

AIR MINISTRY
METEOROLOGICAL OFFICE

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

Amendment issued 1936

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LONDON

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1936

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HOLYHEAD. Add "Height of anemometer vane above ground 43 ft." Instrumental equipment, for "Anemometers" read "Anemometer" and delete "anemobiograph, Robinson cup".

Wind, delete all paragraph after "This is measured by a pressure tube anemometer".

Visibility, substitute the following table:—

Object	Distance	Bearing	Nature of Object
A	27 yards	166°	Pole
B	53 "	113°	Shed
C	103 "	5°	Hut
D	218 "	198°	Pole
E	530, 600 "	143°, 245°	Buildings
F	1,170, 1,100 "	232°, 355°	Church : breakwater
G	1½, 1⅓ miles	136°, 279°	Capes
H	2½ "	84°, 278°	Buildings
I	4½ "	49°	Wood
J	6½ "	19°	Headland
K	12½, 13½ "	67°, 82°	Mountain : hills
L	23 "	126°	Mountain
M	29½ "	130°	Mountain ranges

LERWICK. Substitute new page.

LEUCHARS. Substitute new page.

LYMPNE. Substitute new page.

MANSTON. Instrumental equipment. Add "Cloud searchlight".

SHOEBURYNESS. Substitute new page.

TIREE. Height of rain-gauge above M.S.L., for "22 ft." read "24 ft." Height of anemometer above ground, for "55 ft." read "50 ft.," above roof of hut, for "48 ft." read "41 ft."

Site, for first sentence substitute the following:—

Site.—The instrument and anemometer enclosure is about 110 yards west-north-west of Cornaigmore School.

Sea disturbance, substitute the following paragraph:—

Sea disturbance.—Can be estimated satisfactorily during daylight hours.

TYNEMOUTH. Substitute new page.

Add the pages for the following stations:—

(2) Distributive stations—

Abbotsinch	Manchester
Boscombe Down	Pembroke Dock
Catterick	

(3) Telegraphic reporting stations—

Dalwhinnie	Point of Ayre
Lizard	

The following stations have ceased to contribute synoptic reports—

Clacton	Liverpool
Donaghadee	Nairn
Falmouth	Worthy Down
Harrogate	

The following stations have been closed—

Cardington	Renfrew
Leafield	

ABBOTSINCH (RENFREWSHIRE, SCOTLAND)

Latitude 55° 52' N., Longitude 4° 26' W. Height above M.S.L. of ground on which the rain-gauge stands, 19 ft.

Instrumental Equipment.

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

General Surroundings.—The soil is alluvial deposit, a clay stratum alternating every 3 or 4 inches with one of sand. Water is found at 5 ft. The station is situated in the north-east corner of the R.A.F. aerodrome, on flat, open country, the nearest hills being 12 miles to west and 3-4 miles to north-east.

Site.—From the enclosure, buildings lie to east-south-east, south and south-south-west, the nearest being a petrol store 13 ft. high, 35 yards to south-west, and an R.A.F. store 25 ft. high, distant 60 yards to south. The nearest hangar, 45 ft. high is about 115 yards to south. To the east-south-east, distant over 100 yards, is an engine shop about 55 ft. high. The exposure is open otherwise. The office, 17 ft. high, lies 11 yards from the east side of the enclosure, and 18 yards from the rain-gauge.

Wind.—Wind measurements are taken from the pressure-tube anemograph. The exposure for wind is excellent to the west and north-east, but probably somewhat sheltered by the ranges of hills to the north. A gusty effect is observed for winds between SE. and SW., owing to buildings. The tendency for NE. or ENE. surface winds when the gradient direction is SE. to S. may not be present as is the case at Renfrew, but for an E. to SE. gradient wind, the surface direction is generally NE. or ENE.

Temperature.—The station lies in the Clyde Valley and night minima are a little lower than expected.

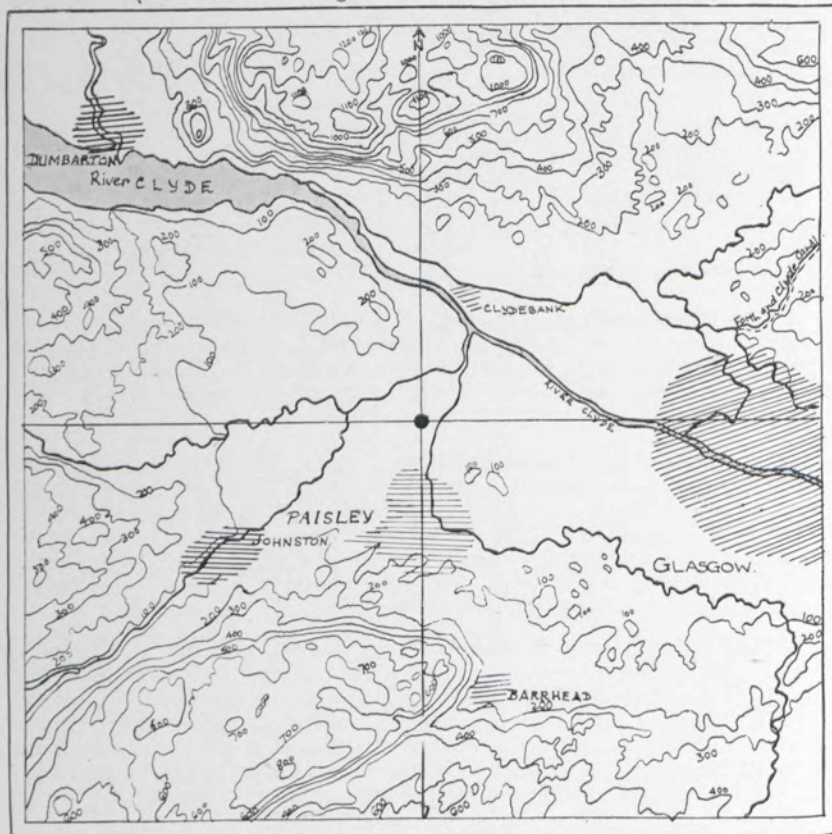
Visibility.—A marked deterioration is experienced with E. winds, and fog conditions are often experienced when a depression is approaching. The objects used to estimate visibility are :—

Object	Distance	Bearing	Nature of object
A	25 yards	270°	North-west corner of enclosure
B	55 "	203°	Corner of building
C	103 "	283°	Building
D	220 "	150°	Cottage
E	605 "	18°	Trees
F	1,025 "	318°	House
G	1½ miles	330°	Building
H	2½ "	55°	Pylons
I	4.3 "	350-360°	Hills
J	6.1 "	10-18°	Hills
K	11.9 "	255°	Mountain
L	19.5 "	323°	Mountain
M	27 "	302°	Mountain

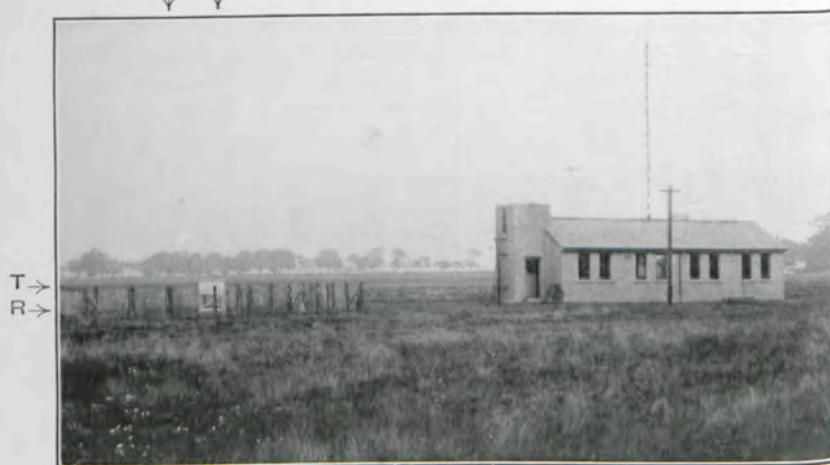
September, 1933.

ABBOTSINCH

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



ABBOTSINCH



Looking N.N.E.

(September, 1933)

BOSCOMBE DOWN (AMESBURY) (WILTSHIRE, ENGLAND)

Latitude $51^{\circ} 10' N.$, Longitude $1^{\circ} 45' W.$ Height above M.S.L. of ground on which the rain-gauge stands, 417 ft. Height of anemometer vane above ground 45 ft.; above roof $29\frac{1}{2}$ 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 (natural syphon).	Anemometer—Dines pressure tube and Baxendell direction recorder.
Nephoscope (Besson).	Cloud searchlight.
Sunshine recorder.	
Hydrograph.	
Theodolite and pilot-balloon equipment.	

General Surroundings and Site.—Boscombe Down lies 7 miles north by east of Salisbury and in the south-eastern part of Salisbury Plain. The surrounding country is undulating and fairly open with plenty of grass land and small scattered woods here and there. The Meteorological Office stands on the Royal Air Force aerodrome which is situated on the ridge between the valleys of the Avon and the Bourne. The ground in the immediate neighbourhood slopes away rather quickly to the River Avon to the north-north-west and to the River Bourne to the south-south-east. The highest point in the district is Beacon Hill, about 2 miles to the north-east and reaching 668 ft. at its highest point.

Wind.—Winds are measured by a Dines pressure-tube anemometer and a Baxendell direction recorder. The instrument is badly affected by eddies with winds between E. by N. and ESE. and to a less extent with winds between SSW. and SW. Exposure is good for winds between ESE. and SSW.

Temperature.—Temperature readings are taken from a standard Stevenson screen which has a satisfactory exposure.

Visibility.—The absence of any industrial works in the district ensures that visibility is not affected by artificial causes. The objects used in estimating the visibility are as follows:—

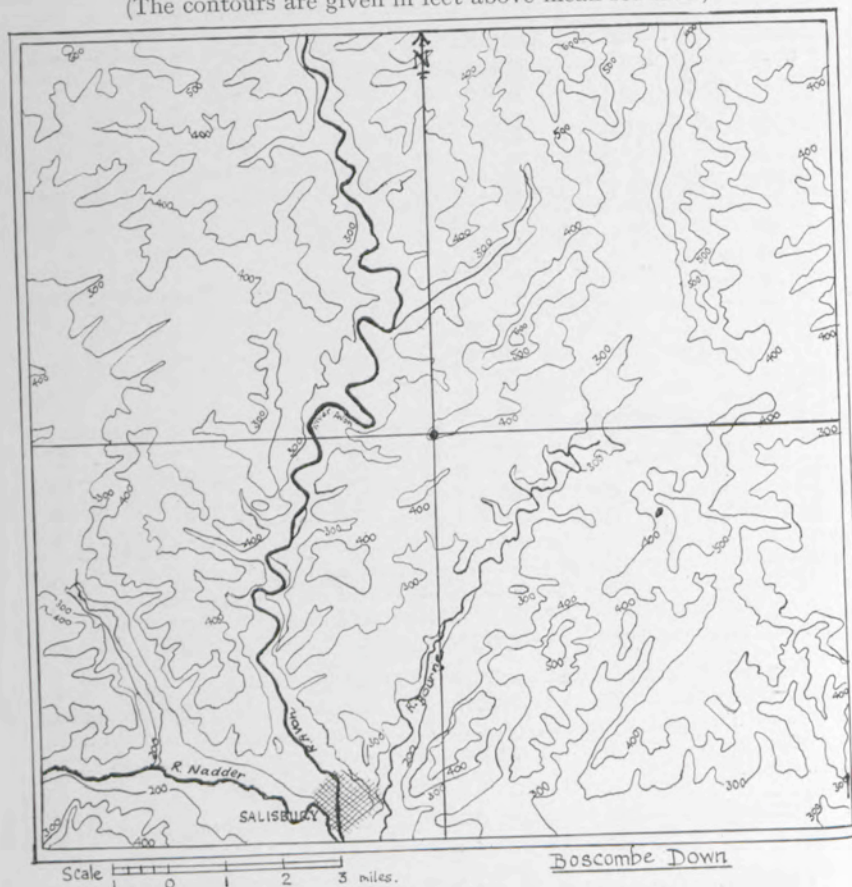
Object	Distance	Bearing	Nature of object
A	27 yards	300°	Building
B	55 "	357°	Aerial post
C	110 "	225°	Chimney stack
D	212 "	278°	Lamp post
E	550 "	330°	Houses
F	1,100 "	175°	Trees
G	$1\frac{1}{2}$ miles	152°	Line of trees
H	$2\frac{1}{2}$ "	330°	Building
I	$4\frac{1}{2}$ "	108°	Tower hill
J	$6\frac{1}{2}$ "	23°	Sidbury hill
K	$13\frac{1}{2}$ "	258°	Stony hill
L	21 "	268°	Maiden Bradley hill
M	—	—	—

Rainfall.—The exposure of the rain-gauge is fairly satisfactory, but the site is probably rather too wind-swept for southerly winds.

April, 1936.

BOSCOMBE DOWN

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



Scale 0 1 2 3 miles.

Boscombe Down



↑ ↑
R T

Looking N.W.

(November, 1932)

CATTERICK (YORKSHIRE, ENGLAND)

Latitude 54° 22' N., Longitude 1° 37' W. Height above M.S.L. of ground on which the rain-gauge stands, 175 ft. Height of anemometer vane above ground 45 ft.; above roof of hut 30 ft.

Instrumental Equipment.

Barometer.	Stevenson screen.
Barograph.	Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Rain-gauge, 8-inch.	Thermograph.
Recording rain - gauge (natural syphon).	Anemometer (Dines pressure tube velocity and Baxendell direction recorder).
Nephoscopes (Besson and Fineman).	
Sunshine recorder.	
Hydrograph.	
Pilot-balloon equipment.	

General Surroundings and Site.—The office and enclosure are situated on the north side of the Royal Air Force aerodrome near the main W/T building, Headquarters offices and the Officers' quarters. The Great North Road forms the western boundary of the aerodrome which lies on a broad flat-topped fell. The River Swale, a tributary of the Yorkshire Ouse, lies to the north-east and the aerodrome rises somewhat abruptly from the river bed to a height of about 50 ft. Approximately 600 yards north of the office there is a similar drop to Brough Beck, a feeder of the Swale which joins the river east of the aerodrome. The country to the west of the station rises steeply, Hipswell Moor, 6 miles due west, being 1,000 ft. above M.S.L. About 12 miles eastward rise the Hambleton Hills to a height of 1,200 ft. and slightly to the north of them are the Cleveland Hills, 1,400 ft.

Wind.—The velocity is measured by a Dines pressure tube anemometer and the direction by a Baxendell recorder the head of the mast being 45 ft. above ground level and 30 ft. above the building. The exposure is very good except that there are two steel lattice W/T masts to north-west and south at a distance of about 30 yards.

Temperature.—The thermometers are exposed in a Stevenson screen and the exposure is very open.

Visibility.—The visibility is occasionally considerably reduced by smoke from industrial areas, particularly from Middlesbrough to the north-east. The objects employed in the estimation of visibility are :—

Object	Distance	Bearing	Nature of object
A	27 yards	90°	Post
B	55 "	45°	Door
C	110 "	70°	Ventilator
D	220 "	311°	Ventilator
E	530 "	237°	Water tower
F	1,100 "	223°	Woods
G	2,300 "	24°	Church
H	2 1/8 miles	333°	Castle
I	4 1/2 "	300°	Trees
J	6 1/2 "	301°	Bank
K	14 "	90°	Hills
L	18 3/4 "	120°	Cliff
M	24 "	64°	Hill
	—	—	—

Rainfall.—The exposure is satisfactory.

October, 1932.

CATTERICK

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



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Looking S.E.

(October, 1932)

DALWHINNIE (INVERNESSSHIRE, SCOTLAND)

Latitude 56° 56' N., Longitude 4° 14' W. Height above M.S.L. of ground on which the rain-gauge stands, 1,176 ft.

Instrumental Equipment.

Barometers (two). Stevenson screen.
Barograph. Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Rain-gauge, 8-inch.
Sunshine recorder.

General Surroundings.—The station is situated in the Highlands in a valley running south-west to north-east. Mountains rise to 3,000 ft. or more above sea level within four or five miles of the station from west and south round to east-north-east, with the long narrow valley breaking them to the south-west. In this valley Loch Ericht reaches to within two miles of the station. North-westwards and northwards the mountains are somewhat lower and in five miles the land falls away to the Spey Valley. Beyond that the mountains again rise to nearly 3,000 ft. The ground is covered with snow for the greater part of the winter to within 200 ft. of the station.

Site.—The instrument enclosure is about 50 yards south of Dalwhinnie Church. The ground in the immediate neighbourhood is comparatively level and the enclosure is flat. Along the eastern side is a line of small fir trees beside an earth bank 2½ ft. high which also extends along the southern border. This bank prevents flooding by the River Truim which flows northward a short distance away on the eastern side.

Wind.—This is estimated without instrumental assistance. Direction is affected by the deep valley to the south-west and north-east.

Temperature.—The height of the station above sea level and its position in a valley doubtless influence the temperature.

Barometer Readings.—Owing to the height of the station some uncertainty attaches to values reduced to mean sea level, especially on occasion of very high or very low air temperature at Dalwhinnie. In such cases the reduction is effected by reference to temperatures at Tíree and Aberdeen.

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

Object	Distance	Bearing	Nature of object
A	27 yards	—	Tree
B	55 "	—	Spire
C	110 "	180°	Gate post
D	220 "	283°	Spire
E	550 "	194°	Building
F	1,150 "	360°	Hill top
G	2,200 "	177°	Hill side
H	2½ miles	222°	Rock
I	4½ "	360°	Knoll
J	6½ "	227°	Mound
K	12 "	223°	Mountain
L	18 "	17°	Mountains
M	—	—	—

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

September, 1931.

DALWHINNIE

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



Scale 0 1 2 3 Miles

Dalwhinnie

T R
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Looking E.

(August, 1932)

LERWICK (SHETLANDS)

Latitude 60° 9' N., Longitude 1° 8' W. Height above M.S.L. of ground on which the rain-gauge stands, 156 ft.

Instrumental Equipment.

Barometer.
Barograph.
Rain-gauge.

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

General Surroundings.—The station stands on the Knab, a small headland to the south-east of Lerwick. To the north there is an open prospect over the town and harbour and beyond, over the coast and open sea. The prospect to the east and south-east is bounded by the island of Bressay. To the south lies the open sea, while to the south-west, west and north-west run the hills of the mainland. The ground falls away from the station on all sides. Bressay Sound, here about 800 yards wide, lies some 500 yards to the east, while the Bay of Brei Wick is within 200 yards to the west. The nearest buildings, which stand on ground considerably lower than the station, are over 100 yards away, and there are no trees or bushes in sight.

Wind.—This is estimated without instrumental assistance. The station is well exposed and the estimated values should be reliable.

Temperature.—The temperatures are probably affected to some extent by the proximity of the sea.

Visibility.—From about May to August or September visibility is often reduced by smoke from herring fishing vessels. The objects used for estimating visibility are:—

Object	Distance	Bearing	Nature of object
A	27 yards	142°	Fence
B	57 "	57°	Lamp standard
C	110 "	353°	Building
D	220 "	120°	Building
E	550 "	2°	Building
F	1,170 "	74°	Headland
G { Sea ..	1 1/4 miles	195°	Rocks
{ Land ..	1 1/4 "	57°	Building
H	2 1/2 "	156°	Cliff
I	4 1/2 "	100°	Hilltop
J	7 1/2 "	190°	Headland
K	13 "	20°	Island
L	21 "	194°	Headland
M	—	—	—

Sea Disturbance.—Not estimated owing to distance from open sea.

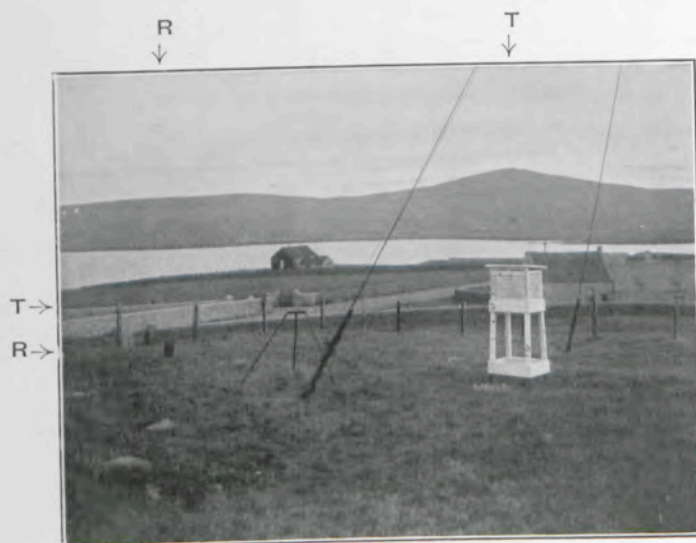
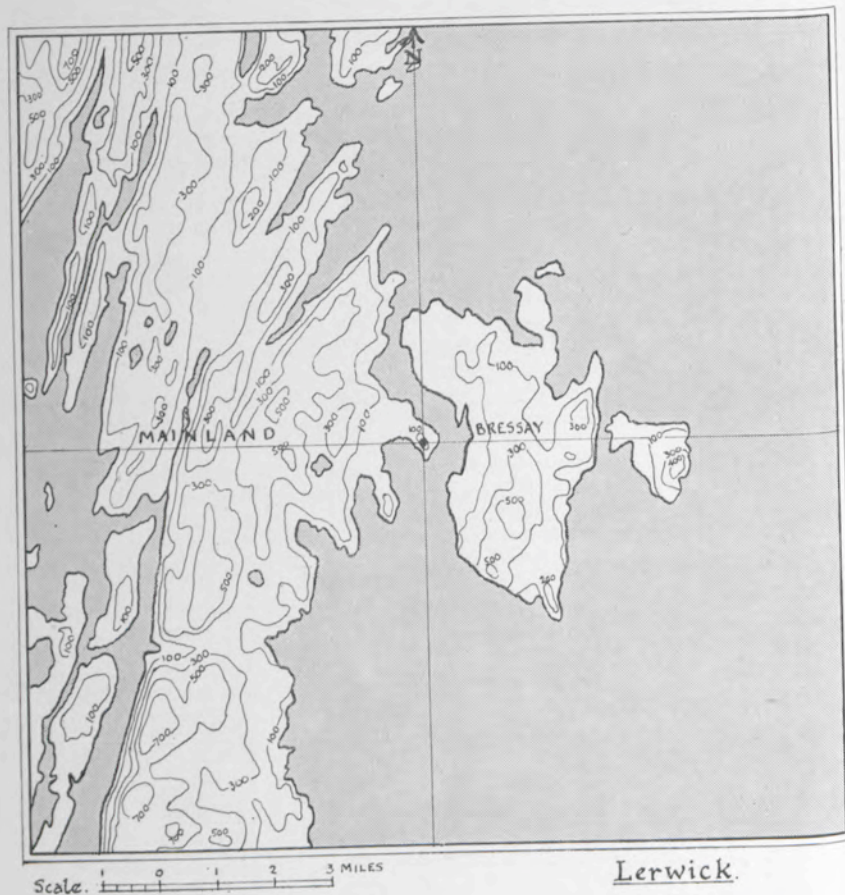
Rainfall.—The rain-gauge is too exposed to the south-east. For other wind directions the exposure is satisfactory.

NOTE.—Lerwick Geophysical Observatory is situated about 2 miles to the west-south-west of the station at the Knab, while the latter is half-a-mile south-south-east of the former Coastguard Station at Fort Charlotte.

November, 1932.

LERWICK

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



Looking S.E.

(1932)

LEUCHARS (FIFESHIRE, SCOTLAND)

Latitude $56^{\circ} 23' N.$, Longitude $02^{\circ} 53' W.$ Height above M.S.L. of ground on which the rain-gauge stands, 36 ft.

Instrumental Equipment.

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

General Surroundings and Site.—The office and enclosure are situated on the northern side of the Royal Air Force aerodrome on a stretch of land which is level to the River Tay six miles to the north, and to the sea two miles to the east. Two miles westward the ground rises to 570 ft. behind the village of Balmullo and to the south at a distance of three miles, a ridge of average height 400 ft. stretches east and west from St. Andrews to Cupar. The view to the north-east, north and north-west is obstructed by buildings and trees, but in other directions is unobstructed for at least 2 miles.

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	26 yards	95°	Building
B	55 "	88°	Building
C	110 "	4°	Building
D	220 "	332°	Fence
E	550 "	286°	Building
F	1,100 "	232°	Telegraph pole
G	$1\frac{1}{4}$ miles	268°	House
H	$2\frac{1}{2}$ "	275°	Quarry
I	$4\frac{1}{4}$ "	126°	Spire
J	$6\frac{1}{4}$ "	125°	Hill
K	—	—	—
L	$18\frac{1}{2}$ "	240°	Hill
M	—	—	—

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 may occur in all months.

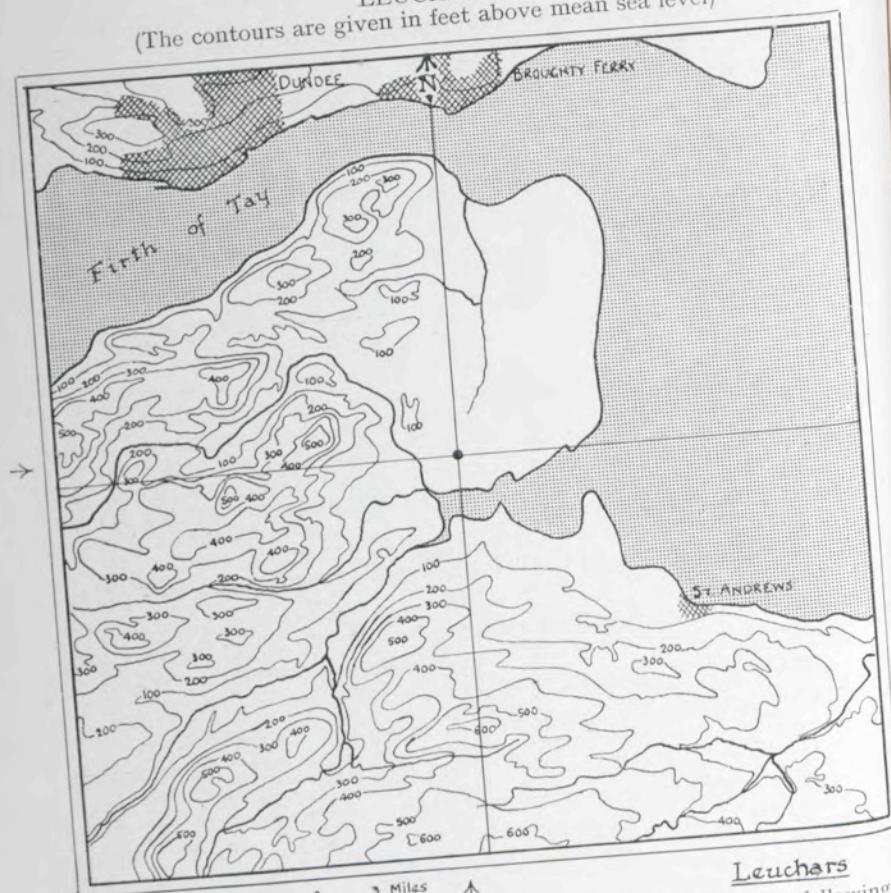
1935.

(29354)

B

LEUCHARS

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



The site of the new station is not shown, but it can be determined by following the two arrows to their point of intersection. The site of the former station is shown in the centre of the map.



Looking N.N.W.

(April, 1934)

THE LIZARD (CORNWALL, ENGLAND)

Latitude $49^{\circ} 57' N.$, Longitude $5^{\circ} 12' W.$ Height above M.S.L. of ground on which the rain-gauge stands, 240 ft. Height of anemometer vane above ground 75 ft.

Instrumental Equipment.

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

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Thermograph.
Anemometer—Dines pressure tube.

General Surroundings.—The enclosure lies just north of the Coastguard Station which is situated about a quarter of a mile to south-south-west of Lizard village. The latter is placed on the sea edge of a fairly large plateau with an open exposure about 240–50 ft. above sea level and extending northwards from the village. From Lizard village to Lizard Point the ground falls away, at first gradually and then abruptly to sea level near the coast. The station marks the point at which the ground begins to fall away in a slope of about 1 in 10; it is about 900 yards from the sea.

Site.—The enclosure lies in a field 20 yards north of the three coast-guard houses which face south towards the sea and run east and west, the site having a very slight slope from north to south. The general exposure is good. The coastguard houses are about 90 ft. long and 30 ft. high, and there are isolated houses of average height to west-north-west, east by north and north of the enclosure at distances of about 50 to 70 yards.

Wind.—The wind readings are taken from a Dines pressure tube anemometer, recording in a hut placed in the enclosure and at about 90 ft. to north of the houses. The exposure is satisfactory at the height of 75 ft. at which the vane is now mounted.

Visibility.—An uninterrupted view is obtained seawards over the English Channel from the station and very good views are also possible to the west. A headland to eastwards cuts off the view in that direction and the visibility to the north may be determined by walking to the top of the plateau about 200 yards from the station.

The objects used to estimate visibility are :—

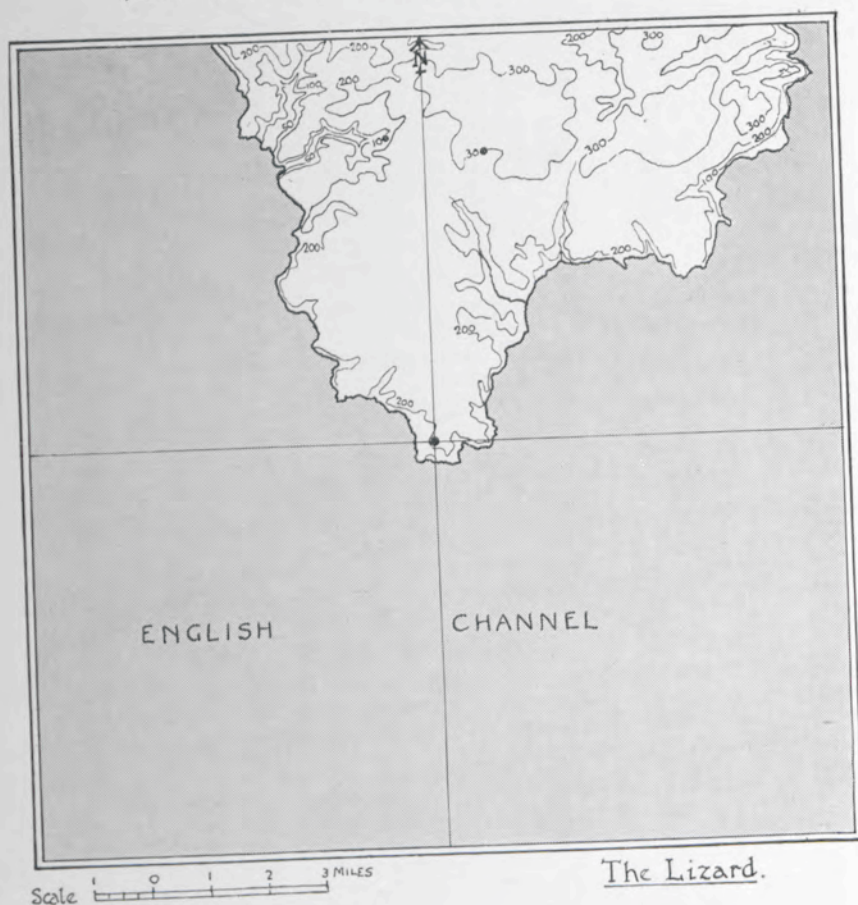
Object	Distance	Bearing	Nature of object
A	29 yards	270°	Post in wire fence
B	55 "	45°	Corner of building
C	94 "	170°	Corner of building
D	170 "	90°	Chimney
E	550 "	200°	Telegraph post
F	750 "	225°	Hut
G	$1\frac{1}{2}$ miles	360°	W/T mast
H	$2\frac{1}{2}$ "	315°	Windmill
I	—	—	—
J	—	—	—
K	—	—	—
L	22, 23 miles	$280^{\circ}, 260^{\circ}$	Headland, Lightship
M	—	—	—

May, 1934.

(29354)

THE LIZARD

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



(1934)

Looking N.

LYMPNE (KENT, ENGLAND)

Latitude $51^{\circ} 5' N.$, Longitude $1^{\circ} 1' E.$ Height above M.S.L. of ground on which the rain-gauge stands, 346 ft. Height of anemometer vane above ground 76 ft.; above roof of building 61 ft.

Instrumental Equipment.—

Barometer (Kew pattern).	Stevenson screen (large pattern).
Barograph.	Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum, earth (4 ft.).
Rain-gauge, 8-inch.	Thermograph.
Hyetograph.	Anemometer—Dines pressure tube (direction and velocity).
Nephoscopes (Fineman, Besson).	Cloud searchlight.
Sunshine recorder.	
Hygrograph.	
Theodolites—Cary, 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 130 yards south-east of the office; 30 yards to the south is a road bordered by a belt of trees and then the steep drop to the Royal Military Canal mentioned above. This enclosure has been in use since October 1, 1930.

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 76 ft. above the ground. The upper winds are observed by pilot balloon four times daily, the tail-ascent 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.

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 are as follows:—

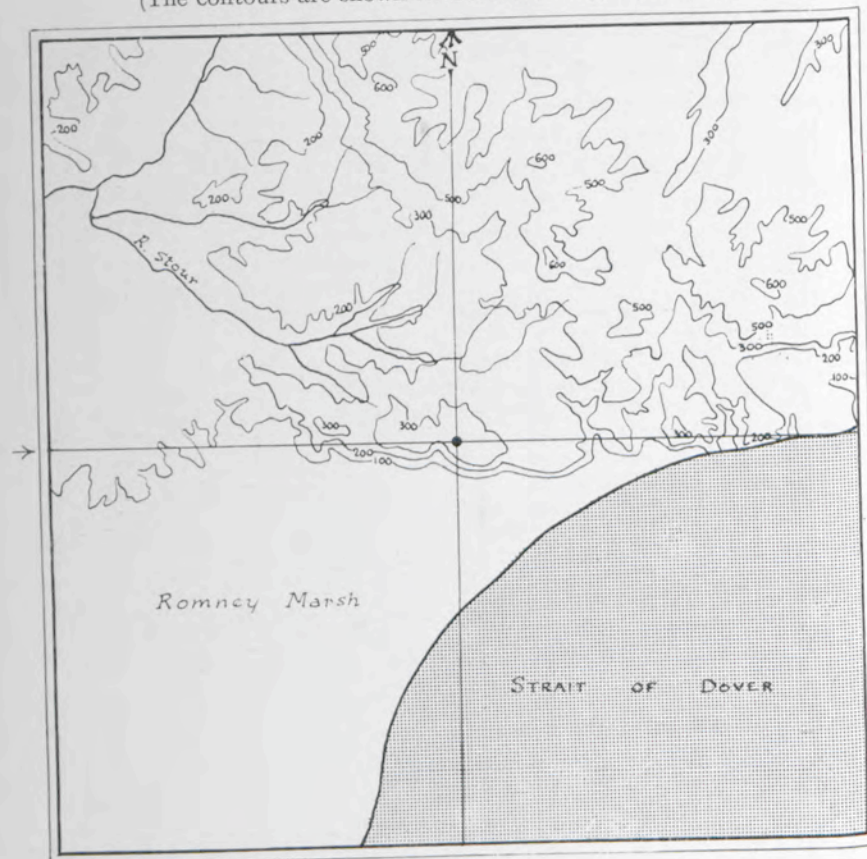
Object	Distance	Bearing	Nature of object
A	25 yards	25°	Corner of main store
B	50 "	175°	Post
C	109 "	10°	Pillar
D	208 "	5°	Pillar
E	480 "	130°	Lodge
F	1,000 "	120°	Roof
G	2,200 "	299°	Tree
H	2,200 "	30°	Telegraph poles
I	3,900 "	281°	Church tower
J	7,500 "	307°	Church steeple
K	6 miles	345°	Hills
L	12 "	310°	Woods
M	21 "	229°	Hill
	34 "	289°	Hills
	38 "	240°	Hills

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

September, 1931.

LYMPNE

(The contours are shown in feet above mean sea level)



Scale 0 1 2 3 Miles

Lympe

The site of the new station is not given, but it can be determined by following the two arrows to their point of intersection. The site of the former station is shown in the centre of the map.

R
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T
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Looking N.

(December, 1930)

MANCHESTER, BARTON (LANCASHIRE, ENGLAND)

Latitude $53^{\circ} 28' N.$, Longitude $2^{\circ} 23' W.$ Height above M.S.L. of ground on which the rain-gauge stands, 70 ft. Height of anemometer vane above ground 83 ft.; above roof 43 ft.

Instrumental Equipment.

Barometer.
Barograph.
Rain-gauge, 8-inch.
Natural syphon rain-gauge.
Nephoscope (Besson).
Sunshine recorder.
Hydrograph.
Theodolites and pilot-balloon equipment.

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum and grass minimum.
Thermograph.
Anemometer—Dines pressure tube (direction and velocity).

General Surroundings and Site.—The station is situated at Manchester Airport, Barton, about seven miles west of Manchester on the Manchester—Irlam—Warrington main road. The office is in the control tower of the airport and lies about 600 yards to the north-north-west of Barton Lock on the Manchester Ship Canal. The country to the immediate north and west is undulating agricultural land that gradually rises to the high ground which flanks the north side of the Mersey Valley and on which Bolton and Wigan and other industrial Lancashire areas lie. To the north-east, east, south-east and south lie the thickly populated and industrial areas of Salford, Eccles, Manchester and Stretford. To the south-west is the Mersey Valley which narrows at Warrington so that for practical meteorological purposes the station is situated in the north-east corner of an elliptical saucer-like basin with the longer axis running south-west and north-east.

Wind.—The direction and force of the wind is obtained from a Dines pressure-tube anemometer, the vane of which is exposed at the head of a steel latticed mast. There is practically no sheltering effect from buildings at present but the velocity trace reflects the undulating characteristics of the immediate neighbourhood. The configuration of the surrounding country is favourable for katabatic winds from all directions except SW.

Visibility.—Smoke and industrial pollution of the atmosphere affect visibility considerably especially when the wind is between NE. and SE. Early morning fogs, due to air drainage, are frequent but there is some compensation due to katabatic effects. Although the site is the best possible one that could be selected in a scattered industrial area, conditions for good visibility are unfavourable here. The objects used to estimate the visibility are :—

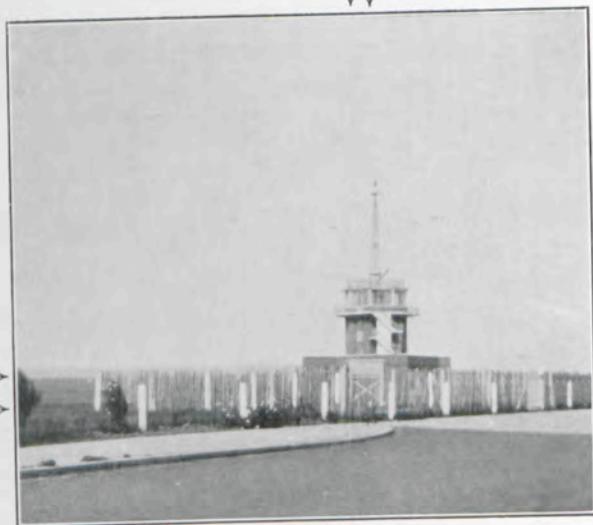
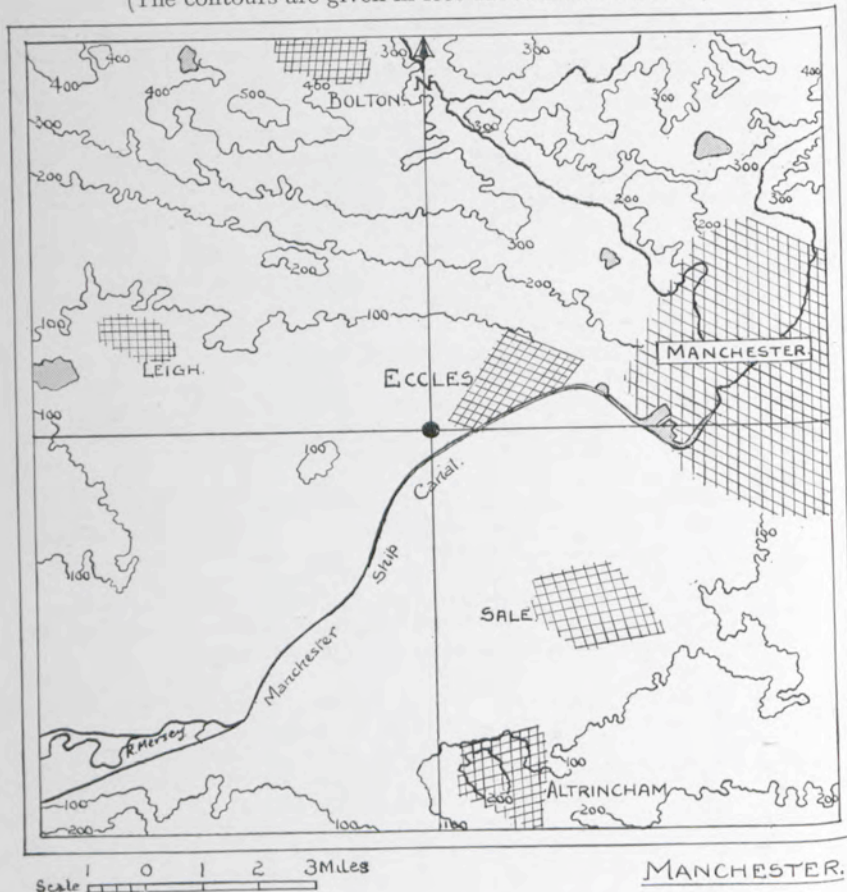
Object	Distance	Bearing	Nature of object
A	27 yards	135°	Post
B	55 "	135°	Post
C	100 "	190°	South-west corner of enclosure
D	220 "	195°	Wind vane
E	550 "	38°	Chapel
F	1,200 "	291°	W/T mast
G	$1\frac{1}{2}$ miles	74°	Building
H	$2\frac{1}{2}$ "	347°	Memorial
I	4 "	6°	Colliery
J	$6\frac{1}{4}$ "	46°	Church
K	12 "	335°	Hill
L	22 "	90°	Hill
M	—	—	—

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

September, 1933.

MANCHESTER (BARTON)

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



Looking N.N.E.

(September, 1933)

PEMBROKE DOCK (PEMBROKESHIRE, WALES)

Latitude $51^{\circ} 42' N.$, Longitude $4^{\circ} 57' W.$ Height above M.S.L. of ground on which the rain-gauge stands, 40 ft.

Instrumental Equipment.

Barometer.
Barograph.
Rain-gauge, 8-inch.
Recording rain-gauge (natural syphon)
Hygrograph.
Pilot-balloon equipment.

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

General Surroundings and Site.—The station is situated near the centre of H.M. Dockyard on the south bank of Milford Haven which at this spot is about $\frac{1}{2}$ mile wide. The immediate environs are on level ground. Dockyard buildings approach to within 70 yards of the enclosure except in the south-east quadrant which is occupied by playing-fields and parade ground (turf covered). Outside the Dockyard wall, the ground rises rapidly to about 200 ft. in a ridge running east and west. The town of Pembroke Dock lies to the east on the north-facing slope of this ridge, the nearest houses being about 400 yards from the enclosure. Tidal reaches of the Haven extend some seven miles to the north-east and beyond the Prescelly range reaches heights of about 1,700 ft., approximately 20 miles distant. Numerous mud flats, covered at high water extend along the south banks of the Haven.

Wind.—Wind force is estimated and direction taken from a wind vane 70 ft. high. The high ground to the south reduces considerably the force of winds between W. and SE., and E. winds frequently cause marked effect on visibility due to local smoke. Sea breezes are also frequent and generally from west-south-west.

Temperature.—Katabatic subsidence of air into the Haven and sea breezes produce abnormal sequences of temperature.

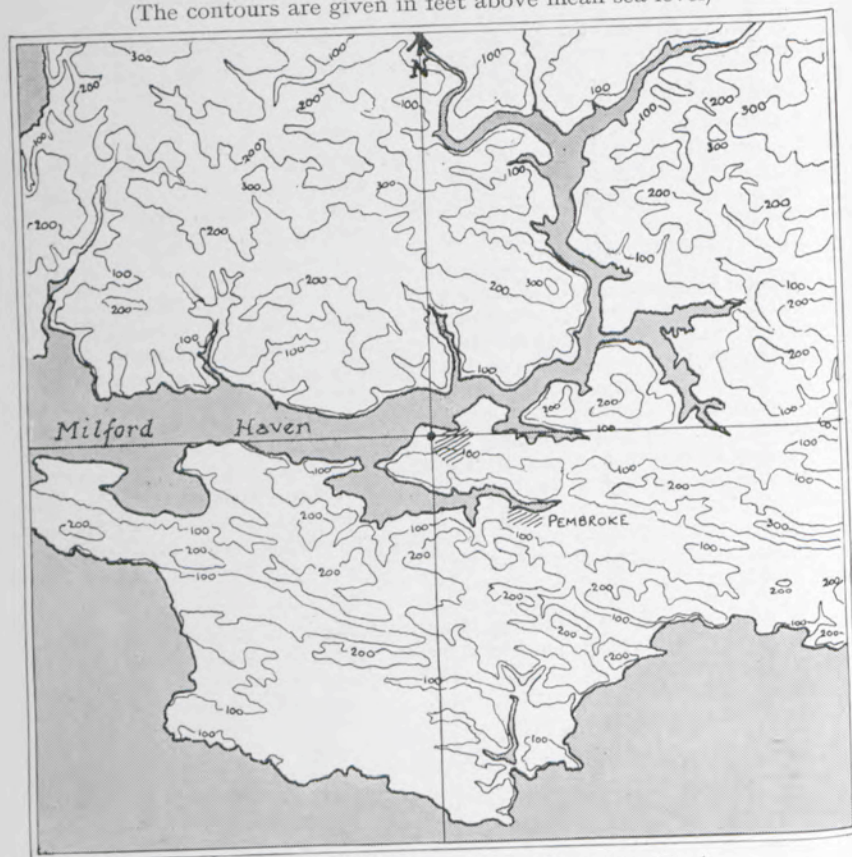
Visibility.—The objects used to estimate visibility are :—

Object	Distance	Bearing	Nature of object
A	27 yards	70°	Corner of plot
B	60 "	135°	Poles
C	112 "	90°	Building
D	200 "	100°	Building
E	480 "	250°	Tank
F	1,100 "	70°	Huts
G	$1\frac{1}{8}$ miles	360°	Building
H	$2\frac{3}{4}$ "	290°	Pier
I	$3\frac{1}{4}$ "	20°	Ridge
J	6 "	270°	Rock
K	10 "	270°	Town

May, 1935.

PEMBROKE DOCK

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



Scale 1 0 1 2 3 MILES

Pembroke Dock



Looking E.N.E.

(March, 1935)

POINT OF AYRE (ISLE OF MAN)

Latitude $54^{\circ} 25' N.$, Longitude $04^{\circ} 22' W.$ Height above M.S.L. of ground on which the rain-gauge stands, 30 ft. Height of anemometer vane above ground 40 ft.

Instrumental Equipment.

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

Stevenson screen.
Thermometers—dry bulb, wet bulb, maximum, minimum.
Thermograph.
Anemometer—Dines pressure tube.

General Surroundings.—The station is near the lighthouse on the northern point of the Isle of Man, which consists of a sandy or shingly formation covered with rough grass. No cultivation is carried out on the point. About 1,000 yards to the southward of the lighthouse cultivated fields, begin but on the whole the country is flat to the southward for about seven miles, with the exception of a small hill (329 ft. high) at Bride, some $2\frac{1}{2}$ miles away. The high land of the Isle of Man is sufficiently far away (about 10 miles) for it not to have any very marked effect on the weather of the Point of Ayre except possibly with winds from SSW. On the north-west, north and east sides the sea is only about 250 yards distant from the station and hence at least from these directions the exposure is equivalent to that of a low island.

Site.—The site is very open. The only obstruction to the free circulation of the air is the lighthouse and its associated buildings which lie to the north-east of the instrument enclosure.

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

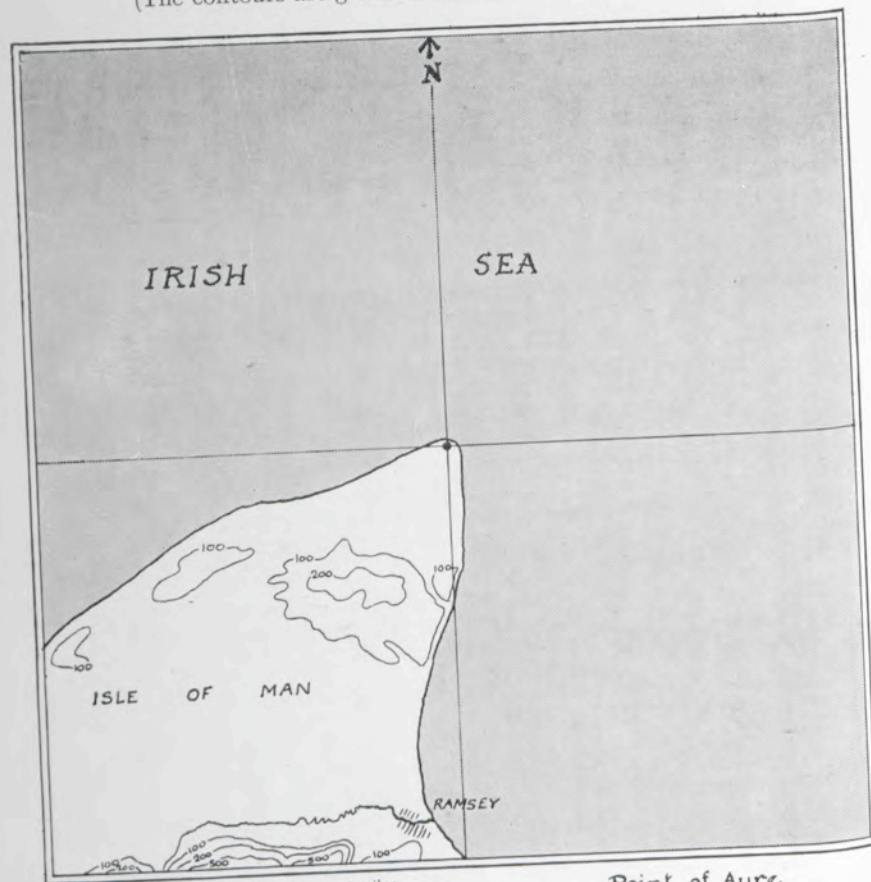
Object	Distance	Bearing	Nature of object
A	27 yards	180°	Building
B	52 "	157°	Hut
C	110 "	230°	Screen
D	220 "	60°	Lighthouse
E	200 "	180°	Wall
F	525 "	115°	Pier
G	900 "	180°	Edge of field
H	1,000 "	270°	Sand dune
I	1.1 miles	135°	Lightship
J	1.4 "	190°	House
K	2.5 "	200°	Spire
L	4.7 "	247°	Cape
M	7.3 "	180°	Port
N	8.2 "	225°	Church
O	11.2 "	202°	Mountain
P	22 "	225°	Mountains
Q	23 "	315°	Cape
R	26 "	22°	Cape
S	30 "	90°	Cape

Sea Disturbance.—The open sea is seen to the north-west, north and east.

February, 1935.

POINT OF AYRE

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



Scale 0 1 2 3 Miles

T
↓
R
↓

Point of Ayre



T →
R →

Looking N.E.

(February, 1935)

SHOEBURYNESSE (ESSEX, ENGLAND)

Latitude $51^{\circ} 32' N.$, Longitude $00^{\circ} 49' E.$ Height above M.S.L. of ground on which the rain-gauge stands, 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.
Hygograph.
Stevenson screen.

Thermometers—dry bulb, wet bulb, maximum, minimum, grass minimum.
Thermograph.
Anemometer—Dines pressure tube and Baxendell direction recorder.

General Surroundings.—The station is situated on the new artillery ranges and is in the Parish of South Shoebury. The surrounding country is very flat and level, and only slightly raised above high water level. Great Wakering Church is one mile to the north and the coast line, which runs south-west to north-east, is, at its nearest point, about 250 yards 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 north a row of tall trees affords some shelter. To the west there is a house. The country immediately surrounding the observatory is intersected in all directions by dykes and by the numerous 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 anemometer. The exposure for wind is excellent to the east and south but some shelter is provided for winds blowing from 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.—The station is greatly subject to mist and fog. The objects used for estimating visibility are :—

Object	Distance	Bearing	Nature of object
A	27 yards	225°	Tree
B	55 "	90°	Pole
C	110 "	112°	Building
D	220 "	202°	House
E	525 "	45°	Building
F	1,200 "	247°	Tower
G	1.4 miles	22°	Cottages
H	2.3 "	45°	House
I	4.2 "	45°	Tower
J	5.7 "	45°	Spire
K	11.0 "	135°	Point
L	17.0 "	135°	Town
M	29 "	112°	Pier

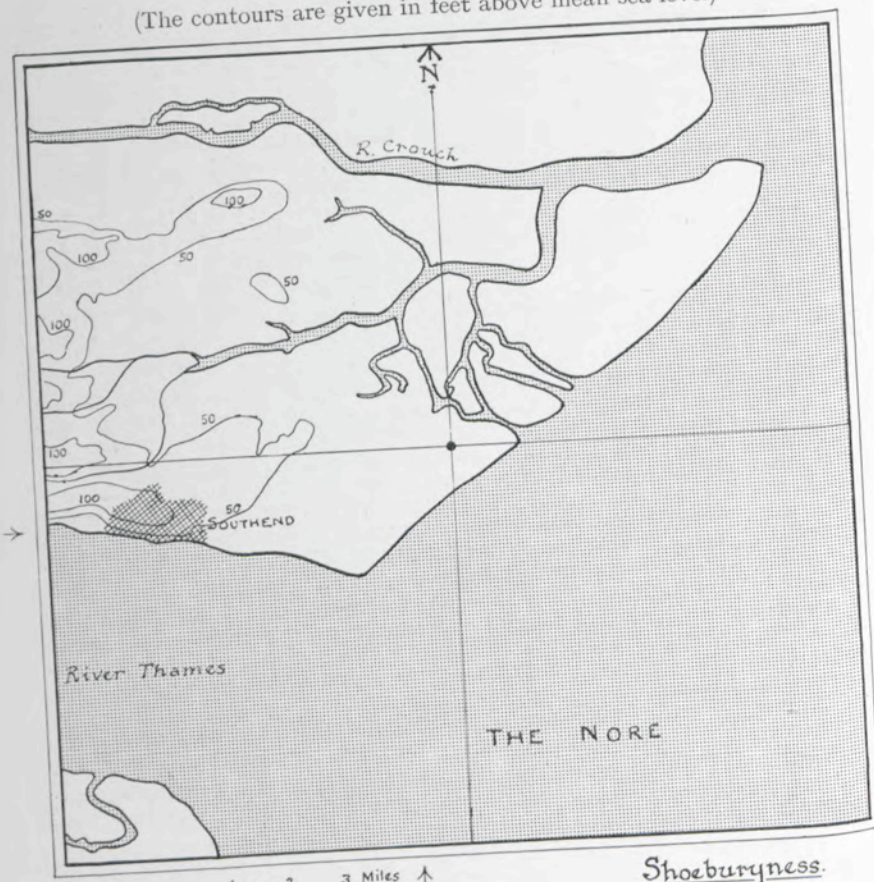
Sea Disturbance.—Observations of sea disturbance cannot be made.

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.

April, 1935.

SHOEBURYNESS

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



The site of the new station is not shown, but it can be determined by following the two arrows to their point of intersection. The site of the former station is shown in the centre of the map.

Publication of a photograph of the station is withheld.

TYNEMOUTH (NORTHUMBERLAND, ENGLAND)

Latitude $55^{\circ} 1' N.$, Longitude $1^{\circ} 25' W.$ Height above M.S.L. of ground on which the rain-gauge stands, 108 ft.

Instrumental Equipment.

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

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

General Surroundings.—The station is on the northern side of the Tyne at its mouth. It is on a small headland somewhat higher than the surrounding ground with houses at a short distance from south-west to north-west, but is open to the north and east to the North Sea and to the south to the River Tyne, which has a width of half to three-quarters of a mile at this point.

Site.—The instruments are on a level plot inside the battery of Tyne-mouth Castle. There are low buildings to the west at a distance of over 40 ft. and a wall 9 ft. high to the north and east at a distance of 36 ft. at the nearest point. The site is open to the south.

Wind.—This is estimated without instrumental assistance. The exposure is less open to the west than to other directions.

Temperature.—The sea is quite close to the east and would affect the temperature when the wind is from some easterly point.

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

Object	Distance	Bearing	Nature of object
A	28 yards	170°	House
B	50 "	92°	—
C	100 "	170°	Mast
D	210 "	272°	Tower
E	560 "	235°	Point
F	1,040 "	98°	Lighthouse
G	$1\frac{1}{2}$ miles	329°	Light
H	$3\frac{1}{2}$ "	169°	Water Tower
I	4 "	150°	Lighthouse
J	$7\frac{1}{4}$ "	337°	Lighthouse
K	$10\frac{1}{4}$ "	342°	Church
L	21 "	348°	Lighthouse
M	—	—	—

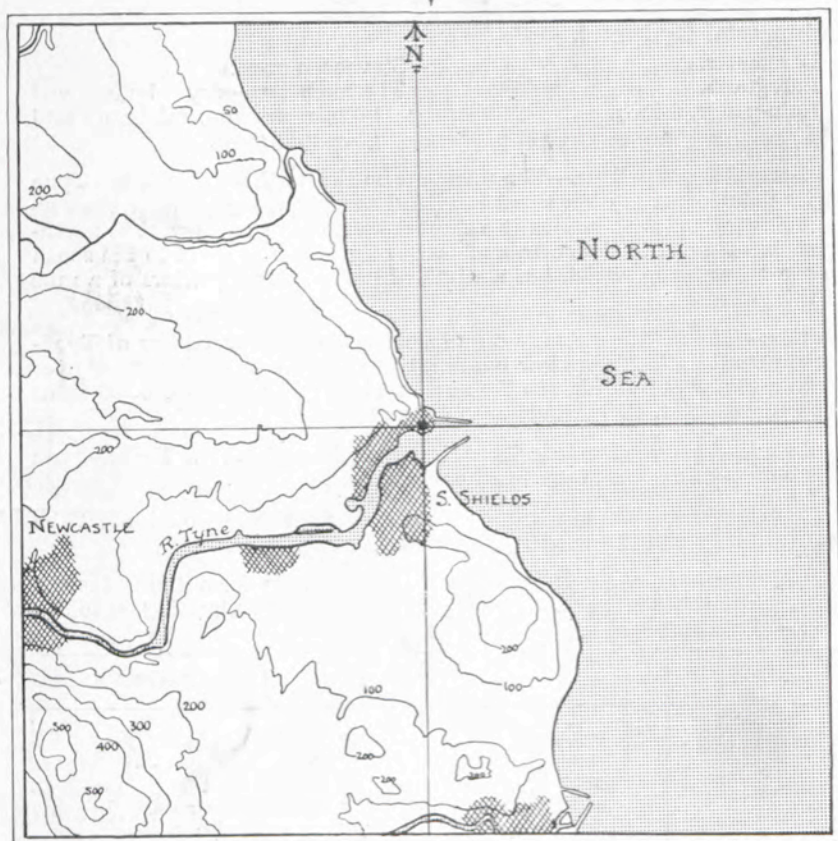
Sea Disturbance.—Can be estimated satisfactorily.

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

June, 1932.

TYNEMOUTH

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



Scale 1 0 1 2 3 Miles

Tynemouth.

The site of the new station is not shown, but it can be determined by following the two arrows to the point of their intersection. The site of the former station is shown in the centre of the map.

Publication of a photograph of the station is withheld.