
| I (sea) .. | 4.6 " | 225° | Wallet Spitway buoy |
| J (sea) .. | 5.8 " | 170° | Swin Spitway Bell buoy |
| K (sea) .. | 14.5 " | 210° | Maplin lighthouse |
| L (sea) .. | 24.2 " | 180° | Edinboro lightship |
| M (sea) .. | 29 " | 202° | Whitstable |

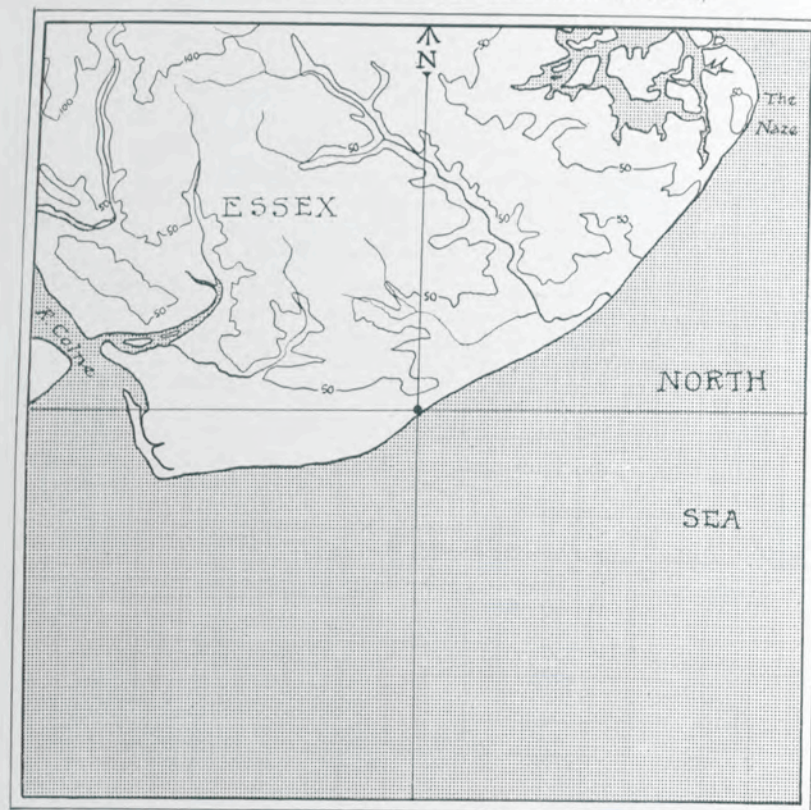
Sea Disturbance.—Observations of sea disturbance are readily made.

Rainfall.—The site is too open to the east and south for good rainfall observations with winds from this quarter but otherwise the exposure of the rain-gauge is satisfactory.

July, 1929.

CLACTON

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Clacton.

↓ T

↓ R



T →

R →

Looking S.S.E.

(February, 1928).

CRANWELL (LINCOLNSHIRE, ENGLAND)

Latitude $53^{\circ} 1' N.$, Longitude $0^{\circ} 30' W.$ Height of rain-gauge above M.S.L. 240 ft.

Instrumental Equipment.

Barometer. Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum, solar radiation, earth 1-ft. and 4-ft.
 Barograph. Hyetograph. Nephoscopes (Besson and Fineman). Thermograph.
 Rain-gauge, 8-inch. Sunshine recorder. Anemometers—pressure-tube and cup.
 Hyetograph. Stevenson screen. Pilot-balloon equipment.

General Surroundings.—The office and enclosure are situated on the western edge of the Royal Air Force Station, Cranwell, which lies on the north side of the Sleaford and Newark-upon-Trent road, $4\frac{1}{2}$ miles north-west of Sleaford and $13\frac{1}{2}$ miles south of Lincoln. The surrounding country is open and undulating.

Site.—Practically all of the Royal Air Force Station lies to the east of the enclosure. The officers' married quarters, consisting of buildings about 16 ft. high, lie 70 yards to the west.

The ground consists of loam on limestone.

Wind.—This is measured by a Dines pressure-tube anemometer, the exposure being excellent except for wind with an easterly component, in which case the records of both direction and speed are somewhat doubtful. A cup anemometer is also kept at the station.

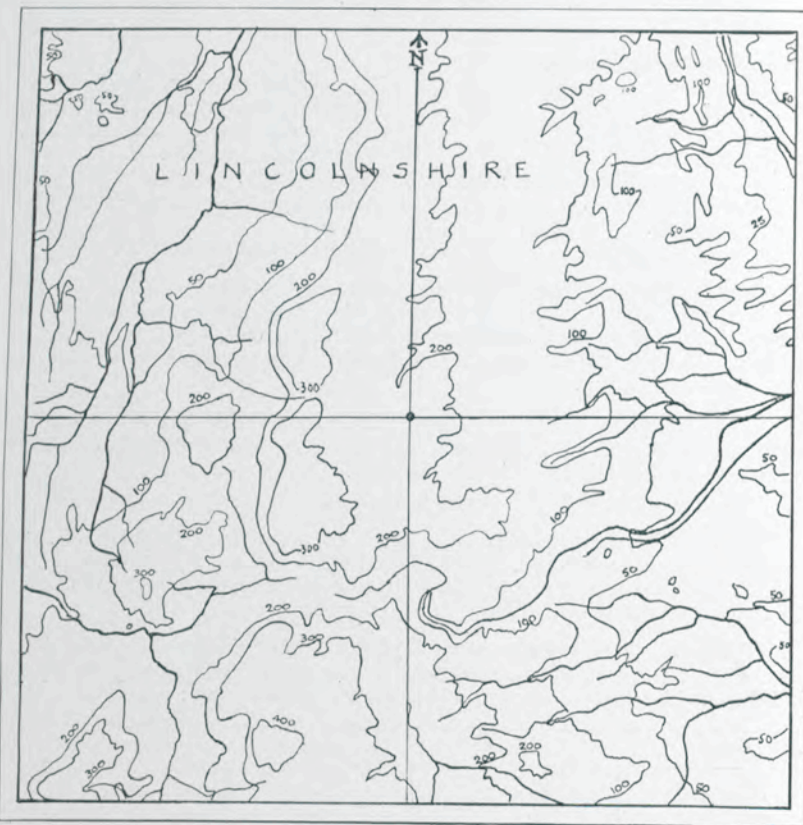
Visibility.—The station is well situated for visibility observations, the open nature of the surrounding countryside affording objects up to 21 miles. The objects used to estimate the visibility are :—

| Object | Distance | Bearing | Nature of object |
|---------|----------------------|---------------|----------------------|
| A | 25 yards | 5° | House |
| B | 60 " | 51° | Pole |
| C | 120 " | 56° | Pole |
| D | 220 " | 122° | Door |
| E | 590 " | 87° | Tower |
| F | 1,170 " | 167° | Stacks |
| G | 2,150 " | 200° | House |
| | 2,110 " | 33° | Wood |
| H | $2\frac{1}{4}$ miles | 149° | Rauceby Church spire |
| I | 5 " | 358° | Windmill |
| J | $6\frac{1}{4}$ " | 193° | Cottages |
| K | 13 " | 184° | Bitchfield Church |
| L | 21 " | 105° | Boston Church tower |
| M | No object available | | |

July, 1929.

CRANWELL

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Cranwell

↓ T ↓ R



Looking N.

(November, 1927).

CROYDON (SURREY, ENGLAND)

Latitude 51° 21' N., Longitude 0° 7' W. Height above M.S.L. of ground on which rain-gauge stands 217.5 ft.

Instrumental Equipment.

| | |
|----------------------|---|
| Barometer. | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum. |
| Microbarograph. | Thermograph. |
| Rain-gauge, 8-inch. | Anemometer—pressure tube (direction and velocity). |
| Hyetograph. | Pilot-balloon equipment. |
| Nephoscope (Besson.) | |
| Sunshine recorder. | |
| Hygograph. | |

General Surroundings.—The station is situated on the eastern side of Croydon Aerodrome. The ground is flat to the west and north, with Croydon town lying about one mile to the east and north-east, beyond which about two miles to the east are Croydon Hurst and Addington Hills, rising about 250 ft. above the station. To the south the ground slopes gradually up to Russell Hill which is one mile distant and about 140 ft. above the station. Beyond Russell Hill is the deep Purley Valley beyond which at distances varying from two to three miles are hills rising to 200 to 300 ft. above the station.

Wind.—The vane of the anemometer is exposed on the top of a lattice steel mast, surmounting the Control Tower which rises above the centre of the administrative block on the west side. The vane is 104.5 ft. above the ground and 49 ft. above the tower. The recording apparatus is in the general office on the first floor of the building.

The theodolite stands are situated in small enclosures on the north-west and south-west corners respectively of the flat roof of the administrative block.

Sunshine.—The sunshine recorder is on the top of a lattice steel pillar surmounting a small concrete building on the south side of the aerodrome buildings. It is 18.25 ft. above the ground and 258 ft. above M.S.L.

Temperature and Rainfall.—The Stevenson screen and rain-gauge are exposed in a grass enclosure 45 ft. by 31 ft. on the east side of the main hangars. The nearest obstruction, a large hangar 23 ft. high at the edge, is 100 ft. to the west of the screen and rain-gauge. Another building, 15 ft. high, is 100 ft. to the south, while there is a smaller building, 14 ft. high, 130 ft. to the north. The exposure is clear on the eastern side.

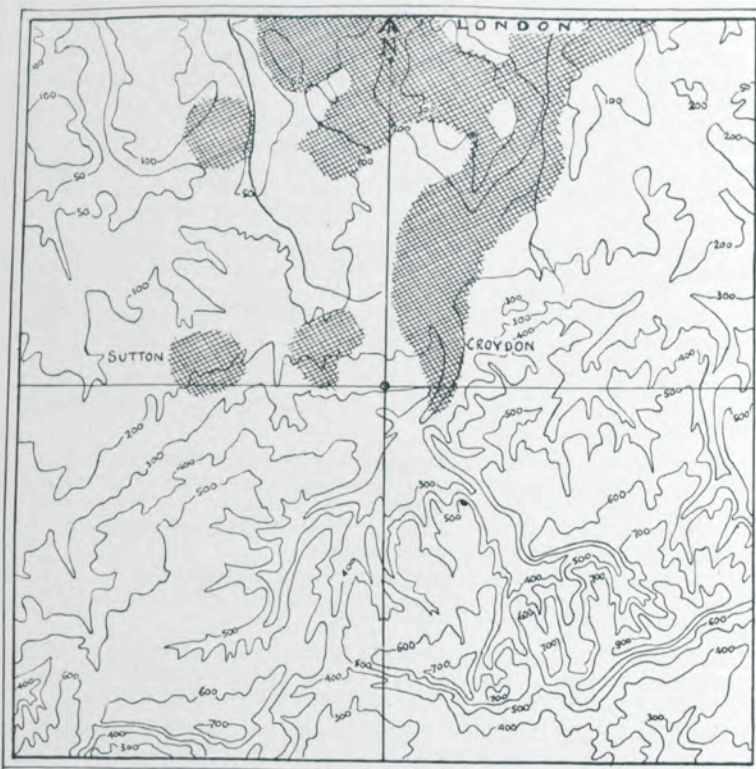
Weather and visibility.—Weather and visibility are observed from the flat roof. The following are the visibility objects:—

| Object | Distance | Bearing | Nature of object |
|---------|-------------|-----------|------------------|
| A | 27 yards | 110° | Block |
| B | 55 " | 120° | Flag pole |
| C | 110 " | 172.8° | Roof |
| D | 226 " | 314.5° | Building |
| E | 500 " | 9.0° | House |
| F | 1,100 " | 292° | House |
| G | 2,347 " | 360.5° | Gasometer |
| H | 2 1/4 miles | 18.8° | Church |
| I | 4 1/4 " | 21.8° | Building |
| J | 6 1/2 " | 320.9° | Wimbledon Church |
| K | 9 1/2 " | 341.8° | Building |
| L | 22 " | 335°-345° | Elstree heights |
| M | No objects | | |

July, 1929.

CROYDON

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Croydon

↓ R ↓ T



Looking N.W.

(July, 1929).

DONAGHADEE (Co. DOWN, IRELAND)

Latitude 54° 38'N., Longitude 5° 31'W. Height of rain-gauge above M.S.L. 40 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum.

General Surroundings.—Donaghadee is situated on the sea coast three miles south-east of the entrance to Belfast Lough, the coast at this point facing about east-north-east. The instruments are at the coastguard station, which lies some 200 yards back from the shore, from which it is separated by a road and a row of houses. The surrounding country is flat, rising to little above 100 ft. above M.S.L.

Site.—The land on which the coastguard station is situated slopes down towards the sea, with a gradient of approximately one in fifteen. The instrument enclosure is almost level with the roofs of the houses on the opposite side of the road; this renders the exposure better than might appear from a large-scale map of the district.

Wind.—This is estimated without instrumental assistance. The exposure is rather unsatisfactory owing to the coastguard houses to the south-east, buildings to the north-west, and the rise of the ground to west-south-west. The exposure is best for winds from between N. and E.

Temperature.—The sea, being only 200 yards away, affects the temperature.

Visibility.—Visibility is doubtless reduced by smoke from Belfast when the wind is from about WSW. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|------------|------------------|---------|-------------------------|
| A | 25 yards | 90° | Pinnacle on church |
| B | 55 " | 337° | Telegraph pole |
| C | 112 " | 135° | Building |
| D | 220 " | 144° | Flagstaff |
| E | 550 " | 112° | Wharf |
| F (sea) .. | 1,070 " | 15° | Headland—Foreland Point |
| G (sea) .. | 1 mile 220 yards | 360° | Buoy off Foreland Spit |
| H (sea) .. | 2.3 miles | 15° | Copeland Island |
| I | — | — | — |
| J | — | — | — |
| K | — | — | — |
| L | — | — | — |
| M (sea) .. | 27 miles | 90° | Mull of Galloway |
| | 40 " | 135° | Lighthouse Isle of Man |

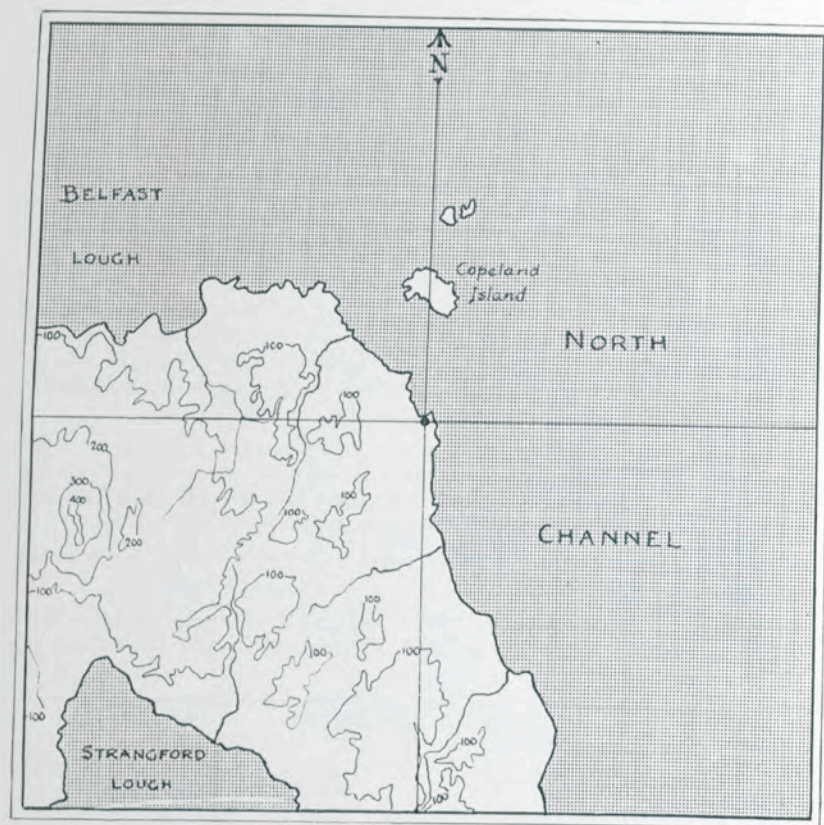
Sea Disturbance.—A clear view of the open sea is obtainable over the tops of the houses across the road.

Rainfall.—The exposure is satisfactory.

July, 1929.

DONAGHADEE

(The contours are given in feet above Irish Ordnance Datum.)



Scale 0 1 2 3 Miles

Donaghadee

↓ R

↓ T



Looking N.E.

(March, 1929).

← T

← R

DUNGENESS (KENT, ENGLAND)

Latitude 50° 55'N., Longitude 0° 58'E. Height of rain-gauge above M.S.L. 20 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum, minimum.

General Surroundings.—The station is near the extremity of a low-lying headland jutting out in a south-easterly direction into the English Channel. The land is flat and consists of shingle. It is without vegetation and is very open for miles. There is open sea from north through east and south round to west.

Site.—Height above M.S.L. 20 ft. The instruments stand on shingle, and the ground is quite open in all directions except for the lighthouse and a few other buildings.

Wind.—Wind is estimated without instrumental aid. The exposure is very good.

Temperature.—The close proximity of the sea must affect temperature.

Visibility.—The range for visibility observations is good. The objects employed in the estimation of visibility are :—

| Object | Distance | Bearing | Nature of object |
|------------|-----------|---------|--------------------|
| A | — | — | — |
| B | 55 yards | — | Building |
| C | 109 .. | 22° | Building |
| D | 219 .. | 135° | Building |
| E | 547 .. | 90° | Building |
| F | 1,094 .. | 225° | Cottage |
| G | 2,187 .. | 255° | Buildings |
| H | 2.5 miles | 360° | Water tower |
| I (sea) .. | 4.3 .. | 22° | Littlestone-on-Sea |
| J | — | — | — |
| K (sea) .. | 14 miles | 255° | Fairlight Hill |
| L (sea) .. | 18.6 .. | 67° | Dover cliffs |
| M (sea) .. | 32 .. | 247° | Beachy Head |

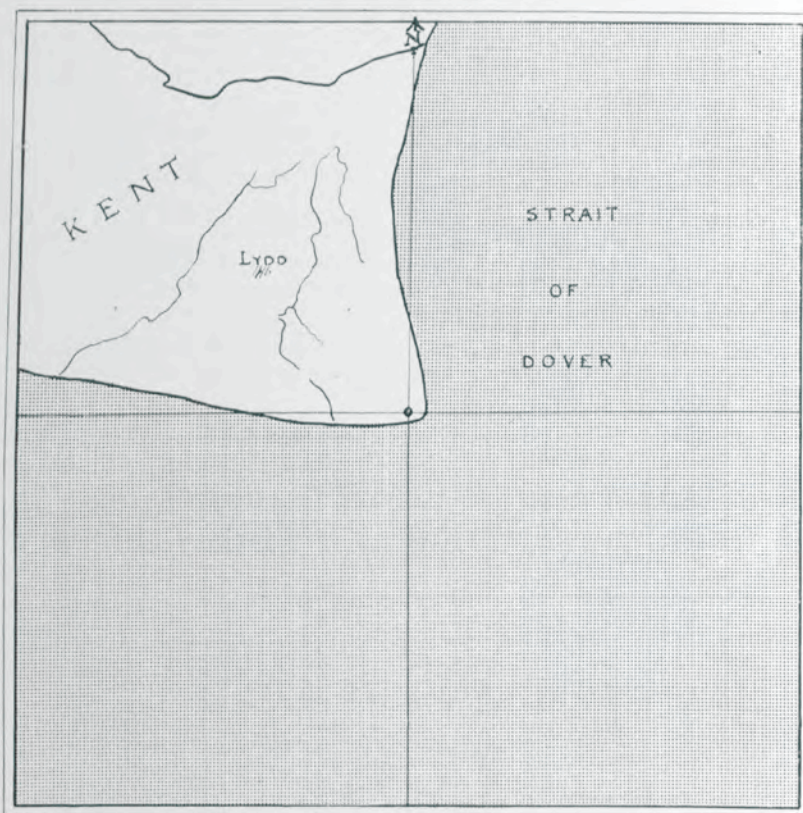
Sea Disturbance.—Sea disturbance can be readily estimated.

Rainfall.—The open exposure of the rain-gauge connotes that in windy weather too little rainfall is probably recorded.

Barometer Readings.—The barometer being situated in the lighthouse tower, is subject to suction effects in windy weather, so that pressure readings are sometimes low.

July, 1929.

DUNGENESS



Scale 0 1 2 3 Miles

Dungeness

RT ↓



R
T →

Looking N.E.

(May, 1928).

ESKDALEMUIR OBSERVATORY (DUMFRIES-SHIRE, SCOTLAND)

Latitude 55° 19' N., Longitude 3° 12' W. Height of rain-gauge above M.S.L. 794 ft. Height of anemometer vane above a tangent plane to the undisturbed slope of the hillside 49 ft. Height of anemometer vane above roof 22 ft.

Instrumental Equipment.

| | |
|---|---|
| Barometer. (Fortin). | Louvred hut. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum. |
| Rain-gauge, 8-inch. | Thermograph. |
| Recording rain-gauge (Beckley pattern). | Anemograph — pressure tube, direction and velocity. |
| Nephoscopes (Besson, Fineman). | |
| Sunshine recorder. | |
| Hygrograph. | |

Note.—The complete equipment of an Observatory of the First Order is maintained at this station.

General Surroundings.—The Observatory is situated 794 ft. above M.S.L. on the western side and near the head of the valley of the White Esk, an open valley running north and south. The buildings are placed on a shoulder of moorland and rising between the main valley and the small valley formed by the Davington Burn to the west. The bottom of the valley of the White Esk is somewhat more than 100 ft. below the level of the station. The highest of the surrounding hills, Ettrick Pen, rises to 2,270 ft. four miles north-west of the Observatory, while ground reaching nearly to 1,200 ft. is found within a mile both to the east and west. The surrounding country is somewhat bare and wild, and there are but few trees to relieve the monotony of the grass-covered hills and moorland.

Site.—The Observatory grounds slope somewhat from north-west down to south-east and are almost surrounded by a narrow belt of young trees, but, as yet, these are not high enough to have any appreciable effect on the exposure. The thermometers are exposed in a hut with louvred sides in place of a Stevenson screen of normal pattern. The rain-gauge is surrounded by a low bank, the top of which is level with the rim of the gauge. The range of Observatory buildings lies about 50 yards to southward of the instruments.

Wind.—The wind is measured both for direction and velocity by a pressure-tube anemograph. The exposure is abnormally "open" for an inland station. The full force of the wind is felt. The valley, running north and south, has some influence in deflecting winds; E. winds especially are deflected towards the NE.

Visibility.—Valley mists sometimes extend up to the station, while at other times low clouds envelop the Observatory. Visibility objects beyond a radius of four miles are not available. The objects used are:—

| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------|--------------------------------|
| A | 25 yards | 45° | Post |
| B | 25 " | 180° | Trees |
| B | 53 " | 360° | Theodolite pillar |
| B | 60 " | 45° | Chimney on Magneto-graph house |
| C | 107 " | 360° | Posts |
| D | 217 " | 337° | Standards |
| E | 550 " | 135° | Buildings |
| F | 470 " | 157° | House |
| F | 1,180 " | 157° | Chimneys |
| G | 2,160 " | 157° | Trees |
| H | 2.1 miles | 157° | Hill |
| I | 4 " | 157° | House |
| J | — | — | — |
| K | — | — | — |
| L | — | — | — |
| M | — | — | — |

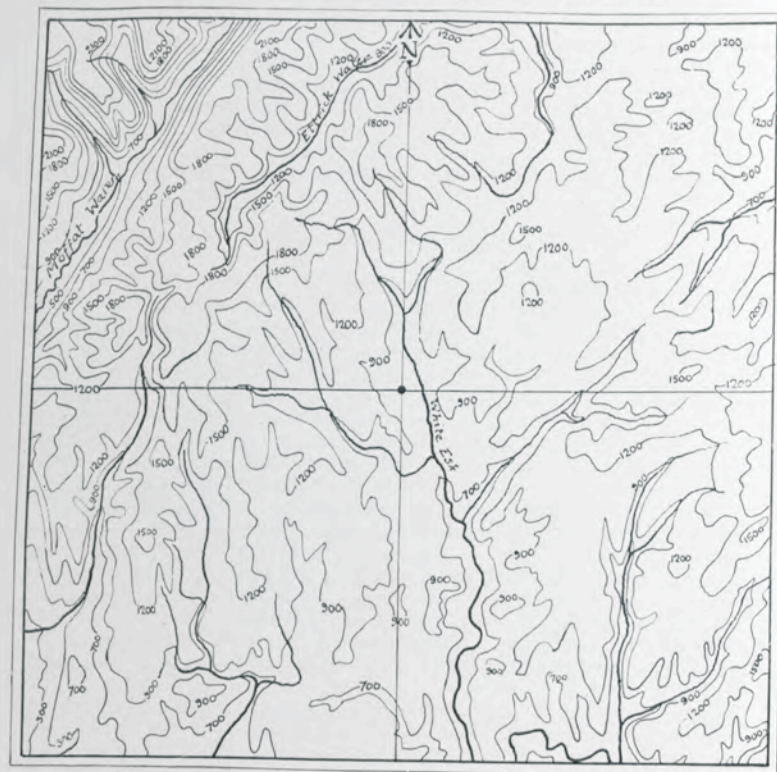
Rainfall.—The exposure of the rain-gauge is fairly satisfactory, but with strong winds too little rain is probably recorded.

Barometer Readings.—The height above sea level is sufficient to cause some uncertainty in the barometer reductions in very hot or very cold weather.

July, 1929.

ESKDALEMUIR

(The contours are given in feet above mean sea level.)



Scale 1 0 1 2 3 Miles

Eskdalemuir

↓ R ↓ T

R →



Looking N.

(August, 1929).

FALMOUTH (PENDENNIS) (CORNWALL, ENGLAND)

Latitude 50° 9' N., Longitude 5° 3' W. Height of rain-gauge above M.S.L. 200 ft. Height of anemometer vane above ground 65 ft. Height of anemometer vane above roof 24 ft.

Instrumental Equipment.

Barometer.
Barograph.
Rain-gauge, 8-inch.
Sunshine recorder.
Hydrograph.

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum.
Thermograph.
Anemograph—pressure tube, velocity.

General Surroundings.—The station is at the point of a narrow promontory which projects south-eastwards into the mouth of the estuary of the River Fal. This estuary extends inland in a northerly direction for over four miles, with an average breadth of fully a mile. To west and north-west there is high ground, exceeding 500 ft. at a distance of about four miles, and exceeding 800 ft. at one point eight miles away. Across the estuary the ground rises to over 200 ft. at about two miles distance to east and north-east. There is open sea only from east-south-east round to south.

Site.—The instruments are at a height of 200 ft. above M.S.L. on Pendennis Castle, which stands on a small conical hill forming the end of the promontory. The outdoor instruments are in a large open courtyard of the castle, with buildings at a short distance to the south-east and at about 120 yards to the north-west, but with an open horizon in other directions. The anemometer is on the roof of the castle, the vane being at a height of 256 ft. above sea level.

Wind.—The anemometer is higher than any objects within 1½ miles and owing to its position on the top of a hill the full force of the wind is felt.

Temperature.—Both the proximity of the sea and the height of the thermometer above sea level must affect the temperature.

Visibility.—There is a good look-out for visibility. The objects employed in the estimation are :—

| Object | Distance | Bearing | Nature of object |
|-------------|-----------|---------|------------------------|
| A | 25 yards | 315° | Chimney |
| B | 50 " | 315° | Post |
| C | 100 " | 15° | Chimney |
| D | 175 " | 337° | Clock tower |
| E | 440 " | 300° | Building |
| F { land .. | 1,060 " | 292° | Building |
| { sea .. | 1,000 " | 112° | Black Rock |
| G { land .. | 2,464 " | 292° | Tower |
| { sea .. | 1,980 " | 45° | St. Maw's Castle |
| H { land .. | 2.5 miles | 292° | Building |
| { sea .. | 2.3 " | 240° | Road |
| I { land .. | 4.4 " | 292° | Quarries |
| { sea .. | 4.5 " | 202° | Headland—Nare |
| J { land .. | 5.5 " | 345° | Point |
| { sea .. | 7 " | 180° | Penelewey Woods |
| K (sea) .. | 11.8 " | 67° | The Manacle Rocks |
| L (land) .. | 18 " | 45° | Headland—Dodman |
| M | — | — | Point |
| | | | Hills near St. Austell |

Sea Disturbance.—There is a good view for sea disturbance, but the locality is open only to seas running from between south and east.

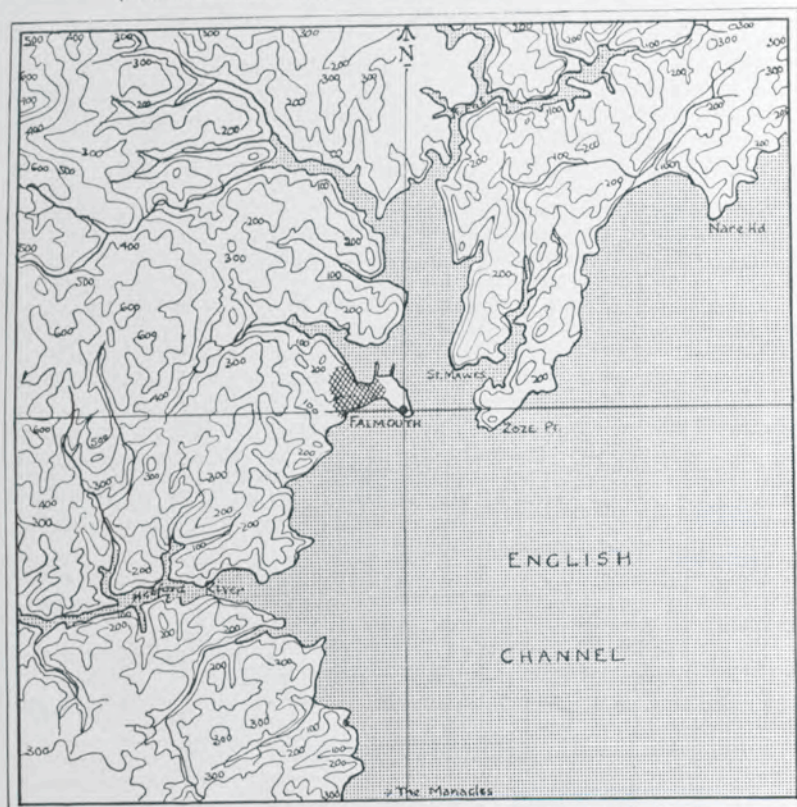
Rainfall.—The exposed position of the rain-gauge probably means that with strong winds too little rainfall is recorded.

July, 1929.

(40464)

FALMOUTH

(The contours are given in feet above mean sea level.)



Scale 1 0 1 2 3 Miles

Falmouth.

↓ T

↓ R



Looking S.W.

(December, 1925).

← T

← R

FARNBOROUGH (HAMPSHIRE, ENGLAND)

Latitude 51° 17' N., Longitude 0° 45' W. Height of rain-gauge above M.S.L. 237 ft. Height of office anemometer vane above ground 67 ft. Height of vane above roof 24 ft.

Instrumental Equipment.

| | |
|-------------------------------------|---|
| Barometer (Kew type). | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum. |
| Microbarograph. | Thermograph. |
| Rain-gauge, 8-inch. | Hydrograph. |
| Recording rain-gauge (Mark B type). | Psychrometer—acropplane. |
| Nephoscope (Besson, Fineman). | Psychrometer (Assmann). |
| Sunshine recorder. | Theodolite and tripod. |
| Anemobiograph. | Airmeter. |
| Velocity recorder. | |

General Surroundings and Site.—The station is situated on the southern side of the Royal Aircraft Establishment, the chief buildings of which lie in the sector between north-east and west of the station. Among these are airship sheds reaching to a height of 100 ft. On the further side of the main road (running north and south) and bounding the R.A.E. to the east, lies the town of Farnborough. Between south and west lies a nearly flat grass-covered area used as the aerodrome. Beyond that the country is undulating, with scattered woods. The soil is of a very light sandy nature, with a layer of black rust in the sub-soil which hinders drainage and causes the aerodrome to be water-logged during very wet weather.

Wind.—Wind direction is estimated from the anemometer vane and from the smoke drift of the factory stacks. Wind force is taken from the anemobiograph, except for winds with a N. component, for which the exposure is unsatisfactory. Estimates are made in these cases.

Temperature.—Temperature is read from a Stevenson screen, situated in an enclosure (30 ft. by 20 ft.), which is located about 230 yards in a direction east-north-east from the office. The thermometer bulbs are at a height of 4 ft. (maximum thermometer, 4 ft. 9 in.) above the ground. The exposure of this enclosure is rather poor, being surrounded by objects varying in height from 5 ft. to 60 ft. They are all more than the standard distance away from the screen. Readings have been taken from this site since June 27, 1928; prior to that date from a site 65 yards in a direction south-south-east of the existing site.

Visibility.—NE. and ENE. winds, bringing atmospheric impurities from the London area, lower the visibility. The nature of the soil and the position of the station in a large basin make it liable to ground mists and radiation fogs. The objects used in estimating the visibility are :—

| Object | Distance | Bearing | Nature of object |
|---------|-------------|---------|------------------|
| A | 27 yards | 260° | Building |
| B | 58 " | 30° | Building |
| C | 100 " | 360° | Gasometer |
| D | 213 " | 115° | Building |
| E | 515 " | 150° | House |
| F | 1,135 " | 175° | Tower |
| G | 2,000 " | 255° | Trees |
| H | 2 1/4 miles | 257° | Chimney |
| I | 4 " | 217° | Trees |
| J | 7 1/2 " | 240° | Horsedown Common |
| K | 6 " | 360° | Hill |
| L | — | — | — |
| M | — | — | — |

Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

FARNBOROUGH

(The contours are given in feet above mean sea level.)



Looking W.N.W.

(November, 1928).

FELIXSTOWE (SUFFOLK, ENGLAND)

Latitude $51^{\circ} 57' N.$, Longitude $1^{\circ} 20' E.$ Height of rain-gauge above M.S.L. 15 ft. Height of anemometer above ground 50 ft. Height of anemometer above roof 35 ft.

Instrumental Equipment.

| | |
|---|---|
| Barometer (Kew pattern). | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum. |
| Rain-gauge, 8-inch. | |
| Recording rain-gauge (Hyetograph). | Anemometer (pressure-tube, direction and velocity). |
| Nephoscope (Fineman, Besson). | Thermograph. |
| Sunshine recorder. | |
| Hygrograph. | |
| Theodolite and pilot-balloon equipment. | |

General Surroundings and Site.—The office is situated immediately outside the Air Station on a spit of land called Landguard Common, which forms one side of Harwich Harbour. On the east and south is the North Sea; there is land to the north and Harwich Harbour is directly to the west. There are buildings to the west, between the Office and the Harbour, and large sheds two or three hundred yards away to the west rise to a height of 60–80 ft. The ground on which the station stands is shingle, partly covered with coarse grass.

Wind.—Winds are measured, both for direction and force, by the pressure-tube anemometer. The buildings to the west give shelter from the wind in that direction, so that velocities recorded between N. and S. through W. are on the low side.

Temperature.—Temperature is read from thermometers in the Stevenson screen, which has a standard exposure.

Visibility.—No standard points at a greater distance than 2,200 yards landward or $2\frac{1}{2}$ miles seaward are visible from the office, and all visibilities above these distances are estimated. The objects used for observing visibility are as follows:—

| Object | Distance | Bearing | Nature of object |
|-----------|----------------------|-----------|-------------------|
| A | 25 yards | N. | Building |
| B | 50 " | N. | Telegraph pole |
| C | 100 " | NNW. | Hospital |
| D | 220 " | NNE. | Signal box |
| E | 550 " | S. | Light Beacon |
| F | 1,100 " | S. | Look-out |
| G | 2,200 " | NE. | St. John's Church |
| H | $2\frac{1}{2}$ miles | ESE. | Cork lightship |
| I-M | $4\frac{1}{2}$ –31 " | Estimated | |

State of Sea.—The state of the sea is observed to the east in the open sea but not to the west in the Harbour.

Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

FELIXSTOWE

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Felixstowe.

↓ R ↓ T



Looking N.W.

(November, 1928).

GUERNSEY (ST. PETER PORT) (CHANNEL ISLANDS)

Latitude $49^{\circ} 27' N.$, Longitude $2^{\circ} 33' W.$ Height of rain-gauge above M.S.L. 175 ft. Anemometer vane 216 ft. above M.S.L. and 51 ft. above ground.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Nephoscope (Besson).

Stevenson screens.

Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.

Thermograph.

Anemobiograph.

Hyetograph.

General Surroundings.—The station is in the grounds of the Lukis Museum, Grange Road, a residential area. The height of the enclosure above M.S.L. is 175 ft. Eastwards the land falls rather steeply towards the Port, a distance of nearly half-a-mile, the level of the Esplanade being some 20 ft. above M.S.L. Towards the north the land also falls, reaching a height above M.S.L. of some 50 ft. at one mile.

There is a slight rise to the west and a gradual rise to the south, where an altitude of over 300 ft. is reached at a distance of $1\frac{1}{2}$ miles.

Site.—The enclosure, with the screens and rain-gauges, is on level ground, rather shielded by surrounding houses and walls. It is practically square and measures 15 ft. 6 in.; at a distance of 7 ft. 6 in. there is very open trellis work, about 6 ft. in height.

Wind.—This is reported as recorded by an anemograph, situated some 50 yards from the enclosure. The height of the vane above ground level is 51 ft. With the exception of winds from between N. and E., all velocities as reported are too low.

Temperature.—Owing to the small size of the island and its distance from France, the temperature probably does not depart far from that over the surrounding sea.

Visibility.—On occasions of shallow sea fog, or very low cloud, the observations taken at a height of 212 ft. (balcony of office) may not be representative of the conditions at sea level. The objects in use for estimating the visibility are:—

| Object | Distance | Bearing | Nature of object |
|------------------|-----------|---------------|----------------------------|
| A (land) .. | 30 yards | 130° | Stevenson screens |
| B " .. | 50 " | 170° | Chimney of Museum |
| C " .. | 120 " | 90° | Greenhouse |
| D " .. | 210 " | 95° | Tower |
| E " .. | 510 " | 63° | Farthest point of hospital |
| F (land and sea) | 1,300 " | 92° | White Rock (light) |
| G " .. | 1.3 miles | 50° | Demie Flieroque (beacon) |
| H (sea) .. | 2.6 " | 68° | Round Tower—Brehon |
| I " .. | 4 " | 60° | Herm Island |
| J " .. | 8 " | 100° | Sark Island |
| K " .. | 19 " | 135° | Jersey Island |
| L " .. | 30 " | 85° | French coast |
| M " .. | 33 " | 54° | French coast near La Hague |

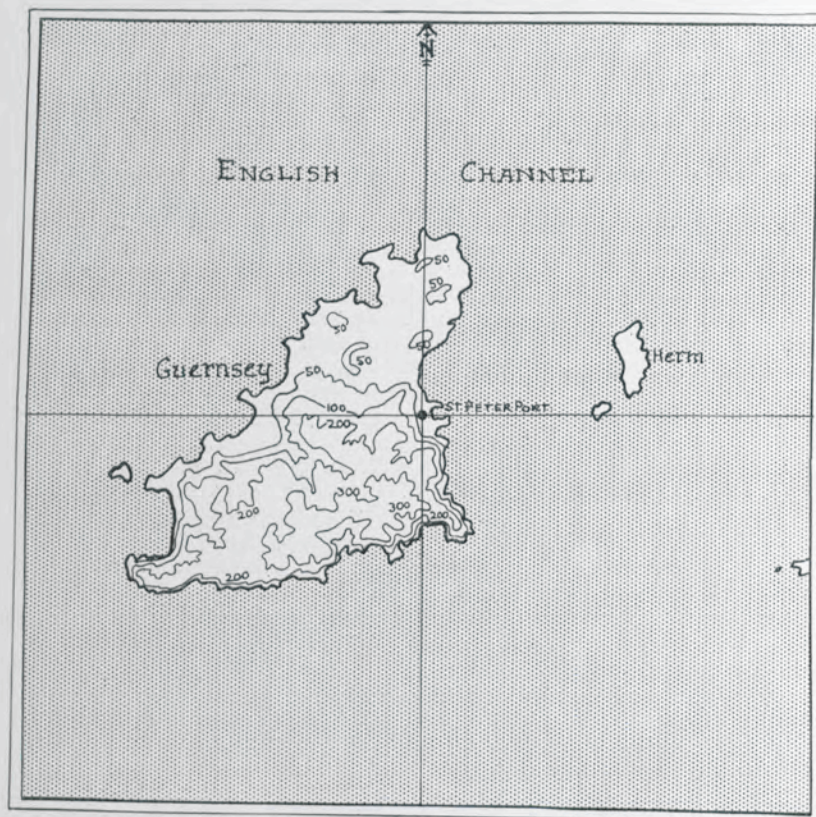
Sea Disturbance.—Direct observation of the waves is difficult, owing to the distance and height of the station. With westerly winds the sea disturbance observed would not be representative of the open Channel, owing to the shelter afforded by the island.

Rainfall.—The site is rather sheltered, but the rainfall recorded should be representative of the district.

July, 1929.

GUERNSEY

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

↓ T

↓ R

Guernsey



T →

R →

Looking towards W.

(December, 1929).

HARROGATE (YORKSHIRE, ENGLAND)

Latitude $54^{\circ} 0' N.$, Longitude $1^{\circ} 33' W.$ Height of rain-gauge above M.S.L. 478 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 5-inch.

Sunshine recorder.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum, grass minimum.

General Surroundings.—In the immediate vicinity the district is hilly, but there is flat country a few miles away to the east. The highest hills lie west (north to south through west) of the station and exceed 1,000 ft. within 10 miles.

Site.—Height above M.S.L. 478 ft., clay and rock sub-soil. The station is situated on a hill on the south-west side of the town and is in the north-east corner of Harlow Moor, about 100 yards distant from the houses on the south-east boundary of the moor and 150 yards from the pine trees on the north-west boundary. There are small trees and shrubs scattered over the Moor around the station. The ground is not level, but slopes at about 1 in 20 and rises another 100 ft. beyond the station in a south-south-west direction.

Wind.—The wind is estimated without aid from instruments. Winds are somewhat lower in velocity than would be experienced in open country.

Temperature.—Nothing abnormal is to be expected concerning the temperature observations.

Visibility.—The objects employed in the estimation of visibility are:—

| Object | Distance | Bearing | Nature of object |
|---------|-------------|------------------------------|-----------------------------|
| A | 27 yards | 202° | Fence |
| B | 51 .. | 270° | Tree |
| C | 109 .. | 180° | Shaft |
| D | 245 .. | 360° | Hospital roof turret |
| E | 583 .. | 22° | Hotel |
| F | 1,166 .. | 56° | St. Peter's Church |
| G | 1.2 miles | 45° | St. Luke's Church |
| H | 2.7 .. | 22° | Red Tower, Nid Moor |
| I | 4.7 .. | 337° | Buildings |
| J | 7.6 .. | 350° | Rabbitt Hill |
| K | Up to 20 .. | 22° | Countryside |
| L | 21 .. | 10° | White Horse Hill at Kilburn |
| M | >21 .. | 360° – 45° | Range of hills |

Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

HARROGATE

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Harrogate

↓ T ↓ R



Looking S.W.

(April, 1926).

HOLYHEAD (ANGLESEY, WALES)

Latitude 53° 19' N., Longitude 4° 37' W. Height of rain-gauge above M.S.L. 26 ft.

Instrumental Equipment.

Barometer. Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum, solar radiation.
Barograph. Hyetograph. Thermograph.
Rain-gauge, 8-inch. Nephtoscopes (Besson and Fineman). Anemometers—pressure tube, anemobiograph, Robinson cup.
Sunshine recorder. Stevenson screen. Pilot-balloon equipment.

General Surroundings.—The station is situated on the highest point of Salt Island, Holyhead, with Holyhead Town away to the south-west and the Breakwater and open sea to the north. The highest ground around is Holyhead mountain, which rises to a height of 720 ft. to the west at a distance of two miles.

Site.—The enclosure which adjoins the station is surrounded by open garden and land covered with rough grass. It is well exposed, buildings of any appreciable size in the immediate vicinity being some 310 ft. to the south. The distance of the enclosure from the sea is 175 ft.

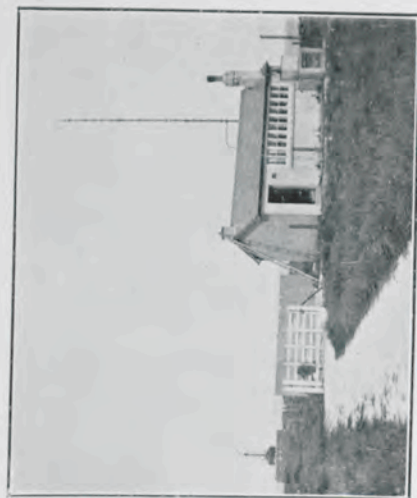
Wind.—This is measured by a pressure-tube anemometer, a Robinson cup anemometer and an anemobiograph. The pressure tube and Robinson cup anemometers are away from the main building and situated on the northerly point of the Island. The anemobiograph is used for reports and for monthly summaries and the pressure-tube anemometer for weekly summaries.

Visibility.—The objects used to estimate visibility are :—

| Object | Distance | Bearing | Nature of object |
|---------|-------------|------------|-----------------------------------|
| A | 30 yards | 180° | Pole |
| B | 60 " | 58° | Gun pit |
| C | 110 " | 6° | Enclosure |
| D | 220 " | 190° | Wall |
| E | 550 " | 243°, 139° | Building ; pier |
| F | 1,100 " | 232°, 355° | St. Seiriol's Church ; breakwater |
| G | 1 1/4 miles | 125°, 279° | Seat ; tower |
| H | 2 1/2 " | 278° | Houses |
| I | 4 1/2 " | 49° | Wood, Garreglwyd |
| J | 6 1/4 " | 20° | Carmel Head |
| K | 13 " | 82° | Mountain—Mynydd Bodafon |
| L | 22 " | 131° | Mountain—Waen Fawr |
| M | 29 " | 125° | Mountain—Snowdon |

July, 1929.

Looking N.N.E.



Looking S.E.



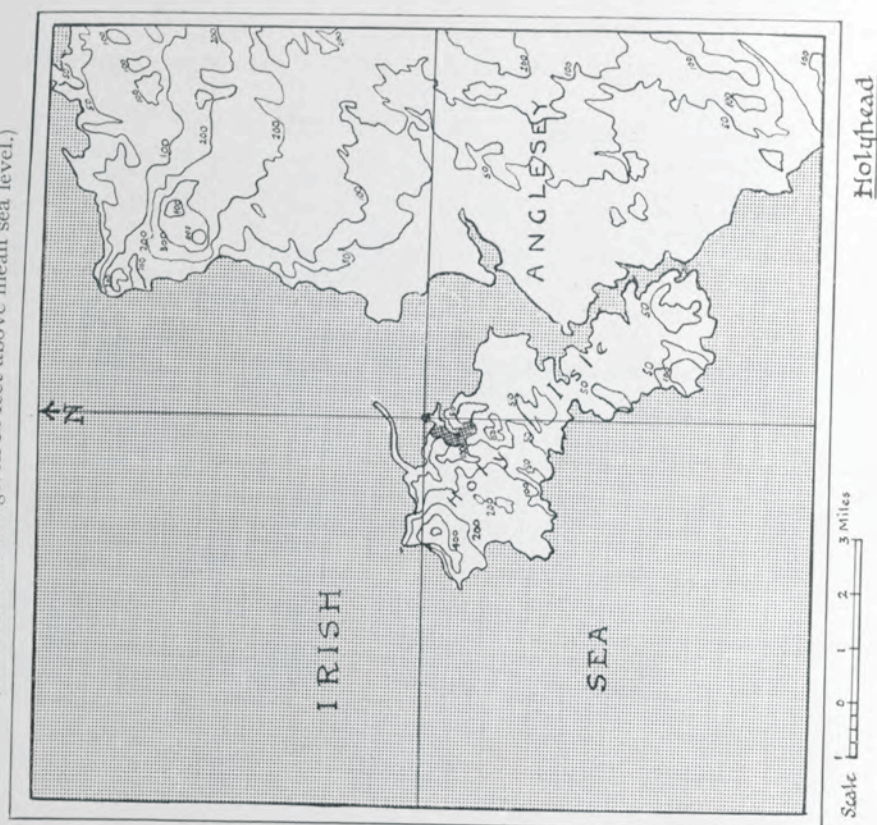
T
R

(April, 1929).

T
R

HOLYHEAD

(The contours are given in feet above mean sea level.)



Holyhead

INCHKEITH (FIFESHIRE, SCOTLAND)

Latitude $56^{\circ} 2' N.$, Longitude $3^{\circ} 8' W.$ Height of rain-gauge above M.S.L. 190 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Sunshine recorder.

Hydrograph.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum, grass minimum.

Thermograph.

General Surroundings.—The station is on a rocky island two-thirds of a mile in length from south-south-east to north-north-west and nowhere exceeding three-quarters of a mile in breadth. The island is in the middle of the estuary of the Forth at a point where the estuary after being just under six miles wide opens out to over 10 miles in width passing towards the sea; the open sea is 25 miles away to the east-north-east. There are rather high hills on either side of the estuary, exceeding 600 ft. both eight miles to southward of Inchkeith and five miles to north-westward.

Site.—The outdoor instruments are exposed on a grass plot on a small plateau. The ground slopes rapidly down to the sea with abrupt cliffs to east-north-east and west-south-west. The site is very exposed to winds from between SW. and W. but is somewhat sheltered by walls and buildings in other directions.

Wind.—This is estimated without instrumental assistance; the steep cliffs give rise to strong eddies which make estimates of the force difficult. Certain winds also tend to be deflected by the configuration of the ground.

Temperature.—Owing to the small size of the island and the width of the estuary the sea must affect the temperature.

Visibility.—With winds from W. and WSW. visibility is reduced by smoke from the mining district which lies to the west of Edinburgh. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|-------------|-----------|---------------|-------------------|
| A (land) .. | 25 yards | 180° | Wireless mast |
| B " .. | 60 " | 22° | Lighthouse |
| C " .. | 100 " | 360° | Lighthouse |
| D " .. | 200 " | 180° | Post |
| E (sea) .. | 500 " | 247° | Seal Carr beacon |
| F " .. | 1,400 " | 270° | Pallas Rock |
| G " .. | 2,112 " | 135° | Little Hewit Buoy |
| H " .. | 2.5 miles | 300° | Blue Rock |
| I " .. | 4.3 " | 292° | Burntisland Pier |
| J " .. | 6.3 " | 202° | Hill |
| K " .. | 6.5 " | 285° | |
| L " .. | 10 " | 270° | Forth Bridge |
| M " .. | 14 " | 75° | Island |
| | 20 " | 90° | Bass Rock Island |
| | 26 " | 67° | May Island |

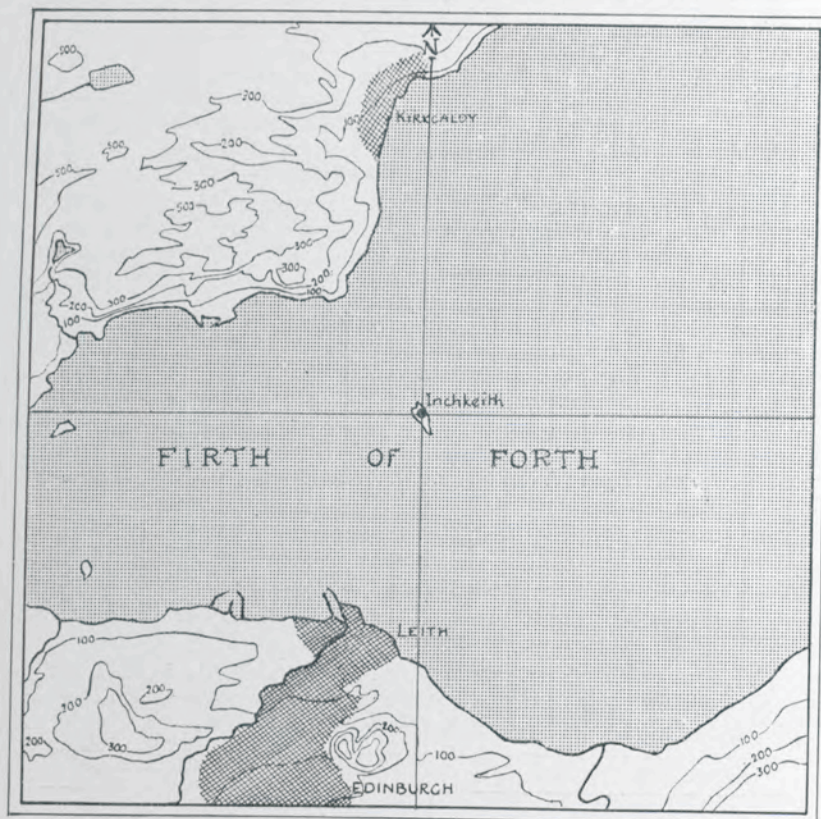
Sea Disturbance.—Can be estimated satisfactorily, but the disturbance is only comparable with that in the open sea with easterly or north-easterly winds.

Rainfall.—Eddies probably affect the amount of rain measured during strong winds; whether they cause too much or too little to be recorded is uncertain; the latter is the more probable.

July, 1929.

INCHKEITH

(The contours are given in feet above mean sea level.)



Scale 1 2 3 Miles

Inchkeith.

↓ TR



Looking N.

(April, 1923).

KEW OBSERVATORY (SURREY, ENGLAND)

Latitude $51^{\circ} 28' N.$, Longitude $00^{\circ} 19' W.$ Height of rain-gauge above M.S.L. 18 ft. Height of anemometer vane above ground 65 feet. Height of anemometer vane above roof 22 feet.

Instrumental Equipment.

| | |
|--------------------------------------|---|
| Barometer (Fortin type). | Wall screen and Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum. |
| Rain-gauge, 8-inch. | Thermograph. |
| Recording rain-gauge (Beckley type). | Anemograph—pressure tube (direction and velocity). |
| Nephoscopes (Besson, Fineman). | |
| Sunshine recorder. | |
| Hygrograph. | |

Note.—The complete equipment of an Observatory of the First Order is maintained at this station.

General Surroundings and Site.—The station is situated in the Old Deer Park, Richmond. The park is a level piece of ground covered with short grass, and with large trees scattered about which reach a height of 80 to 100 ft. The River Thames runs 300 yards to the west and curves round to the north of the station, as shown on the map, with high trees along the bank. The station lies little above river level and the water level in the soil is only a few feet below the surface.

Wind.—Winds are measured, both for direction and force, by the pressure-tube anemometer. The trees adjacent to the station give shelter from the wind, so that the force reported should not be taken as representative of the more exposed country round London.

Temperature.—Temperature is read from a louvered screen placed against the north wall of the Observatory. The thermometer bulbs are at a height of 10 ft. above the ground immediately surrounding the Observatory. This ground is raised a few feet above the level of the Old Deer Park. Temperature records have been taken from this screen continuously since 1871. Maximum temperatures tend to be lower and minimum temperatures to be higher in the north wall screen than in a standard Stevenson screen.

Visibility.—Winds with an easterly component bring atmospheric impurities from London over the station, reducing the visibility under these conditions. The damp nature of the soil and the position of the station in the Thames Valley make it liable to radiation fogs. The objects used in estimating the visibility are :—

| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------|----------------------|
| A | 27 yards | 225° | House |
| B | 55 " | 214° | Screen |
| C | 125 " | 185° | Hut |
| D | 215 " | 220° | Tree |
| E | 547 " | 120° | House |
| F | 1,060 " | 125° | Building |
| G | 2,130 " | 125° | St. Matthias' Church |
| H | 2.5 miles | 349° | S. Ealing Church |
| I | 4.2 " | 100° | Chimneys |
| J | 5.7 " | 70° | Chimneys |
| K | 13.3 " | 172° | Surrey Hills |
| L | 20.5 " | 172° | Surrey Hills |
| M | — | — | — |

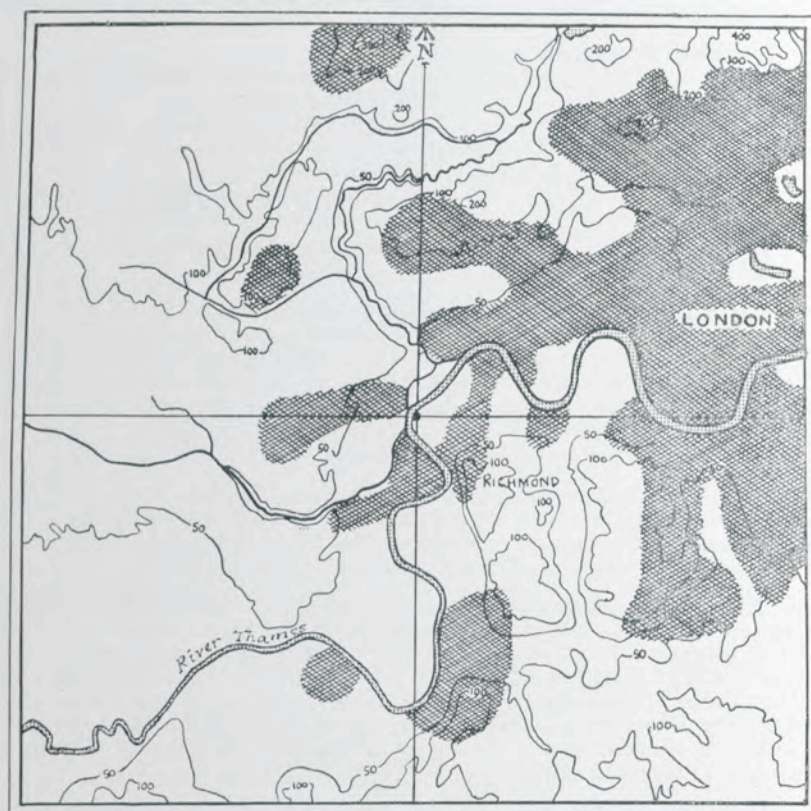
Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

(40464)

KEW OBSERVATORY

(The contours are given in feet above mean sea level.)



Scale 1 0 1 2 3 Miles

Kew.

↓ R



Looking N.N.E. (Temperature readings are taken in a screen on the north wall of main building).

(1927).

LEAFIELD (OXFORDSHIRE, ENGLAND)

Latitude 51° 50' N., Longitude 1° 35' W. Height of rain-gauge above M.S.L., 612.2 ft. Height of anemometer vane above ground 41.6 ft. Height of anemometer vane above roof 34.8 ft.

Instrumental Equipment.

| | |
|----------------------|---|
| Barometer. | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum. |
| Rain-gauge, 8-inch. | Thermograph. |
| Hyetograph. | Anemographs — pressure tube (direction and velocity). |
| Nephoscope (Besson). | |
| Sunshine recorder. | |
| Hygograph. | |

General Surroundings.—The station is on a spur on the south-eastern side of the Cotswold Hills. The high ground of the Cotswolds rises above 800 ft. at some distance to the north-west, while to the south the flat low-lying land of the Upper Thames Valley is within four or five miles of the station. The land in the vicinity is undulating, the site being on the summit of one of the undulations.

Site.—Height above M.S.L. 612 ft. on grass. The site is very exposed in all directions, the neighbourhood being nearly treeless and without buildings with the exception of the meteorological hut.

Wind.—The wind is measured by the pressure-tube anemometer. The exposure is very good.

Temperature.—Nothing abnormal is to be expected with regard to temperature.

Visibility.—The range for visibility observations is very good. The objects used in estimating the visibility are :—

| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------|---------------------|
| A | 27 yards | 36° | Block |
| B | 55 " | 292° | Tree |
| C | 110 " | 349° | Anemometer mast |
| D | 210 " | 340° | Metal frame |
| E | 550 " | 249° | Egbarn Wood |
| F | 1,040 " | 112° | Chimney |
| G | 2,318 " | 266° | Burford Cross roads |
| H | 2.6 miles | 132° | Minster Wood |
| I | 4.4 " | 306° | Idbury Village |
| J | 6.1 " | 127° | Cogges Wood |
| K | 12.5 " | 177° | Faringdon Clump |
| L | 18.1 " | 177° | White Horse Hills |
| M | 30 " | 116° | Chiltern Hills |

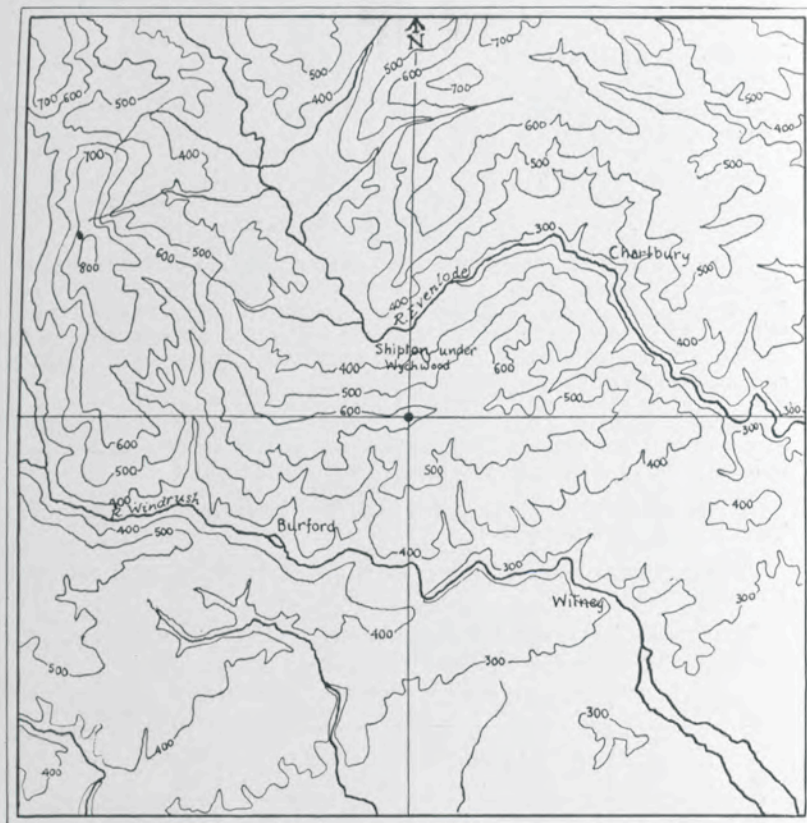
Rainfall.—The very open exposure of the rain-gauge connotes that in windy weather too little rainfall is probably recorded.

Barometer Readings.—The height above sea level is sufficient to cause some uncertainty in the barometer reductions in very hot or very cold weather.

July, 1929.

LEAFIELD

(The contours are given in feet above mean sea level.)



Scale 1 0 1 2 3 Miles

Leaffield

↓ T

↓ R



Looking E.S.E.

(September, 1928).

LERWICK (SHETLANDS)

Latitude 60° 9' N., Longitude 1° 8' W. Height of rain-gauge above M.S.L. 54 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum.

General Surroundings.—The station is situated at Fort Charlotte, which commands an excellent view of Lerwick Harbour and Bressay Sound and is located on a rocky escarpment about 60 ft. above sea level and 200 ft. from the sea front. Between north-north-west and south-south-east through west the station is bounded by the town of Lerwick; the eastern side of Lerwick, on which the Fort lies, rises rapidly from the water's edge, and the buildings of the town soon reach a greater elevation than Fort Charlotte. On the eastern side of Fort Charlotte, across Bressay Sound, which is about one mile wide at this point, lies the Island of Bressay which is of a very hilly nature. A protective wall about 5 ft. high bounds the eastern edge of the Fort.

Wind.—This is normally estimated without instrumental assistance. Owing to obstruction by adjacent buildings, and the Isle of Bressay, the absence of open water and objects such as trees to aid in making the estimates, these cannot be taken as representative of the Shetlands.

Temperature.—The waters of the Sound are only about 60 yards to the east of the screen, and must therefore affect the temperature.

Visibility.—From about May to August or September visibility is apt to be reduced by smoke when the herring fishing fleet is in the harbour. The objects in use for estimating visibility are :—

| Object | Distance | Bearing | Nature of object |
|------------------|-----------|---------|--------------------|
| A | 25 yards | 360° | Building |
| B | 50 " | 360° | Magazine spire |
| C | 100 " | 345° | Custom House spire |
| D | 200 " | 360° | House |
| E { land .. | 550 " | 135° | Church spire |
| { sea .. | 550 " | 45° | Hulk in harbour |
| F (sea) .. | { 1,100 " | 22° | Hill |
| | { 1,050 " | 80° | House |
| G (sea) .. | 2,200 " | { 360° | Pier |
| | | { 112° | Pier |
| | | { 360° | Headland—Rova |
| H (sea) .. | 2.5 miles | | Head |
| I (sea and land) | 5 " | { 135° | Hill |
| | | { 105° | Headland—Noss |
| J (sea) .. | 7.5 " | 360° | Head |
| K | — | — | Hill |
| L | — | — | — |
| M | — | — | — |

Sea Disturbance.—Not estimated or reported owing to the absence of open sea.

Rainfall.—The exposure of the gauge is satisfactory.

Note.—Lerwick Geophysical Observatory is situated about two miles to the west-south-west of the reporting station at Fort Charlotte,

July, 1929.

LERWICK

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Lerwick.

↓ T

↓ R



Looking S.S.W.

(April, 1926).

LEUCHARS (FIFESHIRE, SCOTLAND)

Latitude 56° 23' N., Longitude 02° 53' W. Height of rain-gauge above M.S.L. 35 ft. Records available from 1st October, 1921.

Instrumental Equipment.

| | |
|---|---|
| Barometer, Kew station pattern. | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum. |
| Rain-gauge, 8-inch. | Thermograph. |
| Hyetograph. | Hydrograph. |
| Sunshine recorder. | |
| Nephoscopes (Besson, Fineman) and pilot-balloon equipment | |
| Equipment (thermometers, etc.) for observations of upper air temperature. | |

General Surroundings and Site.—The station is situated on the R.A.F. aerodrome, with moorland and the North Sea to the east, and hills of varying height to the north, west and south, the nearest being a ridge 120 ft. high running east-west one mile to the south.

The enclosure is a level piece of ground covered with short grass on the eastern boundary of the aerodrome and on the south side of the hangars.

Wind.—Wind observations are made by estimate, using the aerodrome wind sleeve and smoke from tall chimneys to the south-south-west.

The exposure of the instruments is standard.

Visibility.—The objects used in estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|---------|----------------|---------|---------------------------|
| A | 25 yards | 63° | Building |
| B | 50 " | 79° | Building |
| C | 100 " | 278° | Building |
| D | 200 " | 101° | Screen |
| E | 550 " | 140° | Farm house |
| F | 1,100 " | 243° | Telegraph poles |
| G | 1 1/4 miles | 201° | Buildings |
| H | 2 1/2 " | 281° | Quarry on Lucklaw Hill |
| I | 4 1/4 " | 128° | St. Andrews College spire |
| J | 6 1/4 " | 131° | Hill, Easter Balrymonth |
| K | None available | | |
| L | 18 1/2 " | 241° | West Lomond Hill |
| M | None available | | |

Precipitation.—Owing to the configuration of the country surrounding the station the weather is peculiarly localized, the effect of the hills and mountains being to protect the station from much of the precipitation which might be expected to occur from general considerations. Heavy snow is of rare occurrence, and the frequency of fog is low, but ground frosts occur in all months except July and August.

July, 1929.

LEUCHARS

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Leuchars.



Looking N.E.

(November, 1928).

LIVERPOOL (CHESHIRE, ENGLAND)

Latitude $53^{\circ} 24' N.$, Longitude $3^{\circ} 4' W.$ Height of rain-gauge above M.S.L. 198 ft. Height of anemometer vane above ground level 64 ft.; above roof of building 35 ft.

Instrumental Equipment.

Barometer. Stevenson screen.
Barograph (mercurial). Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Rain-gauge, 8-inch.
Nephoscope (Besson).
Sunshine recorder. Pressure-tube anemometer, direction and velocity.

General Surroundings.—The station lies on an isolated hill, which rises about 150 ft. above the surrounding ground near the northern end of the Wirral Peninsula. The hill slopes steeply down from the Observatory on both the eastern and western sides. The River Mersey, with the towns of Birkenhead and Liverpool on its banks, is three miles to the eastward, Liverpool Bay, and beyond that the Irish Sea, about three miles north-west, and the Dee Estuary six miles to south-west, with the mountains of North Wales beyond. These mountains lie to the south and west of the station approaching to within 10 miles in a south-west direction. The Wirral Peninsula is for the most part flat, rising above 200 ft. in only a few places, and the same is true of the land to the north and east of the station to a distance of at least 15 miles.

Site.—The summit of Bidston Hill is occupied by the Observatory. There are low trees surrounding the Observatory, but these are no more than sufficient to break the wind over the rain-gauge while leaving the anemometers on the roof almost unaffected. The screen is to the north of the Observatory. The rain-gauge is too close to the north-west corner of the building for an ideal exposure.

Wind.—The exposure is open, being excellent for observations of wind. Velocity is determined from the anemometer whilst direction is estimated.

Temperature.—The proximity of the sea must affect the temperature.

Visibility.—The outlook is good for visibility observations, but with winds from an easterly direction, visibility is affected by the smoke from Liverpool and Birkenhead. The objects employed to estimate the visibility are :—

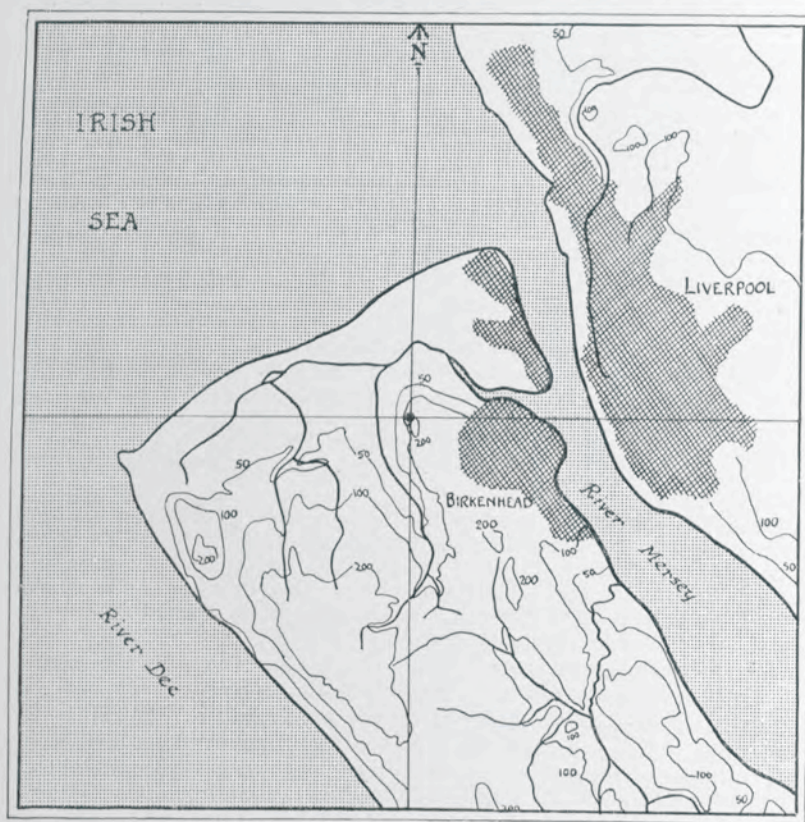
| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------------|---------------------------|
| A | — | — | — |
| B | 50 yards | — | W/T aerial mast |
| C | — | — | — |
| D | 200 yards | — | House |
| E | 550 " | 180° | Windmill |
| F | 1,200 " | 90° | Church |
| G | 1.3 miles | 90° | Mill |
| H | 2.5 " | 112° | Building |
| I | 5.3 " | 248° | Headland—Hilbre Point |
| J | 7.5 " | 360° | Crosby Beacon |
| K | 13 " | 315° | Bar Lightship |
| L | — | — | — |
| M | 30 " | 360° | Blackpool Tower |
| | 34 " | 270° | Headland—Great Ormes Head |

Rainfall.—The rain-gauge is too close to the north-west corner of a building for an ideal exposure.

July, 1929.

LIVERPOOL

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Liverpool

↓ R

↓ T



Looking N.E.

(September, 1926).

LYMPNE (KENT, ENGLAND)

Latitude $51^{\circ} 05' N.$, Longitude $1^{\circ} 01' E.$ Height of rain-gauge above M.S.L. 346 ft. Height of anemometer vane above ground 70 ft. Height of anemometer vane above roof 55 ft.

Instrumental Equipment.

Barometer (Kew pattern).

Rain-gauge, 8-inch.

Recording rain-gauge (hyetograph, Mark B).

Nephoscope (Fineman, Besson).

Sunshine recorder.

Hydrograph.

Stevenson screen (large pattern).

Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum, earth (4-ft.).

Thermograph.

Anemograph, pressure tube (direction and velocity).

Theodolites—Cary Watts, and all equipment for pilot-balloon work.

General Surroundings and Site.—The aerodrome is situated on the top of the inner cliffs bordering Romney Marsh, three miles west by north of Hythe. It is fairly level and from 340 to 350 ft. above mean sea level. To the south there is a steep drop of about 330 ft. to the Royal Military Canal, beyond which the country is flat. There are distant woods to the west and east-north-east and undulating open country to the north and north-west. The office building, where the pressure-tube anemometer is erected, is situated near the south-west corner of the aerodrome. The meteorological enclosure is 700 yards north of the office and near the north-west corner of the aerodrome. The site is very open, there being no trees or buildings for more than a quarter of a mile in any direction, apart from a small low-roofed cabin, which is about 80 yards to the south.

Wind.—Wind is measured by the pressure-tube anemometer, the mast of which is erected above the office. The exposure is open to the east and south-east, but there are trees or low buildings fairly close on the west and south sides, and hangars to the north-east. To overcome the effect of these obstructions the vane is fixed 70 ft. above the ground. The upper winds are observed by pilot balloon four times daily, the tail-ascant method being most generally used.

Temperature.—Temperature is read from a large Stevenson screen set up in the meteorological enclosure; the thermometer bulbs are 4 ft. above ground. Continuous records are obtained from a thermograph and a hygrograph which are set in the same screen. Grass minimum temperatures, and earth temperatures at a depth of 4 ft. are also recorded.

Visibility.—Southerly to south-westerly winds sweeping over Romney Marsh bring low cloud and fog with unusual suddenness at times—especially during the winter months. Apart from this feature the visibility is generally very good. The objects used in estimating visibility from the meteorological enclosure are as follows:—

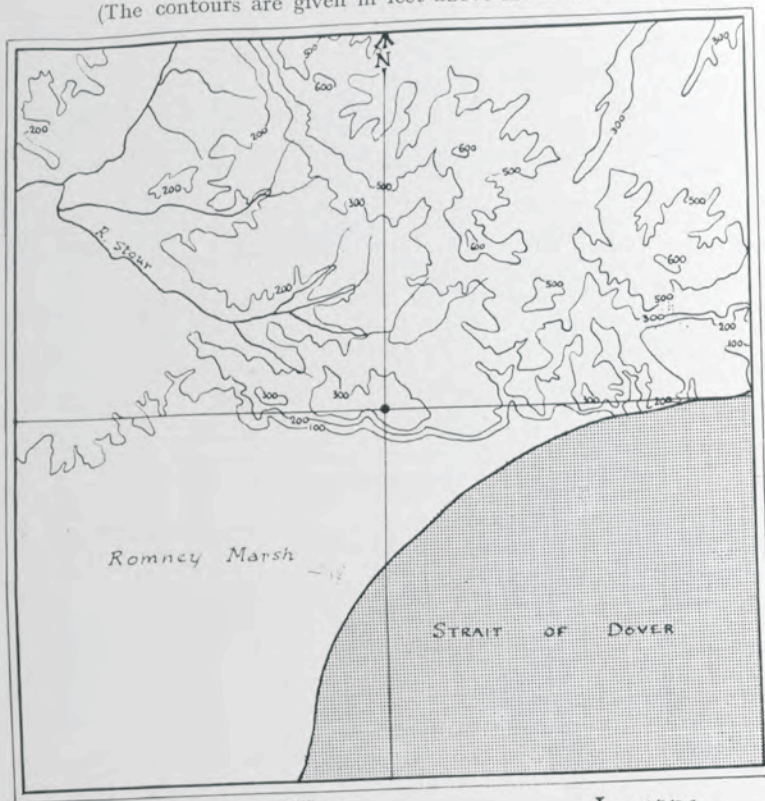
| Object | Distance | Bearing | Nature of object |
|---------|----------|---------------|---------------------|
| A | 27 yards | 37° | Corner of enclosure |
| B | 54 " | 287° | Hurdle. |
| C | 102 " | 224° | Gate post |
| D | 200 " | 352° | Telegraph pole |
| E | 520 " | 190° | Fence |
| F | 1,050 " | 237° | Water tower |
| G | 2,200 " | 299° | Tree |
| H | 2,200 " | 30° | Telegraph poles |
| I | 3,900 " | 281° | Church tower |
| J | 7,500 " | 307° | Church tower |
| K | 6 miles | — | North Downs |
| L | 12 " | 307° | Charing Wood |
| M | 21 " | 229° | Fairlight Hill |
| | 34 " | 299° | North Downs |
| | 38 " | 235° | South Downs |

Rainfall.—The exposure of the rain-gauge is a very open one. Records of the duration of rainfall are obtained from a hyetograph.

July, 1929.

LYMPNE

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

↓ T

Lympe

↓ R



Looking E.S.E.

(November, 1928)

Latitude 55° 23' N., Longitude 7° 24' W. Height of rain-gauge above M.S.L. 52 ft.

Instrumental Equipment.

Barometer.
Barograph.
Rain-gauge, 8-inch.
Sunshine recorder.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum.

General Surroundings.—The station is close to the sea shore and lies on the north-east side of a projecting headland, which is about a mile broad at this point. The headland runs about two miles beyond the station in a north-westerly direction and forms the most northerly point of Ireland. The country is hilly from south round to east-south-east, the ground rising to over 800 ft. within three miles in an east-south-east direction. There is also a hill 362 ft. high one mile away to west-south-west. To the south-south-west a valley leads across to the sea on the other side of the promontory. There is an excellent view of the open sea to north-eastward, in which direction the ground slopes gradually down to the shore 300 yards away. Towards south-east there is a steeper slope, and a small bay extends at one point to within about 150 yards of the station. The coast consists of stony beaches and low rocks, but with no important cliffs.

Site.—The height of the site of the thermometer screen is 70 ft., and of the rain-gauge 51 ft. above M.S.L. The land is flat just round the screen, but there is a sharp drop of about 15 ft. commencing at a distance of six yards to the north. The rain-gauge and sunshine recorder are on level ground 25 yards from the foot of this slope.

Wind.—This is estimated without instrumental assistance. The surrounding hills probably have some effect upon the direction without necessarily reducing the speed.

Temperature.—Except in a southerly and south-easterly direction the sea is not far distant, and is only about 200 yards away to the east; it must normally affect the temperature.

Visibility.—The site is far removed from smoky industrial areas. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|-------------|-----------|---------|------------------------|
| A | 25 yards | 157° | Telegraph pole |
| B | 55 " | 360° | Rain-gauge |
| C | 100 " | 67° | Sauncey Rock |
| D | 200 " | 90° | Water's edge |
| E | 500 " | 345° | Rock |
| F { land .. | 1,000 " | 135° | Building |
| { sea .. | 1,000 " | 45° | Saddle Rock |
| G { land .. | 1.3 miles | 90° | Caher Hill |
| { sea .. | 1.3 " | 45° | Island |
| H { land .. | 2.3 " | 175° | Sheemore Hill |
| { sea .. | 2.0 " | 90° | Rock |
| I (land) .. | 4.3 " | 202° | Castle |
| J { land .. | 6.5 " | 202° | Buildings |
| { sea .. | 6.0 " | 45° | Island |
| K (land) .. | 12.0 " | 157° | Slieve Snacht Mountain |
| L | — | 45° | Isle of Islay |
| M (sea) .. | — | — | — |

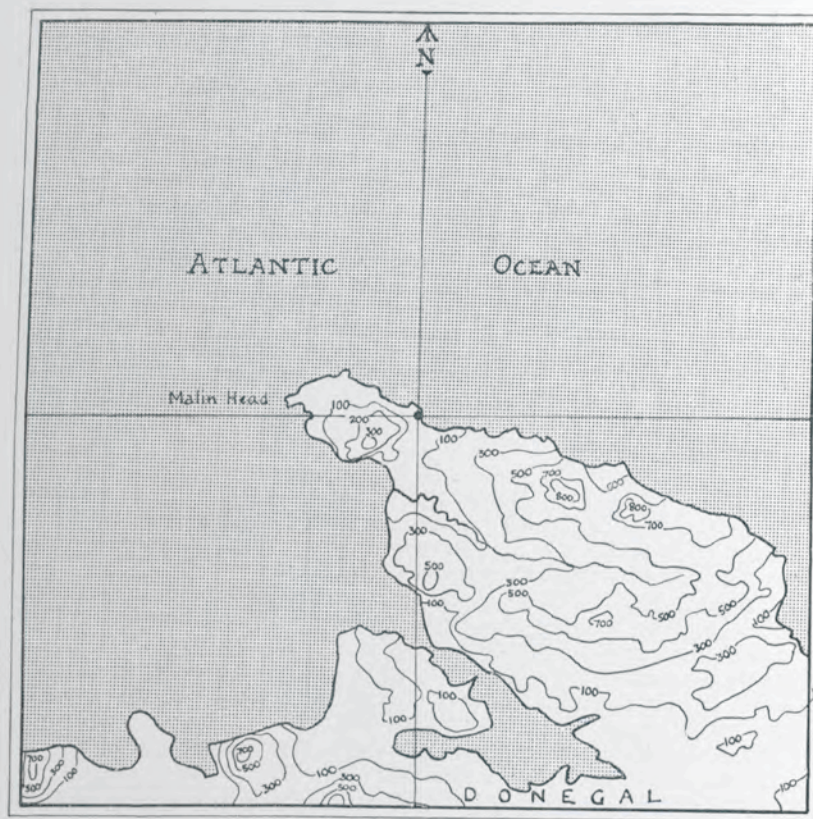
Sea Disturbance.—Can be estimated satisfactorily.

Rainfall.—Too little rain is probably recorded in windy weather, owing to the very open character of the site.

July, 1929.

MALIN HEAD

(The contours are given in feet above Irish Ordnance Datum.)



Scale 1 2 3 Miles

Malin Head.

T ↓ R



Looking E.S.E.

(October, 1925).

MANSTON (KENT, ENGLAND)

Latitude 51° 21' N., Longitude 1° 22' E. Height of rain-gauge above M.S.L. 150 ft.

Instrumental Equipment.

Barometer (Kew pattern).
Barograph.
Rain-gauge, 8-inch.
Hytograph.
Nephoscope, (Besson).
Sunshine recorder.

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Thermograph.
Hygograph.

General Surroundings and Site.—The station is situated on the south-east corner of Manston Aerodrome, about three miles south of Margate and about 2½ miles west of Ramsgate. It lies near the centre of the Isle of Thanet with the sea to the north and east, and the river Stour to the south and west.

The aerodrome is between 140 and 150 ft. above mean sea level, and covers approximately 455 acres, consisting of open grass land which forms a shallow basin sloping down from the south towards the north-west.

The soil is a heavy loam (about 6 in. deep) overlying chalk many hundreds of feet thick.

Wind.—*Direction* is obtained from a wind sleeve on a mast 40 ft. high. The exposure is good.

Velocity is estimated on the Beaufort scale with the assistance of the wind sleeve.

Temperature.—The screen is placed too far from any buildings for the temperature to be affected. The position is considered to give readings representative of the interior of the Isle of Thanet. It is too far from the sea for minima to be affected, but not far enough from the sea for maxima in summer to remain unaffected by sea breezes.

Visibility Objects.—Owing to the surrounding higher ground, visibility objects beyond three miles have to be viewed from a tower on top of one of the sheds, or from the top of a ridge, 200 yards south of the instrument enclosure. Details of visibility objects are as follows:—

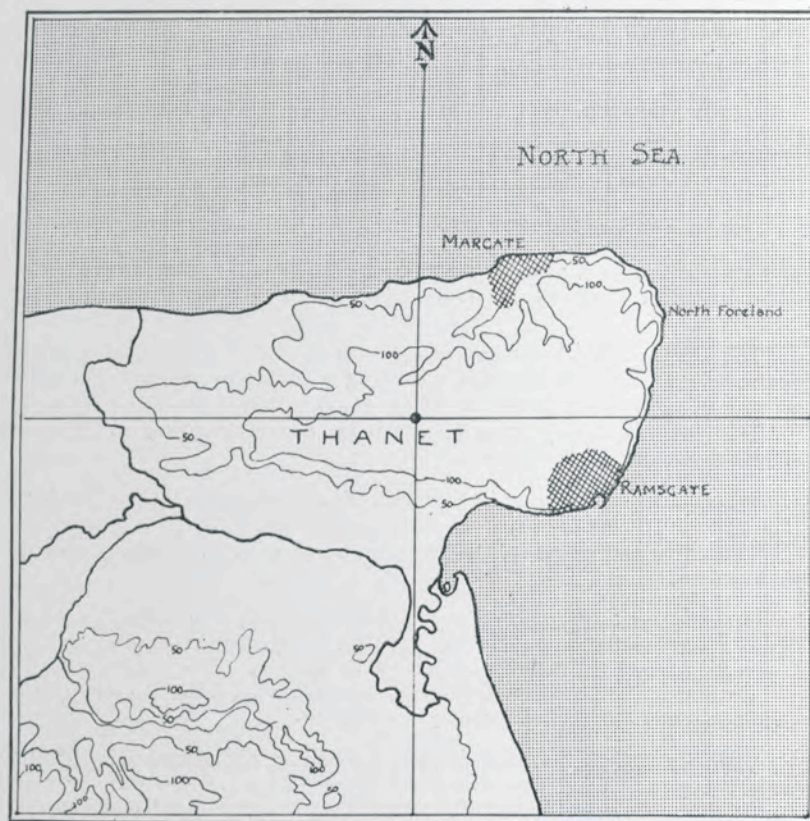
| Object | Distance | Bearing | Nature of object |
|---------|----------|----------------|---------------------------------|
| A | 27 yards | 39° | Hut |
| B | 53 " | 47° | Post |
| C | 102 " | 53° | Telegraph pole |
| D | 215 " | 21° | Chimney |
| E | 550 " | 34° | Chimney |
| F | 1,100 " | 77° | Manston Church |
| G | 1½ miles | 281° | House |
| H | 2½ " | 308° | Tower in Quex Park |
| I | 4½ " | 183° | Chimney |
| J | 5½ " | 162° | House |
| K | 12¾ " | 246° | Spire of Canterbury Cathedral |
| L | 18¾ " | 246° | Hills behind Canterbury |
| M | 31 " | { 246° 146° | Hills French coast at Calais |

Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

MANSTON

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Manston



T →
R →

↑ ↑
T R

Looking N.

(November, 1928).

NAIRN (NAIRNSHIRE, SCOTLAND)

Latitude 57° 35' N., Longitude 3° 55' W. Height of rain-gauge above M.S.L. 82 ft.

Instrumental Equipment.

| | |
|---------------------|---|
| Barometer. | Stevenson screen. |
| Rain-gauge, 8-inch. | Thermometers—dry bulb, wet bulb, maximum and minimum. |
| Sunshine recorder. | |

General Surroundings.—The station as regards its immediate surroundings is situated in fairly level country, well wooded to the south and south-west, flat and open round the half-circle from west to east through north, with the coast line running east to west, about one mile northward of the site. The coast line forms the southern shore of the Moray Firth and the mountains of Ross and Cromarty are visible across the Firth to the north-west. High hills bound the horizon except between north and east, they are within four miles to south and south-east, and seven miles to west and north-west across the Firth. This Firth widens towards the north-east to the open sea.

Site.—Height, 82 ft. above M.S.L. on sandy soil. The site lies on the northern edge of a wood, which is densest to south and south-west, and encloses the south and west sides of the garden in which the instruments are exposed, making the station a very sheltered one. The trees are about 30 to 40 ft. high on these sides, and are distant from the screen about 40 ft. on the south side. The School House stands in the front of the garden to the north of the instruments and the only open view is past the house to the north.

Wind.—Owing to the sheltered nature of the site, wind estimation presents great difficulty. The wind is further affected by the position of the station on a plain between an extensive mountain range to the southward and the sea to the north.

Temperature.—The sea and the high land in the vicinity must influence the temperature with suitable winds.

Visibility.—The objects in use for estimating visibility are set out in the attached table. The enclosed nature of the site makes it impossible to get objects across land at the greater distances.

| Object | Distance | Bearing | Nature of object |
|------------|-----------|---------|----------------------|
| A | 25 yards | 360° | Fence |
| B | 50 " | 22° | Fence |
| C | 95 " | 90° | Sign post |
| D | 199 " | 90° | Post |
| E | 540 " | 360° | Windmill |
| F | 1,100 " | 22° | College |
| G | 1,980 " | 270° | Building |
| H | 2 miles | 90° | Church spire |
| I | — | — | — |
| J (sea) .. | 7.3 miles | 315° | Building |
| K (sea) .. | 12.5 " | 2° | Buildings |
| L (sea) .. | 19.5 " | 22° | Headland—Tarbet Ness |
| M (sea) .. | > 30 " | 360° | Sutherland Hills |

Rainfall.—The rain-gauge exposure is satisfactory.

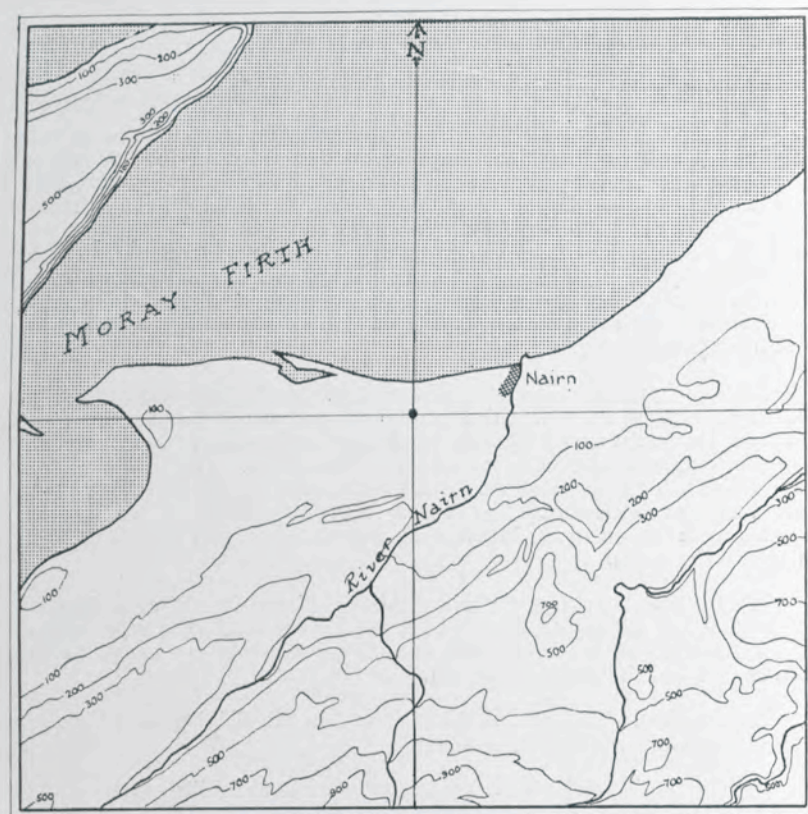
July, 1929.

(40464)

E

NAIRN

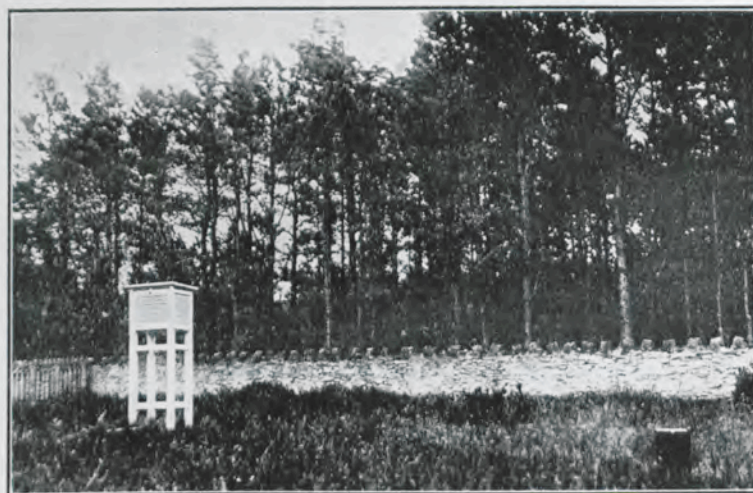
(The contours are given in feet above mean sea level.)



Scale 1 0 1 2 3 Miles

↓ T

↓ R



Looking S.

(June, 1925).

PEMBROKE (ST. ANN'S HEAD) (PEMBROKESHIRE, WALES)

Latitude $51^{\circ} 41' N.$, Longitude $5^{\circ} 11' W.$ Height of rain-gauge above M.S.L. 142 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Sunshine recorder.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum.

General Surroundings.—The station is situated near the head of a promontory which projects southwards from the mainland of Pembroke-shire. To the west and south lie the open sea, to the east the waters of Milford Haven, across which at a distance of two miles is the mainland. The neighbouring parts of Wales are not mountainous rising only to some 200 or 300 ft. above M.S.L. within a 10 mile circle. On the promontory to northward of the station the highest ground rises to a little over 200 ft. at a distance of about a mile.

Site.—The ground in the vicinity of the station is nearly level, but at a distance from the Stevenson screen, varying between 150 and 220 yards from north-east through south round to north-west, falls sharply to the sea. There is an excellent look-out in all directions.

Wind.—This is estimated without instrumental assistance. The exposure is a very open one, but cliff eddies may sometimes make estimation difficult.

Temperature.—The position of the site on a promontory projecting well out to sea causes the sea to affect the temperature.

Visibility.—The excellent outlook in all directions facilitates estimates of visibility. The mining districts of South Wales lie to the eastward and, doubtless, bring smoke when easterly winds prevail. The objects in use for estimating visibility are :—

| Object | Distance | Bearing | Nature of object |
|-------------|-----------|---------------|-----------------------|
| A | 29 yards | 315° | Building |
| B (land) .. | 55 " | 225° | Beacon |
| C " .. | 109 " | 240° | Fog signal |
| D " .. | 218 " | 315° | Sunshine recorder |
| E " .. | 545 " | 22° | Milbay cliffs |
| F " .. | 1,010 " | 360° | Building |
| G | — | — | — |
| H (sea) .. | 2.5 miles | 90° | Sheep Island |
| I " .. | 4.3 " | 270° | Stokham Island |
| J " .. | 6.8 " | 150° | Linney Head |
| K " .. | 12.5 " | 180° | St. Govan's lightship |
| L " .. | 18.5 " | 270° | Smalls lightship |
| M { sea .. | 40 " | 145° | Lundy Island |
| land .. | 25 " | 45° | Prescelly Mountains |

Sea Disturbance.—Can be estimated satisfactorily.

Rainfall.—The very open character of the site and its liability to cliff eddies prevent accurate measurement of rainfall.

July, 1929.

PEMBROKE

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Pembroke

↓ TR



Looking S.S.E.

(May, 1928).

PLYMOUTH (MOUNT BATTEN) (DEVONSHIRE, ENGLAND)

Latitude 50° 22' N., Longitude 4° 8' W. Height of rain-gauge above M.S.L. 82 ft.

Instrumental Equipment.

Barometer.
Barograph.
Microbarograph.
Rain-gauge, 8-inch.
Hyetograph.
Nephoscope (Besson).
Sunshine recorder.

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Thermograph.
Hydrograph.
Pilot-balloon equipment.

General Surroundings.—The station is situated at Mount Batten, an isthmus half-a-mile due south of Plymouth and separated from the town by the Cattewater. At the western end of the isthmus is Batten breakwater running east and west.

Site.—The Meteorological Office consists of the top floor of a two-storied stone building at the land end of the isthmus. Immediately behind the office is a hill which has a moderate slope to the sea between south-east and south-west. On the other sides the slope is vertical. On the top of the hill is a flat patch having an area of approximately 2,250 square yards on which the screen, rain-gauges and nephoscopes are placed. The height of the rain-gauge above mean sea level is 82 ft. The top of the hill is grass covered and the sub-soil is loam.

Wind.—Wind, direction and speed, is estimated.

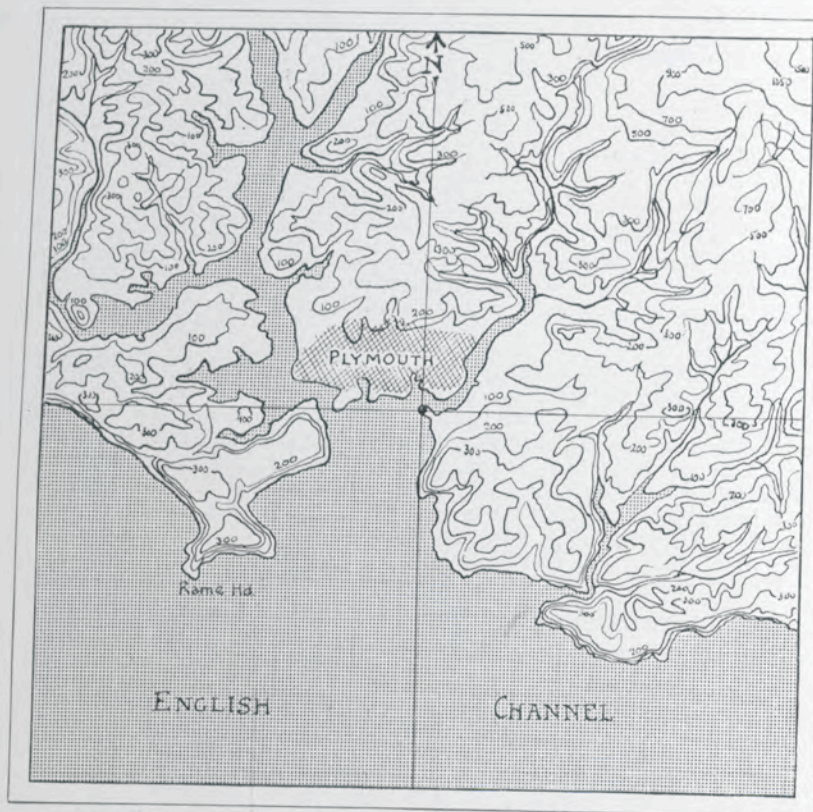
Visibility.—The objects used for estimating visibility are :—

| Object | Distance | Bearing | Nature of object |
|---------|--------------|---------|----------------------|
| A | 25 yards | 270° | Pillar |
| B | 50 " | 280° | Steps |
| C | 100 " | 70° | Building |
| D | 220 " | 270° | Breakwater |
| E | 550 " | 343° | Wharf |
| F | 1,100 " | 307° | Smeaton Tower, |
| | | | Plymouth Hoe |
| G | 2,200 " | 260° | West Point of |
| | | | Drake's Island |
| H | 4,400 " | 240° | Picklecombe Fort, |
| | | | Mt. Edgecombe |
| I | 4½ miles | 220° | Penlee Point |
| J | 6½ " | 56° | Hemerdon Ball |
| K | 13 " | 206° | Eddystone Lighthouse |
| L | } No objects | | |
| M | | | |

July, 1929.

PLYMOUTH

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Plymouth

↓ R

↓ T



Looking S.S.W.

PORTLAND BILL (DORSETSHIRE, ENGLAND)

Latitude 50° 32' N., Longitude 2° 27' W. Height of rain-gauge above M.S.L. 32 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum, minimum.

General Surroundings.—The headland of Portland projects southwards well out into the English Channel, and almost forms an island measuring about four miles long from south to north. The ground rises to between 400 and 500 ft. high at the northern end and slopes gradually nearly to sea level at the southern end, while narrowing to the sharp point upon which the station is situated.

Site.—Height above M.S.L. 32 ft. The ground slopes down towards south-east with a gradient of about 1 in 15. The sea is less than 100 yards distant from east through south to west-south-west. The site is a very open one devoid of trees and buildings other than the lighthouse.

Wind.—Winds are estimated without instrumental aid. They may be taken as practically those of the open sea in the neighbourhood.

Temperature.—The close proximity of the sea must affect the temperature.

Visibility.—The objects used to estimate visibility are :—

| Object | Distance | Bearing | Nature of object |
|------------|-----------|---------|------------------------|
| A | 25 yards | 45° | Wall |
| B | 50 " | 180° | Beacon |
| C | 100 " | 30° | Building |
| D | 200 " | 45° | Building |
| E | 480 " | 360° | Wall |
| F | 1,100 " | 30° | Sweet Hill |
| G | 2,200 " | 22° | Buildings in Southwell |
| H | 2.8 miles | 22° | Prison buildings |
| I (sea) .. | 4.5 " | 90° | Shambles lightvessel |
| J | — | — | — |
| K | — | — | — |
| L (sea) .. | 18.3 " | 67° | St. Alban's Head |
| M | — | — | — |

Sea Disturbance.—This can be estimated satisfactorily.

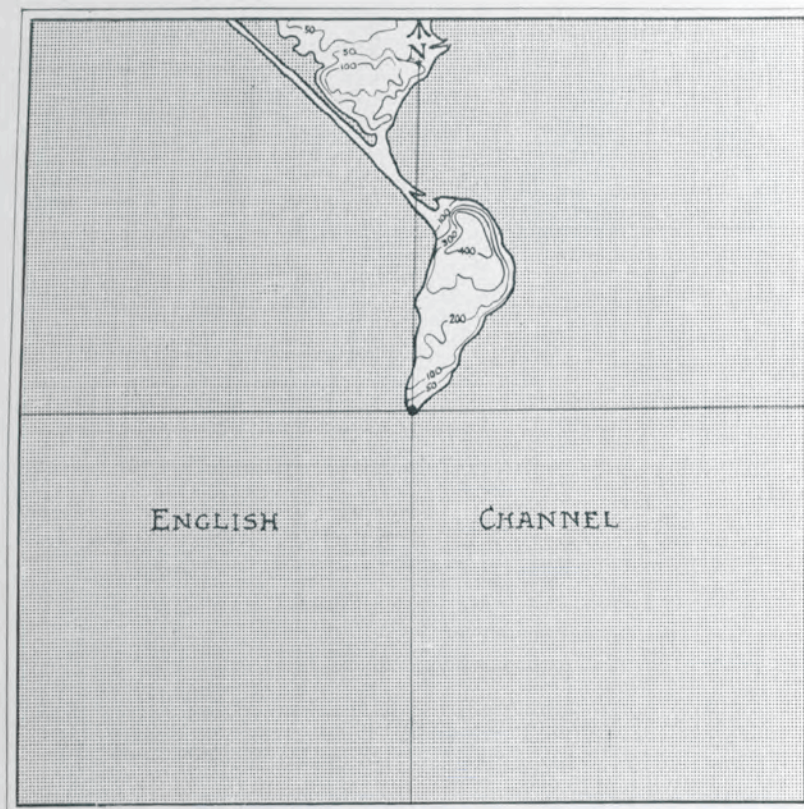
Rainfall.—Too little rain may be recorded during strong winds owing to the very open exposure of the rain-gauge.

Barometer Readings.—The barometer being mounted in the lighthouse tower may experience wind suction effects in windy weather, causing the readings to be too low.

July, 1929.

PORTLAND BILL

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Portland Bill

↓ R ↓ T



Looking N.E.

(1925).

RENFREW (RENFREWSHIRE, SCOTLAND)

Latitude 55° 52' N., Longitude 4° 24' W. Height of rain-gauge above M.S.L. 36 ft.

Instrumental Equipment.

Barometer.
Barograph.
Rain-gauge, 8-inch.
Hyetograph.
Nephoscope—Besson.
Sunshine recorder.
Hygrograph.
Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Thermograph.
Anemometer—pressure tube, direction and velocity.
Pilot-balloon equipment.

General Surroundings.—The station is situated at Renfrew Aerodrome. The latter is quite close to Renfrew town, which lies to the north. Paisley is south-west and Glasgow lies east. The aerodrome lies on the southern edge of the Moorpark district of Renfrew; Paisley is two miles and Glasgow is about four miles distant. All are in the Clyde Valley.

Site.—The aerodrome is an open space and the bulk of it lies to the east of the instrument enclosure, to the south-west of which a small knoll rises. The exposure to the south of the east-west line is free, but sheltered from the prevailing south-westerly wind by the small knoll. To the north-east lie aeroplane hangars which are about 35 ft. high. The office building lies to the north while the manufacturing district of Renfrew, with its furnaces and smoky chimneys, lies beyond between the north and west.

The surface soil is a heavy clay about a foot deep. Beneath it there is a band of peat for roughly 3½ ft. and underneath this is a sand bed. The peaty layer appears to allow surface water to drain away only very slowly for water tends to lie on the surface of the aerodrome which also floods during heavy rain.

Wind.—This is measured by a Robinson cup anemometer erected upon a 23-ft. post. The direction of the wind is observed from a streamer attached to the post.

The surface wind is generally NE. or ENE. when the gradient direction is between 160° and 180°. This peculiarity arises from the fact that the surface layers of air follow the course of the Clyde Valley. The gradient direction is reached at about 2,500 ft.

Temperature.—The station lies at the bottom of the Clyde Valley, and the number of ground frosts is somewhat large.

In hot weather there is a marked south-westerly sea breeze during the afternoon.

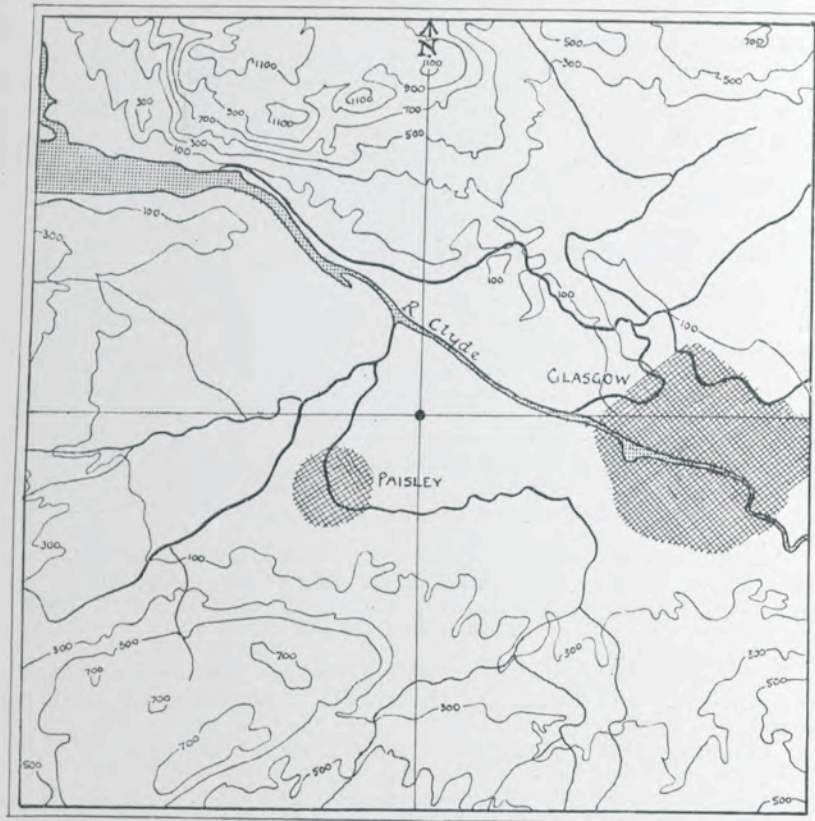
The distance from the sea is roughly 20 miles.

Visibility.—As a result of the deflection of the surface layers, atmospheric impurities from industrial Lanarkshire, which lies to the east, are carried over the station and visibility from easterly points is generally poor. It has been noticed that visibility from these points on Sundays and trade holidays is generally good, thus tending to show that the atmospheric obscuration is artificial. The objects used to estimate visibility are:—

| Object | Distance | Bearing | Nature of object |
|---------|------------------------|---------|-----------------------|
| A | 28 yards | 186° | Post |
| B | 47 " | 89° | Chimney |
| C | 99 " | 274° | Post |
| D | 203 " | 109° | Post |
| E | 550 " | 155° | Farm house |
| F | 1,200 " | 226° | House |
| G | 1½ miles | 204° | Church spire, Paisley |
| H | 2½ " | 229° | Chimney stack |
| I | 4½ " | 28° | Tower |
| J | 6½ " | 360° | Cochina Hill |
| K | 11½ " | 315° | Overton Moor |
| L | } No objects available | | |
| M | | | |

July, 1929.

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Renfrew

↓ T



T →

Looking E.N.E.

(Nov., 1928).

Latitude $51^{\circ} 47' N.$, Longitude $8^{\circ} 15' W.$ Height of rain-gauge above M.S.L. 22 ft.

Instrumental Equipment.

Barometer. Stevenson screen.
Barograph. Thermometers—dry bulb, wet
Rain-gauge, 8-inch. bulb, maximum and minimum.

General Surroundings.—Roche's Point is at the mouth of a channel one mile wide which runs northward from the coast for nearly two miles and then opens into Cork Harbour. The Point itself is the extremity of a peninsula which forms the eastern side of the channel and harbour. From the summit ridge within 50 yards of the station open water is visible from east round to south-south-west. There are low hills in a northerly and north-easterly direction and also to westward on the other side of the channel.

Site.—About 20 yards south-east of the screen, there is a steep grass bank about 50 ft. high to the crest of a ridge which runs out to the Point. The top of the ridge is cultivated and fairly level, but on the other side of it there is a steep descent to the sea and the total breadth of the peninsula at this point is little over 100 yards. The lighthouse shown in the photograph is about 250 yards south-west of the screen and the end of the promontory is just beyond this. The screen and rain-gauge are about four yards from the edge of a low cliff which descends to a sandy beach almost covered at high water.

Wind.—This is estimated without instrumental assistance. From a ridge less than a hundred yards from the instruments there is a very open exposure for winds from between ESE. and SSW.; other winds have crossed a considerable land area. The exposure is fairly good though somewhat too sheltered to the north-east.

Temperature.—The sea affects the temperature, particularly with winds from between E. and SW.

Visibility.—The station is far from smoky industrial regions. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|-------------|-----------|---------------|----------------------------|
| A | 25 yards | 67° | Post |
| B | 50 " | 90° | Telegraph pole |
| C | 100 " | 90° | Telegraph pole |
| D | 200-250 " | 67° | Flagstaff |
| E | 550 " | 67° | Chimney |
| F | 1,000 " | 315° | Buoy |
| G | 2,200 " | 67° | Building |
| H | 2.3 miles | 337° | Spike Island |
| I { land .. | 4.5 " | 337° | Queenstown Cathedral spire |
| I { sea .. | 5.5 " | 180° | Lightship |
| J | 7 " | 315° | Trees on hill |
| K | — | — | — |
| L | 20 miles | 337° | Hill top |
| M | — | — | — |

Sea Disturbance.—The open sea is visible from the top of the ridge.

Rainfall.—Owing to the open nature of the site, too little rain is probably recorded with strong westerly winds. Cliff eddies may also have some effect upon the amount recorded.

July, 1929.

ROCHE'S POINT

(The contours are given in feet above Irish Ordnance Datum.)



Scale 1 0 1 2 3 Miles

Roche's Point.

TR
↓



T →
R

Looking S.W.

(October, 1925).

ROSS-ON-WYE (HEREFORDSHIRE, ENGLAND)

Latitude 51° 55' N., Longitude 2° 35' W. Height of rain-gauge above M.S.L. 223 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Hyetograph.

Sunshine recorder.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum, grass minimum.

Thermograph, hygrograph.

General Surroundings.—The station is in the valley of the River Wye and is shut in on all sides by hills, which exceed 500 ft. within a mile to south and south-east and 900 ft. a little over four miles away to south-east. The hills are rather further off to west (south-south-west through west to north-north-west) and the river passes on that side flowing south.

Site.—The instrument enclosure is in a paddock in the residential part of the town. There are houses and trees in the vicinity, except from west round to north, but the distance is not less than 40 yards.

Wind.—This is estimated without instrumental assistance. The site is not very open, but the wind felt is probably fairly representative of this rather sheltered valley country.

Temperature.—Drainage of the air down the valley on clear nights probably prevents the temperature from falling as low as might be expected in a low-lying spot surrounded by hills.

Visibility.—There are no extensive smoky industrial areas near to Ross, but the mining districts of South Wales and the "Black Country" lie within 40 miles, the one to the south-west and the other to north-east and north-north-east. The objects in use for estimating visibility are :—

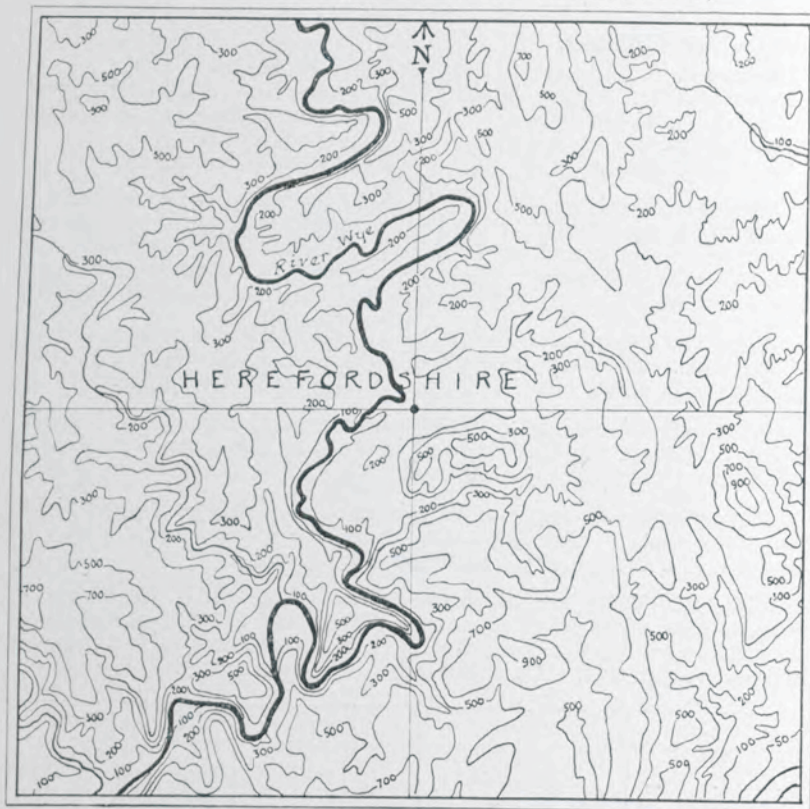
| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------|------------------|
| A | 32 yards | 165° | Lamp post |
| B | 65 " | 247° | Lamp post |
| C | 115 " | 45° | Telegraph pole |
| D | 228 " | 337° | Monument |
| E | 570 " | 45° | School turret |
| F | 1,050 " | 300° | Wilton Castle |
| G | 1,200 " | 225° | Chimneys |
| H | 2,200 " | 270° | House |
| I | 2.6 miles | 90° | House |
| J | 4.3 " | 67° | Linton Church |
| K | 6 " | 202° | Low Hill, Little |
| L | 13 " | 260° | Craig Hill |
| M | 18.5 " | 240° | Skerrid Hill |
| | — | — | — |

Rainfall.—The exposure of the gauge is quite satisfactory.

July, 1929.

ROSS-ON-WYE

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Ross-on-Wye

R ↓ ↓ T



T →

R →

Looking N. (Sept., 1922).

SCILLY (ST. MARY'S)

Latitude 49° 56' N., Longitude 6° 18' W. Height of rain-gauge above M.S.L. 163 ft. Height of anemometer vane above ground 65 ft.; above roof of tower 17 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Sunshine recorder.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum.

Anemograph—pressure tube and direction.

General Surroundings.—St. Mary's is the largest island of the Scilly group. It is about 2½ miles long from end to end and somewhat less in breadth and nowhere rises above about 170 ft. in height. The station is on a fairly level stretch of land near the northern extremity of the island. The ground here rises as high as at any part of the group. The whole group of islands is comprised within an area 10 miles long from south-west to north-east and five miles broad. All are of a rocky nature. The nearest part of the mainland (the Land's End) is about 25 miles distant to east-north-east.

Site.—The ground surrounding the station is level. The slope down to the sea commences at a point about 150 yards distant to the west. In other directions there is no pronounced slope for a considerably greater distance. There are stunted trees and some gorse in the neighbourhood, but little to break the force of the wind. Some shelter from wind is obtained for the rain-gauge by walls and low buildings. The anemometer is mounted on the coastguard look-out tower, which also contains the barometer and barograph, while the outdoor instruments are in a plot of ground 40 yards from the foot of the tower.

Wind.—The pressure-tube anemometer, being in a very open position, enables accurate values of unobstructed wind to be determined.

Temperature.—Owing to the small size of the island the temperature must be nearly the same as that over the surrounding sea.

Visibility.—Sea fogs are not uncommon, particularly in the summer. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|------------|------------|---------|----------------------------|
| A | 27 yards | 170° | Telegraph pole |
| B | 50 " | 158° | W/T mast |
| C | 110 " | 158° | Gate |
| D | 220 " | 135° | Flag staff |
| E | 550 " | 90° | Tree |
| F | 1,150 " | 338° | Crow Beacon |
| G | 1.3 miles | 200° | Star Castle |
| H (sea) .. | 2.5 " | 22° | Building |
| I (sea) .. | 4.5 " | 225° | Melledgan Rock |
| J (sea) .. | 7.3 " | 240° | Bishop's lighthouse |
| K | — | — | — |
| L (sea) .. | 18.7 miles | 80° | Wolf lighthouse |
| M (sea) .. | 30 " | 55° | Pendeen Coastguard Station |

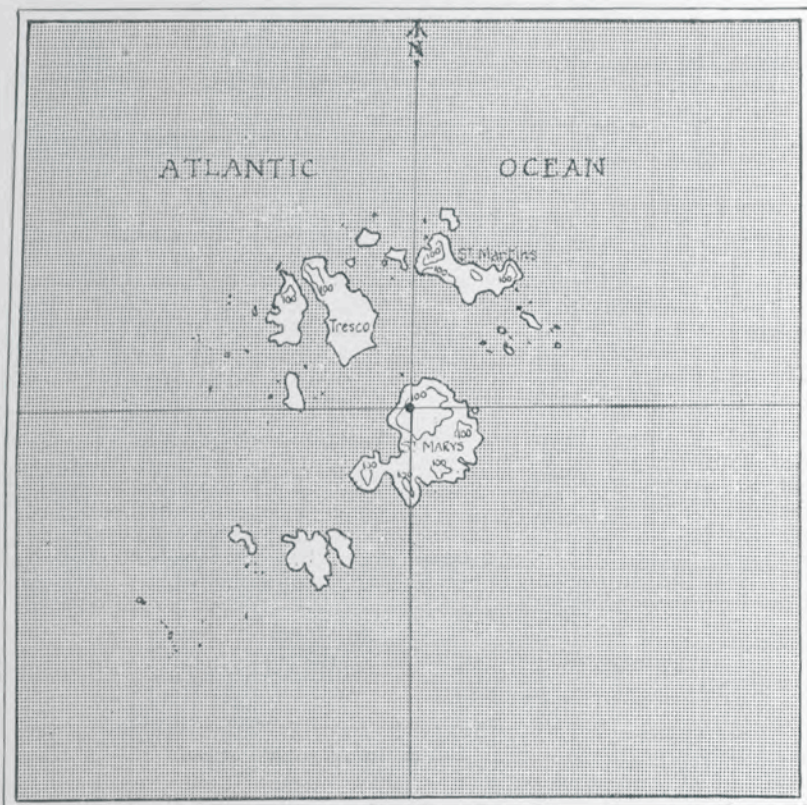
Sea Disturbance.—The disturbance appropriate to the open sea can be estimated satisfactorily with winds from all quarters.

Rainfall.—Too little rain is probably recorded during strong winds, owing to lack of shelter.

July, 1929.

SCILLY ISLES

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Scilly Isles

↓ T ↓ R



T →
R →

Looking S.S.E.

(February, 1926).

SEALAND, CHESTER (FLINTSHIRE, WALES)

Latitude 53° 13' N., Longitude 3° 0' W. Height of rain-gauge above M.S.L. 16 ft. Height of anemometer vane above ground 65 ft. Height of anemometer vane above roof 49 ft.

Instrumental Equipment.

Barometer (Kew pattern).
Barograph (small and open scale).
Rain-gauge, 8-inch.
Hyetograph.
Nephoscope (Besson).
Sunshine recorder.
Hygrograph.
Theodolite and pilot-balloon equipment.

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum and grass minimum.
Thermograph.
Anemograph, pressure tube, direction and velocity.

General Surroundings and Site.—The station is situated on the eastern edge of Sealand Aerodrome. In its immediate vicinity, except between north and north-east the surrounding countryside is very flat, being land reclaimed from the estuary of the River Dee. Between north and north-east it rises over 100 ft. in a wooded ridge, which is in South Wirral, the former northern edge of the Dee estuary. About a mile to the south runs the River Dee. Further to the south rise the mountainous regions of North Wales. The city of Chester is some five miles away to the south-east. To the north the boroughs of Birkenhead and Wallasey are some 8 to 10 miles distant as the crow flies, and opposite to them on the other side of the Mersey is the city of Liverpool.

Wind.—The direction and force of the wind is obtained from a Dines pressure-tube anemometer, which replaced a Dines-Halliwellanemobiograph in September, 1927. The sheltering effect of buildings situated between south-south-west and north-west is apparent on the velocity record, especially in the case of strong winds. In the appropriate type of weather, land and sea breezes occur during the day, and they have a marked effect on the climate of the district. There is a tendency at night for SW. katabatic winds.

Visibility.—Easterly winds, laden with atmospheric impurities from the industrial areas of Lancashire, affect the visibility considerably. The smoke from Liverpool and Birkenhead is dissipated before it reaches the vicinity of the station and therefore northerly winds cause no marked deterioration in visibility. Owing to the operation of a south-easterly land breeze in the morning, mists and fogs gathering after sunrise are seldom experienced and there is usually a steady clearing as the morning progresses.

Particulars of visibility objects are as follows :—

| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------|------------------------------------|
| A | 27 yards | 160° | Telegraph pole |
| B | 56 " | 254° | Building |
| C | 110 " | 266° | Building |
| D | 230 " | 185° | Telegraph pole |
| E | 510 " | 142° | Bridge over railway |
| F | 1,100 " | 360° | Hedge |
| G | 1.4 miles | 128° | Sealand Church |
| H | 2.5 " | 350° | Wood |
| I | 5.1 " | 115° | Chester Cathedral |
| J | 7.5 " | 270° | Hill—Moel y Gaer |
| K | 14 " | 135° | Hills at Burwardsley and Bickerton |
| L | 19 " | 250° | Llantysilio |
| M | — | — | Mountain |

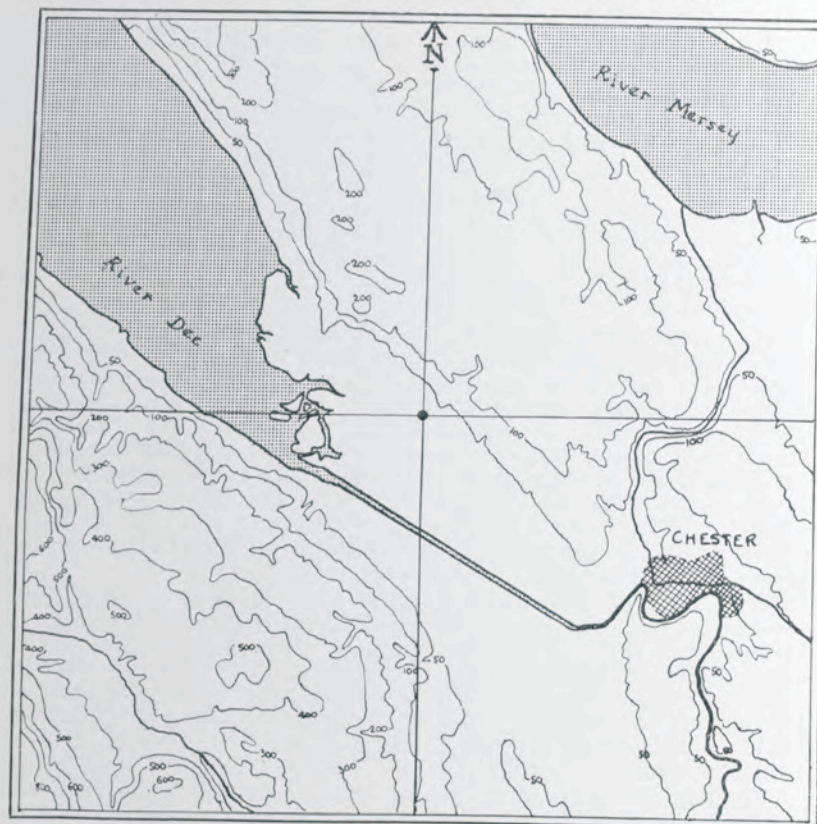
Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

(40464)

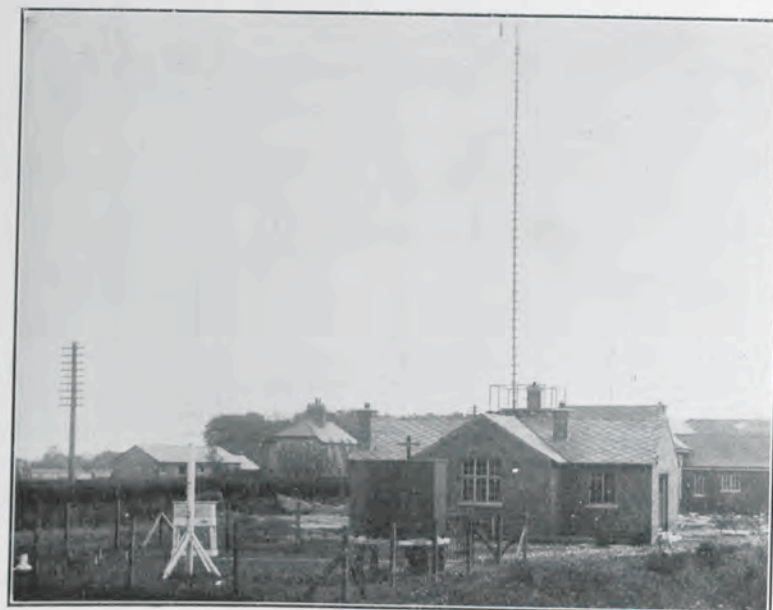
F

(The contours are given in feet above mean sea level.)



Scale 1 0 1 2 3 Miles

Sealand



Looking S.

(November, 1928).

SHOEBURYNESS (ESSEX, ENGLAND)

Latitude $51^{\circ} 32' N.$, Longitude $00^{\circ} 47' E.$ Height of rain-gauge above M.S.L. 11 ft. Height of anemometer vane above ground 104 ft. The vane is 14 ft. above the roof of a cabin on the top of a steel conning tower.

Instrumental Equipment.

Barometer.
Rain-gauge, 8-inch.
Sunshine recorder, Campbell Stokes.
Aneroid barograph.
Hygrograph.
Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Thermograph.
Anemograph — Dines pressure tube.
Wind direction recorder, Baxendell.

General Surroundings.—The station is situated on the new artillery ranges and is in the Parish of Great Wakering. The surrounding country is very flat and level, and only slightly raised above high water level. Great Wakering Church is three-quarters of a mile to the west and the coast line, which runs south-west to north-east, is, at its nearest point, about three-quarters of a mile to the south-east of the station. When the tide is out, however, the large flat expanse of the Maplin Sands is uncovered and the water's edge is then some five miles from the observatory.

There is little to break the force of the wind to the eastward and southward. To the west a row of young trees affords some shelter. To the north-west there is a row of cottages.

The country immediately surrounding the observatory is intersected in all directions by dykes and by the various creeks, large and small, which cut off the various islands forming this part of the County of Essex. The banks of these creeks are protected from the encroachments of the sea by the sea walls. These sea walls thus form the land into a number of large saucer-shaped depressions, which, although very shallow, are sufficient to hold ground mist well.

The soil is gravel overlying sandy shingle which again overlays the London clay. The water level in the soil is about 2 ft. below the surface.

Wind.—Wind measurements are taken from the pressure-tube anemograph. The exposure for wind is excellent to the east and south but some shelter is provided for winds blowing from the NW. and W.

Temperature.—The proximity of the sea must have an effect on temperature as probably does the marshy nature of the soil.

Visibility.—Visibility objects at a greater distance than $4\frac{1}{4}$ miles are not available. The station is greatly subject to mist and fog. The objects used for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|---------|----------------------|---------------|------------------|
| A | 25 yards | 180° | Hedge |
| B | 50 " | 70° | Cottage |
| C | 100 " | 60° | Tree |
| D | 200 " | 30° | Cottage |
| E | 550 " | 20° | House |
| F | 1,100 " | 140° | Building |
| G | $1\frac{1}{4}$ miles | 220° | Tower |
| H | $2\frac{1}{2}$ " | 360° | Trees |
| I | $4\frac{1}{4}$ " | 40° | Spire |

Sea Disturbance.—Observations of sea disturbance cannot be made.

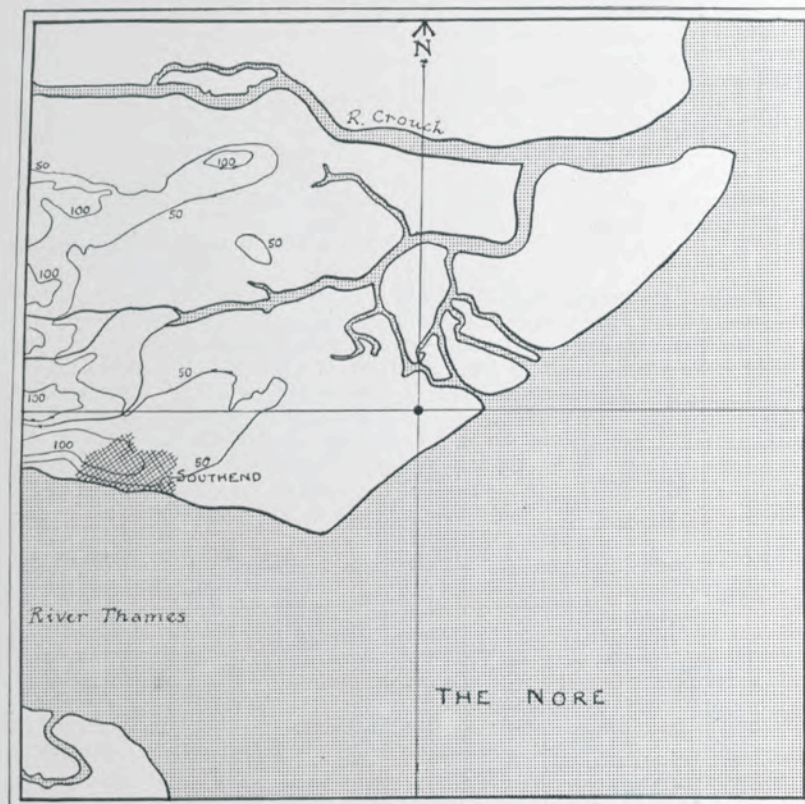
Rainfall.—It is probable that the open exposure of the rain-gauge to the east and south connotes that too little rain is recorded with strong winds from these directions.

July, 1929.

(40464)

SHOEBURYNNESS

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Shoeburyness.

↓ R ↓ T



Looking W.

(March, 1929).

SPURN HEAD (YORKSHIRE, ENGLAND)

Latitude 53° 35' N., Longitude 0° 7' E. Height of rain-gauge above M.S.L. 29 ft. Height of anemometer vane above ground 42 ft. Height of anemometer vane above roof 35 ft.

Instrumental Equipment.

| | |
|---------------------|--|
| Barometer. | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum. |
| Rain-gauge, 8-inch. | Anemograph, Dines pressure-tube. |
| Sunshine recorder. | |

General Surroundings.—The station lies near the end of a spit of sand which projects about three miles out into the Humber Estuary at its mouth. The exposure is thus that of a sandbank in a wide estuary, three miles from the shore.

Site.—The station is 29 ft. above M.S.L. in a very wind-swept position. The loose drifting sand which forms the soil on the spit makes it difficult to maintain a constant exposure for the outdoor instruments. Sand-banks sometimes build up almost level with the base of the thermometer screen which has then to be dug out and re-erected at a fresh level. The rain-gauge is placed in the centre of the paved enclosure surrounded by the lighthousemen's cottages. The enclosure is 36 yards in diameter and the cottages 16 ft. high from the paving. The rim of the gauge is 4 ft. above the paving.

Wind.—The wind is measured both for direction and force by the pressure-tube anemometer and may be taken as representative of the open sea in the neighbourhood.

Temperature.—The immediate proximity of the sea on three sides must markedly affect the temperature.

Visibility.—Grimsby lies eight miles to the west, Hull 22 miles to the west-north-west. The smoke from these towns probably affects the visibility with westerly winds. The objects used to estimate visibility are:—

| Object | Distance | Bearing | Nature of object |
|------------|----------|---------|-------------------------|
| A | 30 yards | 270° | Sandbank |
| B | 48 " | 270° | Thermometer screen |
| C | 98 " | 225° | Anemometer mast |
| D | 240 " | 225° | House |
| E | 500 " | 225° | Fort |
| F | 1,200 " | 240° | Headland—Spurn Point |
| G (sea) .. | 3,080 " | 225° | Bull Lightship |
| H (sea) .. | 3 miles | 22° | Kilnsea Church |
| I* | 4.5 " | 15° | Kilnsea Beacon |
| J (sea) .. | 6.3 " | 255° | Chimney at Cleethorpes |
| K* | 11.5 " | 337° | Withernsea Lighthouse |
| L | 18 " | 202° | The Wolds, Lincolnshire |
| M | — | — | — |

* These objects are partly over sea and partly over land.

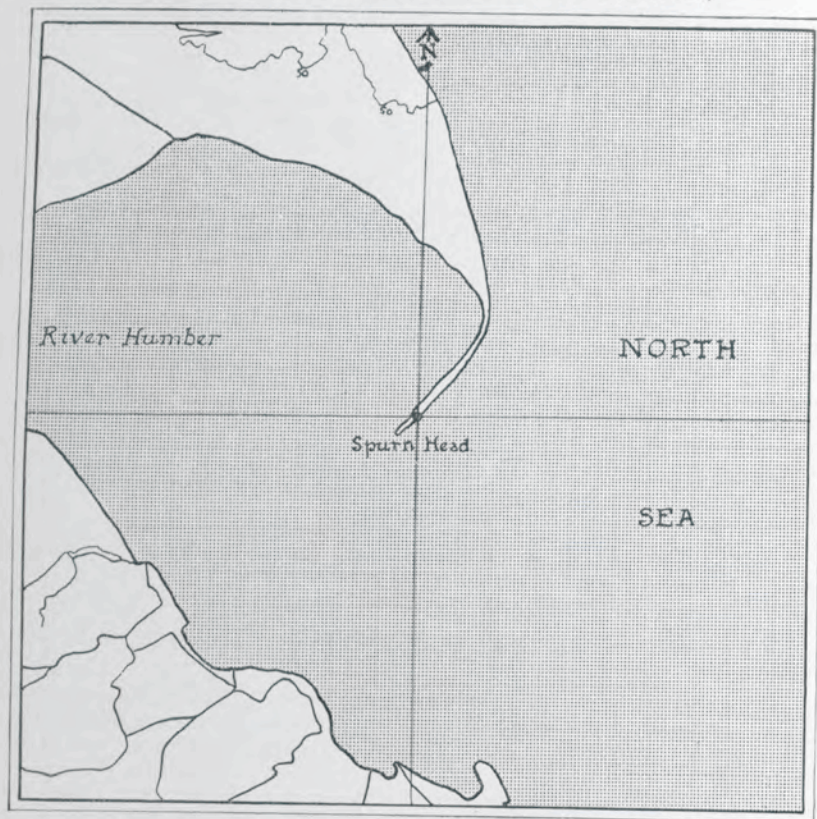
Sea Disturbance.—This can be estimated satisfactorily.

Rainfall.—See notes upon the exposure of the rain-gauge under " Site."

July, 1929.

SPURN HEAD

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Spurn Head.



August, 1921).

Looking S.W.

↑ T

STORNOWAY (HEBRIDES)

Latitude 58° 12' N., Longitude 6° 24' W. Height of rain-gauge above M.S.L. 34 ft.

Instrumental Equipment.

Barometer.
Barograph.
Rain-gauge, 8-inch.
Sunshine recorder.

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum and minimum.

General Surroundings.—The station lies at the neck of a low peninsula which juts out from the east coast of the island of Lewis for a distance of about nine miles. Although the sea is not much more than half-a-mile distant to the south, and at high tide is within one mile to the north-east, there is no considerable stretch of open water for a much greater distance owing to the very indented coastline. There are hills from south-west through north-west to north-east, and these exceed 900 ft. in height less than six miles away towards the north-west.

Site.—The station lies in a garden on the outskirts of the town. The sub-soil is clay. Though open to the east the site is rather shut in by houses to the west. The town of Stornoway lies to the south and west.

Wind.—This is estimated without instrumental assistance. Winds from between SW. and NW. are probably often much lighter than those which would be encountered at sea, especially in the early morning after a clear night, whereas easterly and south-easterly winds are probably not very different.

Temperature.—The situation is less maritime than might be supposed from its position on an outlying island. South-westerly winds arrive after passing across nearly 40 miles of land, including a range of hills between 1,500 and 2,000 ft. high. For this reason the temperature is sometimes lower on winter mornings than would be expected.

Visibility.—The objects in use for estimating visibility are :—

| Object | Distance | Bearing | Nature of object |
|---------|----------|---------|------------------|
| A | 25 yards | 270° | Chimney |
| B | 50 " | 315° | Chimney |
| C | 100 " | 337° | Chimney |
| D | 200 " | 157° | Houses |
| E | 520 " | 270° | Lewis Castle |
| F | 1,000 " | 315° | Monument |
| G | 2,200 " | 337° | Benside Hill |
| H | 3,100 " | 22° | Hills |
| I | — | — | — |
| J | — | — | — |
| K | — | — | — |
| L | — | — | — |
| M | — | — | — |

Sea Disturbance.—This cannot be estimated satisfactorily, because the open sea is not visible.

Rainfall.—The exposure of the gauge is satisfactory.

Note.—The 1 a.m. observations are taken at another site in the town.

July, 1929.

STORNOWAY

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Stornoway

T ↓ R



Looking N.W.

(May, 1927.)

TIRÉE (ARGYLLSHIRE, SCOTLAND)

Latitude $56^{\circ} 32' N.$, Longitude $6^{\circ} 55' W.$ Height of rain-gauge above M.S.L. 22 ft. Height of anemometer vane above ground 55 ft.; above roof of hut 48 ft.

Instrumental Equipment.

| | |
|---|--|
| Barometer. | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum and minimum, grass minimum. |
| Rain-gauge, 8-inch. | Thermograph. |
| Sunshine recorder. | |
| Anemograph—pressure tube with direction recorder. | |

General Surroundings.—The island of Tirée lies some 25 miles from the west coast of Scotland, with the open Atlantic to the north-west, west and south-west. The island is 11 miles long from west-south-west to east-north-east and some three or four miles broad. The eastern and central parts consist of a low-lying plain, on the northward edge of which the station is situated, about 500 yards from the sea. To the west-south-west a hill 388 ft. high lies two miles distant, and five miles to the south there is another hill of about the same height. In other directions the horizon is open.

Site.—The instrument enclosure lies on the border of the playground of Cornaigmore School, 30 yards south of the school house; the anemometer is about 110 yards west-north-west of the school. The island is without trees and the only obstructions to the wind, apart from the distant hills mentioned above, are the school house shown in the photograph and a low bank of sand dunes along the coast to the north, which rise about 15 ft. above the level of the station. The soil is sandy, but covered with close turf, except between the sand dunes and the sea, and on a tract of ground about half-a-mile to westward of the station, where blown sand is exposed.

Wind.—The pressure-tube anemometer, which is extremely well exposed, is used for determining wind force and direction.

Temperature.—Owing to the small size of the island the temperature is affected by the sea.

Visibility.—The site is far removed from smoky industrial areas. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------------|-------------------|
| A | 27 yards | 360° | Post |
| B | 50 " | 255° | Building |
| C | 110 " | 320° | Anemometer mast |
| D | 240 " | 64° | Telegraph pole |
| E | 560 " | 143° | Church |
| F | 1,100 " | 290° | House |
| G | 1.1 miles | 218° | House |
| H | 2.5 " | 90° | Balephetrish Hill |
| I | 4.5 " | 180° | Hill—Carnan More |
| J | 6.3 " | 72° | Coast |
| K | — | — | — |
| L | — | — | — |
| M | 32 miles | 100° | Mull Hills |

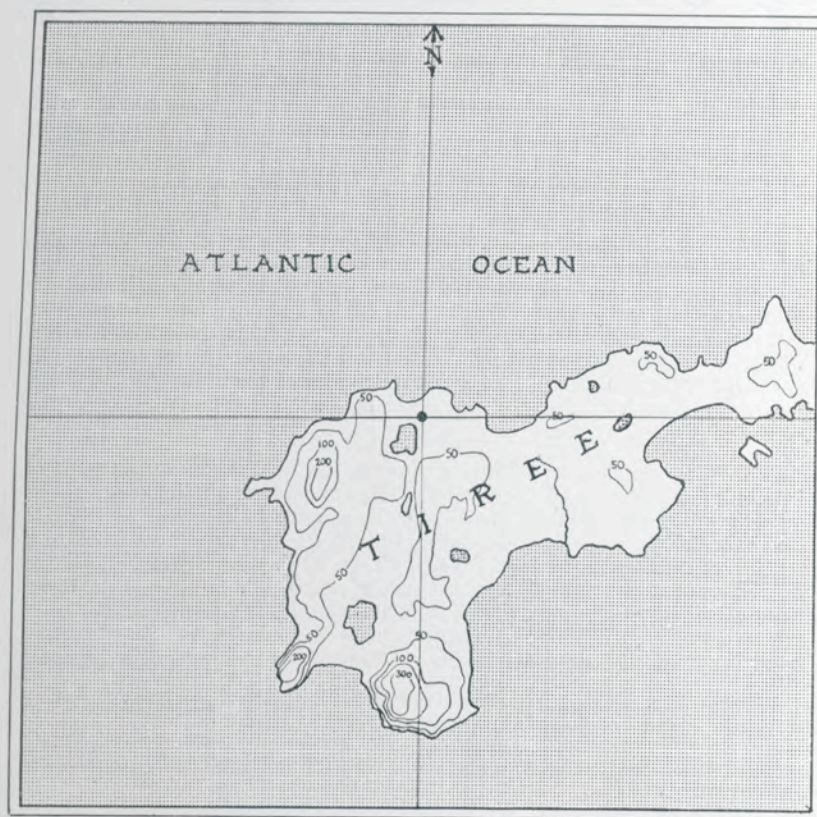
Sea Disturbance.—Can be estimated satisfactorily.

Rainfall.—Probably too little rain is recorded in strong winds owing to the very open situation, although some protection is afforded by artificial banks and by the school house to the north.

Note.—The photograph was taken before the anemometer was erected, July, 1929.

TIREE

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Tiree

TR



Looking N.

(December, 1925).

TYNEMOUTH (NORTHUMBERLAND, ENGLAND)

Latitude $55^{\circ} 0' N.$, Longitude $1^{\circ} 25' W.$ Height of rain-gauge above M.S.L. 67 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum, grass minimum.

General Surroundings.—The station is on the northern side of the Tyne at its mouth. The river has a width of half to three-quarters of a mile at this point, and opens eastwards into the North Sea. The surrounding country is hilly, with higher ground covered by houses at a short distance to the north and west, but an open exposure to the east and south.

Site.—The instruments are on a level plot, from which the ground falls away steeply to the east and south. There is also a dip to the north before higher ground is reached. There are coastguard buildings close by to the west.

Wind.—This is estimated without instrumental assistance. The station is somewhat sheltered for winds from between N. and W.

Temperature.—The sea is distant only 200 yards to the south at high tide and must affect the temperature when the wind is from some easterly point.

Visibility.—Visibility is much affected by smoke from the industrial districts to the westwards. The objects in use for estimating visibility are :—

| Object | Distance | Bearing | Nature of object |
|----------------|-----------|---------------|--------------------|
| A | 25 yards | 90° | Rails |
| B | 50 " | 180° | Post |
| C | 100 " | 60° | Post |
| D | 230 " | 30° | Bridge on pier |
| E | 500 " | 26° | Gun in fort |
| F | 1,200 " | 92° | N. Pier Lighthouse |
| G | 2,200 " | 360° | Cullercoats Light |
| H | 2.8 miles | 165° | Chimney |
| I | 4.3 " | 144° | Souter Point |
| | | | Lighthouse |
| J (coastal) .. | 7 " | 340° | Blyth Pier |
| K (coastal) .. | 12 " | 340° | Newbiggin Church |
| L (sea) .. | 21 " | 350° | Coquet Light |
| M | — | — | — |

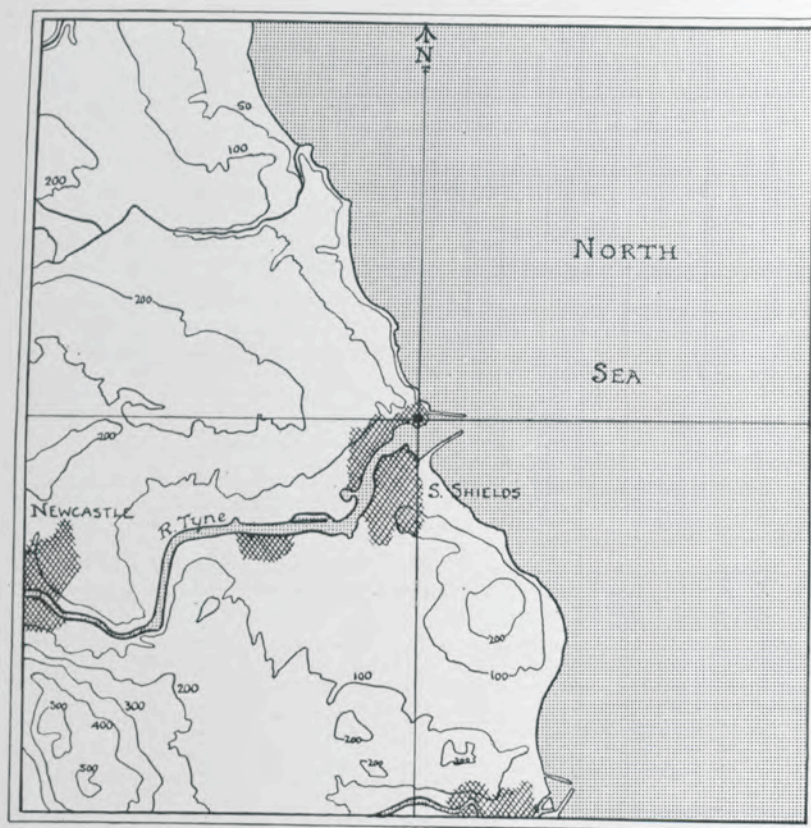
Sea Disturbance.—Can be estimated satisfactorily.

Rainfall.—The exposure of the gauge is not very satisfactory, owing to the hilly surroundings and steep slope up from the sea.

July, 1929.

TYNEMOUTH

(The contours are given in feet above mean sea level.)



Scale 1 0 1 2 3 Miles

Tynemouth

↓ T

↓ R



Looking N.E.

(August, 1929).

UPPER HEYFORD (OXFORDSHIRE, ENGLAND)

Latitude 51° 56' N., Longitude 1° 15' W. Height of rain-gauge above M.S.L. 408 ft.

Instrumental Equipment.

| | |
|---|---|
| Barometer (Kew station type). | Stevenson screen. |
| Barograph. | Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum. |
| Rain-gauge, 8-inch. | Thermograph. |
| Hyetograph. | |
| Nephoscope—Besson. | |
| Hygograph. | |
| Theodolite and pilot-balloon equipment. | |

General Surroundings and Site.—The station is situated on the Upper Heyford R.A.F. Aerodrome, between No. 1 Hangar and the Heyford Road, on ground which slopes slightly from north-west to south-east. To the north, east and south the country is mainly of a gently undulating character and consists chiefly of pasture and arable land. Middleton Park with considerable stretches of copse and woodland lies just to the south-south-east. About a mile to the west the surface slopes rather steeply towards the River Cherwell, which flows roughly in a north-south direction. Beyond the Cherwell the higher ground of the edge of the Cotswolds is reached.

Wind.—Winds are estimated both in direction and force. The site is much sheltered by aerodrome buildings from about west-north-west through north to east, but the forces of winds from these directions are estimated with the assistance of the hangar wind sleeves which can be observed from the office during daylight.

Temperature.—Readings of temperature are made from the Stevenson screen which stands inside the grass-covered enclosure. The exposure is satisfactory.

Visibility.—South-easterly winds usually bring atmospheric impurities from London over this station and often seriously reduce the visibility. In addition, winds from between NW. and NNE. bring impurities from the industrial districts of the Midlands and considerably affect the visibility.

| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------|--------------------|
| A | 28 yards | 12° | Fire hydrant |
| B | 55 " | 72° | Water tower |
| C | 110 " | 253° | Gate |
| D | 220 " | 95° | Building |
| E | 543 " | 182° | W/T mast |
| F | 1,170 " | 275° | Trees |
| G | 1 mile | 197° | Inn |
| H | 2.3 miles | 273° | Church tower, |
| | | | Steeple Aston |
| I | 3.5 " | 229° | Tackley Wood |
| J | 8.3 " | 206° | Bladon Heath Woods |
| K | 12 " | 194° | Wytham Woods |
| L | 14.7 " | 242° | Leafield W/T masts |
| M | 27 " | 180° | White Horse Hills |

Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

UPPER HEYFORD

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Upper Heyford.

↓ T



Looking E. by S.

(August, 1928).

VALENTIA OBSERVATORY (Co. KERRY IRELAND)

Latitude 51° 56' N., Longitude 10° 15' W. Height of rain-gauge above M.S.L. 30 ft. Height of anemometer vane above ground 41 ft.; above roof of hut 34 ft.

Instrumental Equipment.

Barometer (Fortin type).
Barograph.
Rain-gauge, 8-inch.
Recording rain-gauge (Beckley type).
Nephoscope (Besson).
Sunshine recorder.
Hygrograph.

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum and minimum, grass minimum.
Anemographs—pressure tube and Robinson cup (direction and velocity from both).

Note.—The complete equipment of an Observatory of the First Order is maintained at this station.

General Surroundings.—The Observatory is situated rather less than a mile to the west of the small town of Cahirciveen and is almost completely encircled by hills at distances varying from one mile in the south-east and three miles on the north to greater distances in other directions. To the west is an opening to the sea, this being the only direction in which a clear horizon is visible. The station thus has considerable shelter from all winds except those from between S. and W. The Valentia River, which flows from north-east to south-west, is a fairly wide estuary, and is less than 200 yards to the north-west of the station. There is a conspicuous absence of trees and buildings in the surrounding country. A considerable part of the land in the district consists of bog and the ground generally is rather wet as a rule.

Site.—The outdoor instruments are in an enclosure in a field of short grass to the north of the Observatory. The field slopes downward to the north but the ground inside the enclosure is itself level. The instruments are about 150 ft. from the Observatory building.

Wind.—The pressure-tube anemograph is available for estimating the wind, which is influenced by the mountains round about.

Temperature.—Temperature is influenced by the close proximity of the wide estuary leading to the open sea; the neighbouring mountains should give rise at times to marked föhn effects, with easterly (SE. to NE.) winds.

Visibility.—The site is far removed from smoky industrial areas. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|---------|-----------|---------|------------------|
| A | 27 yards | — | Gate |
| B | 55 " | 315° | Garden boundary |
| C | 115 " | 340° | Garden boundary |
| D | 218 " | 330° | Notice board |
| E | 546 " | 360° | Buildings |
| F | 1,090 " | 205° | Spire |
| G | 2,090 " | 55° | Building |
| H | 2.4 miles | 280° | Island |
| I | 4.2 " | 250° | High ground |
| J | 6.4 " | 220° | Mountain |
| K | 10.9 " | 55° | Mountains |
| L | 16.4 " | 330° | Mountain |
| M | — | — | — |

Sea Disturbance.—Sea disturbance cannot be estimated satisfactorily owing to the distance of the open sea.

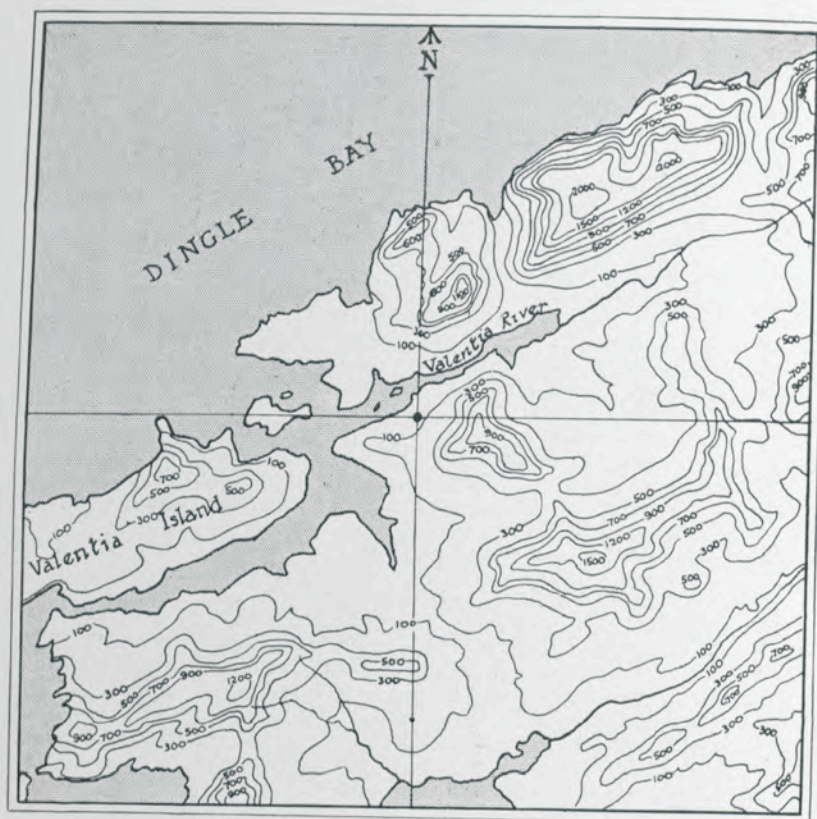
Rainfall.—The exposure of the gauge is fairly satisfactory on the whole, but with strong winds from between S. and W. probably too little rain is recorded.

Note.—The observations for 1 a.m. are made at the wireless station on the very hilly island of Valentia, 4½ miles to west-south-west. The hills at times cause strong deviations from the general wind of the district, and great divergences occur between the winds at this station and at the Observatory.

July, 1929.

VALENTIA OBSERVATORY

(The contours are given in feet above Irish Ordnance Datum.)



Scale 0 1 2 3 Miles

T ↓ ↓ R



Looking S.S.E.

(September, 1929).

WICK (CAITHNESS, SCOTLAND)

Latitude 58° 26' N., Longitude 3° 5' W. Height of rain-gauge above M.S.L. 81 ft.

Instrumental Equipment.

Barometer.

Barograph.

Rain-gauge, 8-inch.

Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum.

General Surroundings.—The station is situated on a headland on the south side of Wick Harbour. Apart from the town of Wick, which lies to north-westward and stretches to within about a quarter of a mile of the station, the country is bare and open in all directions. It does not rise above 200 ft. above M.S.L. within two or three miles in any direction. The general run of the coastline at this spot is from south-south-west to north-north-east. To eastward there is an open exposure to the North Sea.

Site.—Very open, the only shelter being due to buildings 20 ft. high, distant 30–40 yards towards the north. The ground on which the station is situated slopes gently down eastward to the edge of the cliffs about 200 yards to the east-south-east; after rising gently for about 150 yards to the north-west and west, the country is comparatively level.

Wind.—This is estimated without instrumental assistance. The extremely open exposure and view of the open sea facilitate good estimates.

Temperature.—The sea, being about 160 yards distant to the eastward, must influence the temperature with suitable winds. Winds from between SSW. and NNW. (through W.) traverse many miles of land, and those from between SW. and W. cross hills over 2,000 ft. high: a föhn effect is doubtless felt at times.

Visibility.—During the months of January, July, August, December and parts of September, visibility is apt to be reduced by smoke from the fishing fleet in the harbour to the north, but only for an hour or two—generally in the afternoon—so good estimates can be made. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|------------|-----------|---------|----------------------|
| A | 25 yards | 180° | Railings |
| B | 50 " | 245° | Screen |
| C | 100 " | 190° | Flagstaff |
| D | 200 " | 320° | Seat |
| E | 450 " | 320° | Monument |
| F | 1,200 " | 20° | Proudfoot Rocks |
| G | 1,850 " | 323° | Church spire |
| H | 2.1 miles | 200° | Headland—Helman Head |
| I | 4.8 " | 245° | Tannach Hill |
| J | — | — | — |
| K | — | — | — |
| L (sea) .. | 18 miles | 10° | Lighthouse |
| M | — | — | — |

Sea Disturbance.—Can be estimated satisfactorily.

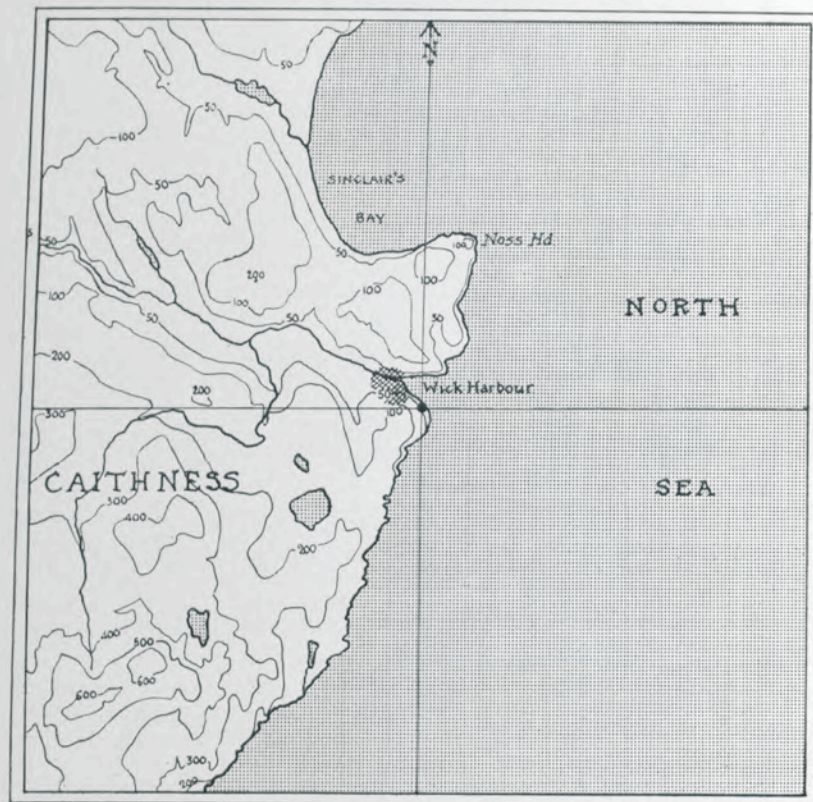
Rainfall.—Too little rain is probably recorded in windy weather especially with winds having a southerly component, owing to the very open character of the site.

July, 1929

(40464)

WICK

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Wick..

↓ R ↓ T

R →



Looking S.E.

(May, 1923).

WORTHY DOWN (WINCHESTER) (HAMPSHIRE, ENGLAND)

Latitude $51^{\circ} 7' N.$, Longitude $1^{\circ} 19' W.$ Height of rain-gauge site above M.S.L. 275 ft. Height of anemometer vane above ground 43 ft. Height of anemometer vane above roof 27 ft.

Instrumental Equipment.

Barometer (Kew pattern). Stevenson screen.
Barograph. Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Rain-gauge, 8-inch. Thermograph.
Recording rain-gauge (Hyetograph). Anemograph—Dines pressure tube (direction and velocity).
Nephoscope (Besson).
Sunshine recorder.
Hydrograph.
Theodolite, etc., for pilot-balloon observations.

General Surroundings and Site.—Worthy Down is $3\frac{3}{4}$ miles north by west of Winchester. The surrounding country is gently undulating and consists mainly of grass land and cultivated fields, with scattered clumps of trees. The meteorological station is situated on the southern slope (about 1:40) of a bare ridge running east-west, used as a landing ground for aircraft of the Royal Air Force. About 50 yards to the south the ground commences to fall rather more steeply to a narrow valley 50 ft. below the station level. The soil is loam, with a sub-soil of chalk. The exposure is quite free between north and west. Buildings 50 ft. high are situated 220 yards to north-north-east. Various low offices and huts to east-south-east and south-west are just sufficient to prevent the site being too wind-swept from these directions.

Wind.—Winds are measured, both for direction and force, by a Dines pressure-tube anemometer. There is occasionally a tendency for a slight katabatic breeze from N. on quiet cold nights.

Temperature.—Temperature is read from a standard large Stevenson screen in a level enclosure 40 ft. by 40 ft., bounded by sheep fencing 4 ft. high. The dry and wet thermometer bulbs are 4 ft. above ground.

Visibility.—Visibility is not seriously affected by any local causes, there being almost a complete absence of any large industrial works in Winchester. Investigation has shown that, in general, north-easterly winds are characterised by poor visibility, and that good visibility is associated with winds between SW. and W. The objects used in estimating the visibility are:—

| Object | Distance | Bearing | Nature of object |
|---------|-----------|-------------------|-----------------------|
| A | 28 yards | 15° true | Screen |
| B | 56 " | 222° | Pole |
| C | 108 " | 103° | Post |
| D | 220 " | 75° | Hut |
| E | 555 " | 124° | Railway cutting |
| F | 1,200 " | 338° | House |
| G | 2,200 " | 265° | Trees |
| H | 2.5 miles | 92° | Trees—Rutherly Copse |
| I | 3.9 " | 194° | Water tower |
| J | 5.8 " | 140° | Cheesefoot Hill |
| K | 11.5 " | 133° | Beacon Hill, Warnford |
| L | 18.0 " | 120° | Butser Hill, |
| M | — | — | Petersfield |

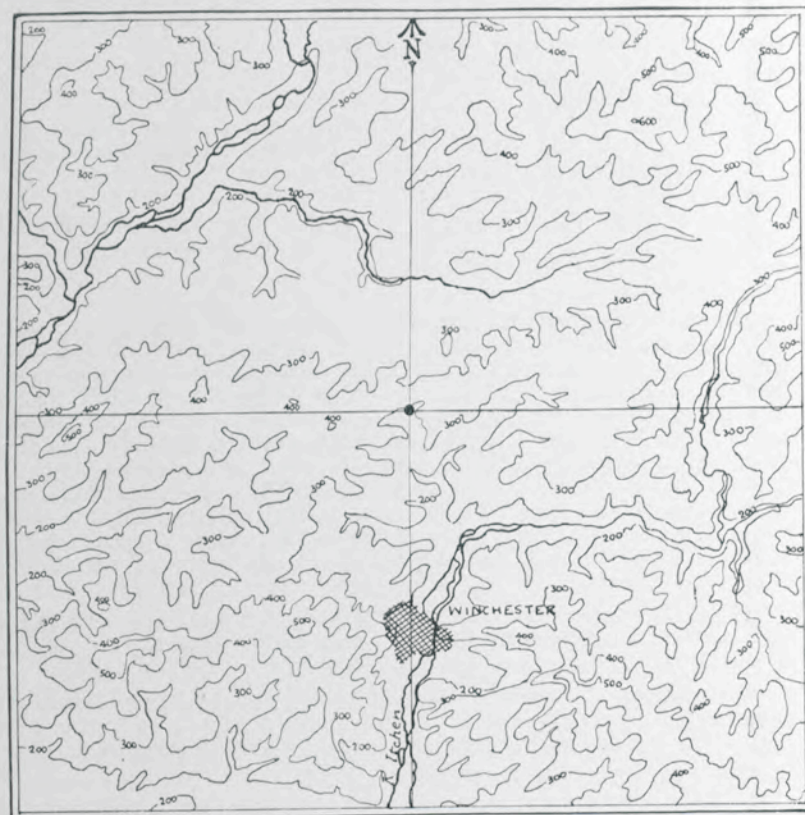
Rainfall.—The exposure of the rain-gauge is satisfactory.

July, 1929.

(40464)

WORTHY DOWN

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Worthy Down

↓ T ↓ R



← T
← R

Looking S.W.

(July, 1929).

YARMOUTH (GORLESTON) (NORFOLK, ENGLAND)

Latitude 52° 35' N., Longitude 1° 43' E. Height of rain-gauge above M.S.L. 14 ft. Height of anemometer vane above ground 42 ft.

Instrumental Equipment.

Barometer.
Barograph.
Rain-gauge, 8-inch.
Sunshine recorder.
Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum and minimum, grass minimum.
Anemograph—pressure tube with direction recorder.

General Surroundings.—The enclosure containing the Stevenson screen, rain-gauge and grass minimum thermometer is situated on a strip of ground bordering the western bank of the estuary of the Yare, which here runs parallel to the shore at a short distance from it. Between west and south higher ground extends inland for several miles, rising in places to between 50 and 100 ft. above sea level. Between west and north, level country extends for many miles over flat meadow land or marshes. The river estuary is separated from the open sea to the east only by a narrow strip of low sand hills.

Site.—The instrument enclosure forms part of a small public garden covered with short turf. There are houses from north through west to south, which extend to within about 25 yards of the enclosure at the nearest point. From south-south-east through east to north the exposure is quite open.

Barometer readings and observations of visibility are taken at the coastguard station near the landward end of the pier. The anemometer is a short distance along the pier beyond the coastguard station.

Wind.—The pressure-tube anemometer is used for estimating the wind. Statistics show that winds from between N. and SSE. are about as strong as might be expected out at sea, but westerly winds are appropriate for a land station.

Temperature.—The sea is only a few hundred yards away to the east, and affects the temperature. In fine, quiet, summer weather a sea breeze is very liable to occur in the middle of the day.

Visibility.—The locality is rather liable to fog, probably often originating over the low-lying land to the west, where lie numerous sheets of water and marsh (the Norfolk Broads); sea fogs also occur. The objects in use for estimating visibility are:—

| Object | Distance | Bearing | Nature of object |
|------------|-----------|---------|------------------------|
| A | 25 yards | 45° | Capstan |
| B | 50 " | 90° | Telegraph pole |
| C | 100 " | 90° | Anemometer mast |
| D | 200 " | 90° | Pier head |
| E | 530 " | 45° | Building |
| F | 1,320 " | 315° | Gorleston Church |
| G { sea .. | 2,032 " | 90° | St. Nicholas lightship |
| { land .. | 2,640 " | 360° | Nelson Monument |
| H | — | — | — |
| I (sea) .. | 4.5 miles | 135° | Corton lightship |
| J (sea) .. | 6.8 " | 75° | Cross Sands lightship |
| K (sea) .. | 11.8 " | 45° | Newarp lightship |
| L | — | — | — |
| M | — | — | — |

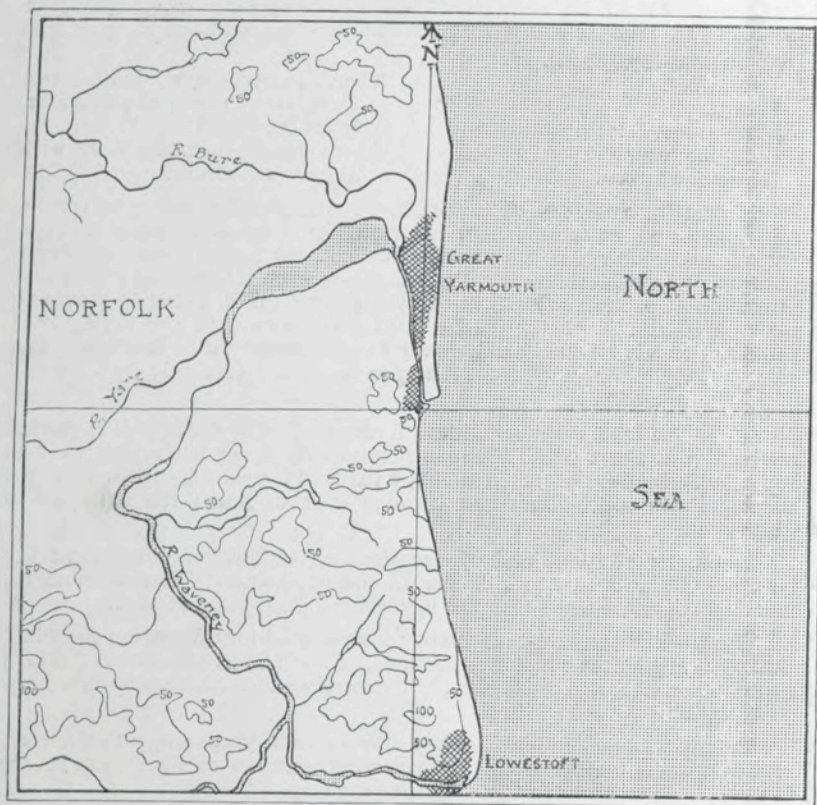
Sea Disturbance.—The open sea can be seen from the pier.

Rainfall.—The exposure is satisfactory.

July, 1929.

YARMOUTH

(The contours are given in feet above mean sea level.)



Scale 0 1 2 3 Miles

Yarmouth (Gorleston)

R ↓ ↓ T



T →
R →

Looking N.

(May, 1927).