

BOTANICAL SOCIETY OF THE BRITISH ISLES

WELSH REGION BULLETIN

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No. 9.

DECEMBER, 1966

Price 9d.

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Aberystwyth, December, 1966

RAINFALL AS A FACTOR IN DETERMINING PLANT DISTRIBUTION IN WALES

Precipitation must be considered as one of the most important climatic factors which determines the distribution of plants in Wales. In addition to providing water for growth, precipitation also effects plant distribution by its effect on soil structure, the availability of mineral and trace elements to the plant, and, in the form of snow, by providing protection from severe frosts to the ground flora.

In Wales the mean annual rainfall varies from about 27in. in the Vale of Clwyd and in the Queensferry area, to about 200in. in parts of Snowdonia. There is obviously a close link between altitude and rainfall, but the relationship is not so straightforward as is the correlation between altitude and temperature. For instance, a close examination of the annual rainfall totals will show that there are a few localities below 500ft with totals of over 100in.; whereas there are other localities above 1,500ft. which receive less than 50in. a year. In order to see just how closely rainfall and altitude are linked together, and to see if there were any anomalies which might have a marked effect on plant distribution, it has been necessary to carry out several series of calculations. The results of these calculations are, I think, worth publishing and I hope they may help other botanists who are studying the distribution of certain species and plant communities in Wales. The results are based on the 35-year means (1916-1950) obtained at 404 rainfall gauges situated throughout Wales and a small area of England. A unit area of 5 x 5km, based on the National Grid, was selected to examine regional variation. Because of this, the Welsh - English border had to be 'straightened' to run along the north - south Grid line 345, and it is for this reason that a number of the English border rainfall records have been included with the Welsh ones. In the case of Wales the counties do not form a suitable unit area for this type of investigation.

Five main series of calculations have been made in an attempt to show how the distribution of rainfall (and snowfall) may effect the distribution of plants in Wales. The results of each of these series will be considered in turn. The results obtained from iii, iv, and v are probably the most interesting from a botanical point of view.

i. Degree of correlation between rainfall and altitude (r).

The correlation coefficient was used in an attempt to see if there was a close relationship between rainfall and altitude. If there was an exact positive relation a value of 1.0 would have been obtained; if there was no relationship at all a value of 0.0 would result. On the whole there was a reasonably high correlation between increasing rainfall with increasing altitude and values of r for most of the 5km² were highly significant; but there were areas where the value for r indicated only a moderate degree of relationship. In fact, in area 4 (South Snowdonia) the value for r was not even significant at the 5% level, thereby indicating little relationship. (For actual values see Table 1 and the first map).

Closer examination of the data for area 4 soon shows why this area has a low correlation coefficient, namely, the nature of the area with its

numerous mountain peaks and deeply intersected valleys. Even at 250ft above O.D. many of the deeper valleys receive totals of over 75in. a year - a total more in keeping with the higher mountain slopes less than $\frac{1}{2}$ a mile away. It would therefore appear the areas with a very varied topography are unlikely to have a high value for r . Values of r for the 5km² along the Welsh-English border and for area 6 (Cards.) were surprisingly high, thereby showing a good agreement between rainfall and altitude. It is of the utmost importance that the value of r should be high if the results obtained by using regression analysis, which forms the basis of the following four sections, are to be reasonably realistic. The values for r indicate that too large a size was selected for the unit area, an area of 2.5km² probably being more appropriate. Unfortunately, there is not a high enough density of rain gauges in most of Wales for calculations to be based on a smaller unit area than 5km², for at least 30 records should be used in each series of calculations.

ii. Increase in rainfall with increase in altitude (h).

The amount by which rainfall increases with every rise of 100ft in altitude are given in column h of Table 1. To find the increase over 1,000ft multiply the values of h by 10; or divide by 100 to find the increase in rainfall for every foot increase in altitude.

From the first map one can see that the values of h are highest in the unit areas near the coast, and lowest along the Welsh-English border. The value of 0.9in. for h in area 3 (Flintshire) is typical of what one can expect over much of Central England. As elsewhere in western Britain, values for h in coastal regions are between 2in. and 3in. Unusually large values of h occur in areas 2 (N. Snowdonia) and 11 (S. Glamorgan). This is primarily due to the topography of these areas which contain a coastal strip and a high area of mountains with a few miles of the coast. Precipitation from warm and cold fronts will be particularly high in these regions as the steep increase in altitude within two to three miles will cause a rapid uplift and cooling of the lower layers of a frontal trough, with consequential heavy rainfall. The lower values in eastern parts of Wales are the result of the westerly moving air masses descending after their passage over the mountains. This results in more stable air conditions, with associated drier air and smaller rainfall.

iii. Estimation of precipitation at Ordnance Datum (P_0).

Estimates have been made of the total annual precipitation that can be expected at Ordnance Datum ('sea-level') for the various 5km². The overall value for the whole of Wales for P_0 is 35.02in. - quite an adequate amount when total annual evaporation is in the order of 15in to 20in. Values for the 5km² are more or less as expected, with an obvious decrease in P_0 as one moves from west to east. The values for P_0 in area 7 (E. Radnor) may appear to be unduly low, but then it must be realised that there is no land below 250ft above O.D. in this particular 5km². High values of P_0 in areas 4 (S. Snowdon) and 9 (Brecon) are related to the mountainous nature of these areas, although the value for area 4 may not be as

significant as it would appear, because of the low value of r . The value of P_0 for area 2 might appear to be rather low, but then about 30% of this area is in a rain-shadow zone.

iv. Estimation of rainfall at 1,000ft above O.D. (P_{1000}).

The values of estimated precipitation at 1,000ft should be of considerable interest to botanists. A glance at the figures will soon show that one must be careful in making comparisons of vegetation at 1,000ft in south Glamorgan ($P_{1000} = 87\text{in.}$) and east Flintshire ($P_{1000} = 39\text{in.}$) for, other things being equal, the soil of the latter area is likely to be much drier, thereby affecting the character of the soil and the quantity of humus and minerals. One would also expect more leaching of minerals from the wetter soils of Glamorgan. The increase in the humus content of the wetter soils would also result in the soils being more acidic. In addition, the moisture content of the air above the ground will be different and this, coupled with other factors, obviously leads to a much richer and lush bryophyte flora in Glamorgan (atmospheric pollution being ignored) than in north-eastern parts of Wales. The composition of flowering plants in plant associations will also be different, as one would expect more water requiring plants in southern areas, and this is certainly the case, for while damp marshy areas and ditches are common at 1,000ft. in south and west Wales, they are comparatively rare in the north-east. One must also take into account differences in solar radiation and temperature, but this is beyond the scope of this article.

The coastal parts of western Wales all have very similar values for P_{1000} (65in., 65in., and 64in.). Higher values occur down the 'backbone' (78in., 80in., 74in., and 87in.); but areas along the border have very much lower values for P_{1000} (39in., 43in., 46in., and 56in.)

From these figures one can see that there is an obvious and appreciable difference between various parts of Wales in rainfall amounts at the higher elevations, and this undoubtedly has its effect on plant distribution.

v. Iso-anomalies - observed precipitation/estimated precipitation x 100 (P_i).

The calculations of P_i are intended to provide some idea of the overall pattern in the distribution of precipitation throughout Wales. The values of P_i enable one to see if certain areas have more, or less, rainfall than one would expect if all parts had the same amount of rainfall for a given altitude. The second map shows the contrasting wetter western areas against the drier eastern border region. Even more important, it shows the areas where rainfall is considerably in excess (values of P_i more than 150) and where it is lacking in considerable quantity (P_i of less than 60). It will be obvious that all the true arctic-alpine and northern species are confined to the areas where P_i is more than 150 - Snowdonia, Cader Idris, the Brecon Beacons and the southern parts of Fforest Fawr, although the best localities for these species are in the areas where the values of P_i exceed 175. In contrast, parts of the Clwydian Range and the area to the north of Llangollen, are very dry with areas at 1,500ft only receiving about one

TABLE 1 - Rainfall statistics for the Welsh 5km²

5km ²	Correlation coefficient r	Increase in rainfall for every 100ft. h	Rainfall at O.D. P ₀	Rainfall at 1,000ft P ₁₀₀₀	significance of r ϕ
1 (Anglesey, Lleyrn)	.61	2.6	39.2	65.0	xxx
2 (N. Caerns, W. Denbs)	.75	4.8	29.9	78.1	xxxx
3 (Flints)	.85	0.87	29.9	38.6	xxxx
4 (S. Caerns, Merioneth)	.37	1.6	64.1	80.3	-
5 (Montgomery)	.55	1.1	31.2	42.5	xxx
6 (Cardigan)	.87	2.3	42.0	64.7	xxxx
7 (Radnor)	.85	2.2	22.2	44.0	xxxx
8 (Pembroke)	.51	2.0	44.0	64.3	xx
9 (Brecon)	.81	2.3	51.7	74.6	xxxx
10 (Monmouth)	.87	2.9	27.5	56.4	xxxx
11 (Glamorgan)	.76	4.9	37.3	86.8	xxxx
1-11 (All Wales)	.63	2.89	35.0	63.9	xxxx

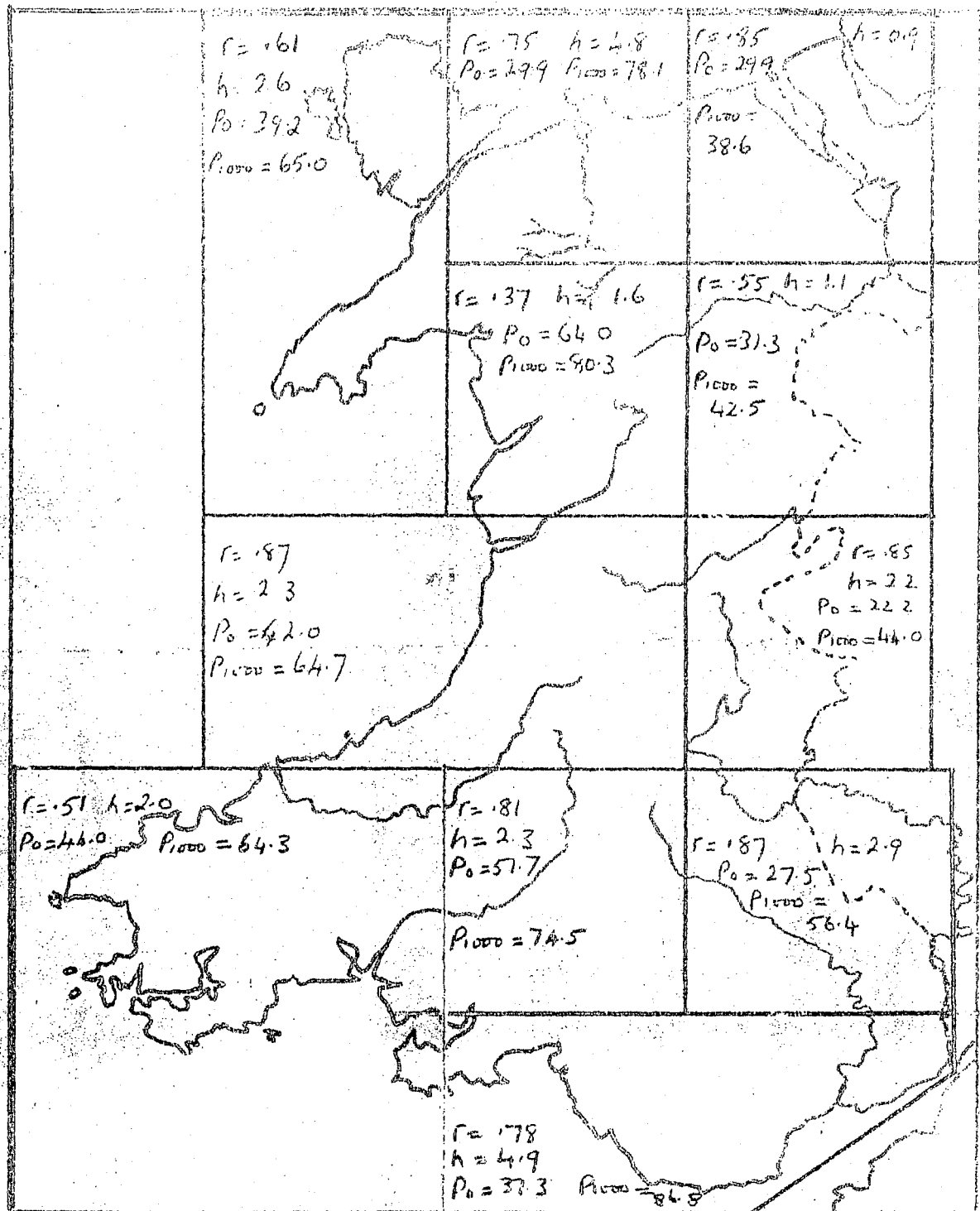
ϕ * significant at 5% level, ~~xxx~~ significant at 1% level, ~~xxxx~~ significant at 0.1% level, - not significant.

third of the annual rainfall total experienced at the same altitude in parts of Snowdonia and the Cader Idris areas. Areas within a mile or two of the coast have totals just below the 'average' unless there is a steeply rising range of mountains within five to seven miles of the coast, in which case totals are usually slightly higher than 'average'. The dividing line between 'above average' and 'below average' follows an almost north - south line for most of its distance throughout Central Wales, but it lies in a NNW - SSE direction in the extreme north and south of Wales. The higher parts of Cardiganshire are not as excessively wet as one might have thought, as this area appears to be in some sort of rain-shadow region, with the mountains of Snowdonia and Cader Idris in the northwest, and the hills of Carmarthenshire in the south having taken the full impact of rainfall caused by frontal uplift and cooling. The hills of Cardiganshire will not cause any further uplift as fronts sweep in from the north-west and south-west and rainfall totals are not likely to be all that excessive.

Comparisons with other regions

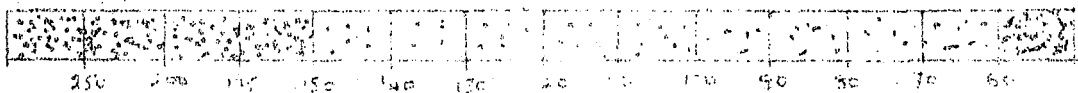
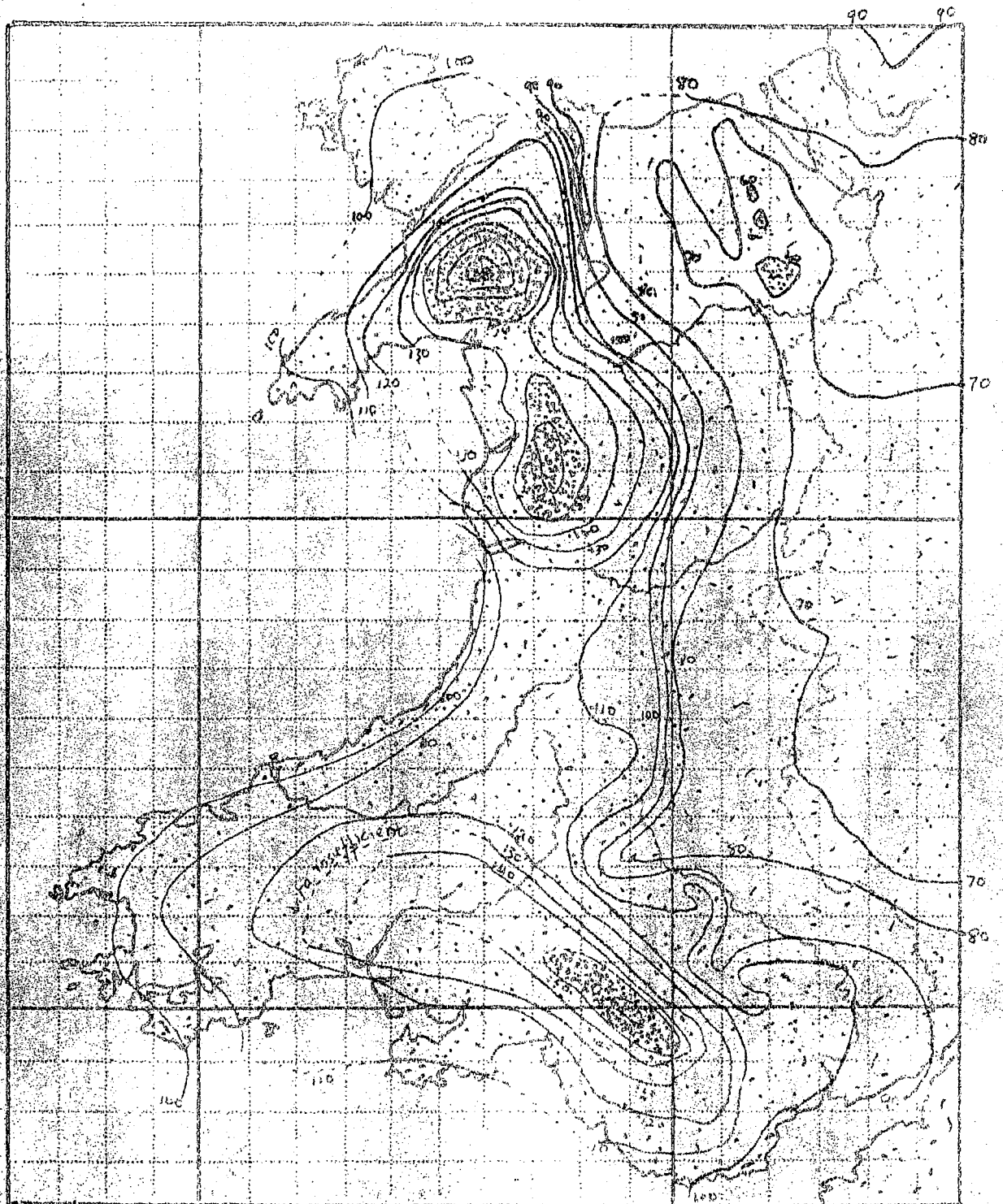
A few calculations of r, h, P₀, and P₁₀₀₀ have been made for other parts of the British Isles. The type of pattern that we get in Wales is closely repeated for the north of England and for most of Scotland. In both these regions values for P₀ tend to be higher, especially so in the north-west of Scotland. It is probably the high value for P₀, coupled with higher humidity and lower temperature, that enables a number of the arctic-alpine species to grow at much lower altitudes, even down to sea-level, in the north-west of Scotland.

Rainfall Statistics for Wales, 1946-50



r = correlation coefficient; h = increase in rainfall, in inches, for every increase of 100ft in altitude; P_0 = rainfall at 0 ft; P_{1000} = rainfall at 1000 ft.

10 expected intensity / observed intensity, 7/8 1/2



Intensity (I) = 1000 / (1 + I₀)

REPORT OF AUTUMN MEETING, 1966

A most successful Autumn Meeting was held at Aberystwyth on the 24th and 25th September, 1966. Attendances at the morning, afternoon, and evening sessions of the 24th were 33, 39, and 25 respectively.

The theme of the Morning Session was on nature reserves. The guest lecturer, P. Walters Davies of the Nature Conservancy, Aberystwyth, outlined the procedures for the selection of nature reserves in Wales. The aim was to acquire representative examples of natural and semi-natural habitats for the purpose of both conservation and research. By 1966 the Nature Conservancy had been able to obtain good examples of most of the natural plant communities; but they were still looking for examples of a pebble (shingle) beach, an acidic valley bog and a blanket bog. They were also looking for suitable basic lakes and rivers. On the other hand, they had particularly good examples of sand-dune communities and woodlands. Almost all the nature reserves in Wales were owned or leased by the Nature Conservancy, but it was hoped that local authorities and the Naturalists' Trusts would begin to acquire an increasing number of reserves, especially of small areas which were of particular local interest.

He then went on to deal with the problems of management, showing how the composition of a reserve could rapidly change and in so doing destroy the value of the reserve for its original purposes. Examples of 'problem' areas, where marked changes were taking place, were at Oxwich, where the fresh-water area was being rapidly invaded by Phragmites communis and other 'reed' species; some of the South Wales sand-dunes where Hippophae rhamnoides was forming impenetrable thickets at an alarming rate; and the Rheidol oakwoods where the natural oak was not regenerating itself, but was being replaced by other species.

D. Davies talked about the problems of management in a school nature reserve near Rhandirmwyn. This reserve consisted of Quercus petraea woodland in the Upper Towy Valley and was in the area threatened by the proposed Brianne Reservoir. It was acquired by agreement with the Forestry Commission and includes young conifer plantations as well as the natural oak and associated species. It is used for field studies by the children at the local school at Rhandirmwyn. The Forestry Commission charge no rent, and a hut has recently been provided by the Carmarthenshire Education Committee. This high level oakwood provided the pupils of the school with wonderful opportunities of observing nature at first hand. Mr. Davis ended his lecture with a tape recording of the school children describing a series of slides which illustrated various aspects of work and observation carried out in the reserve.

The first lecture of the Afternoon Session, on the past history of the Welsh flora, was given by Dr. Peter Moore of King's College. He showed that by means of pollen analysis, carried out on peat collected in various parts of Cardiganshire, it was possible to trace the changes that had occurred in the local vegetation since about 10,000 B.C. These changes in the vegetation reflected alterations in the climate, the soil, and, since about 3,000 B.C., of changes brought about by man. Human influence was clearly shown by sudden changes in the species

representation at certain level in the peat, periods of human activity being represented by a sudden increase in the number of species normally associated with cultivation. These 'weedy' species included several species of both Plantago and Polygonum. The clearance of the forests is clearly represented by a sharp decline in the percentage of tree pollen, although in recent years there have been a noticeable increase in the quantity of conifer pollen. The lecturer had not been able to use the radio carbon methods of dating the various levels in the peat, but he had tried to relate certain peat horizons with past human activities, such as the building of roads by the Romans. It was also possible to correlate various zones of peat by comparing the species composition with what had been found at other sites in Wales and England. It was now possible to obtain a good idea of the development of the flora of Wales since about 10,000 B.C., and to relate the changes to both major climatic changes and, more recently, to human activities.

Dr. Brian Seddon, from the University of Reading, then showed how changes in the distribution of aquatic species since about 1,750 A.D. could be related to alterations in the lakes in which they occurred. Certain species were particularly sensitive to changes in the chemical nature of the water, as a result of agricultural activities, and in changes in the composition of the floor of the lake. The distribution of many aquatic species was clearly related to the minerals present in the lake, the depth of the water, and the composition of the floor of the lake. Dr. Seddon showed how certain species were confined to lakes which were poor in minerals, whereas other species only occurred in the more mineral rich lakes of lowland areas. The changes in the pattern of distribution for a few species could be correlated with changes in the mineral content of the lake as a result of the drainage of water into the lake from surrounding agricultural land which had been heavily dressed with artificial fertilizers. Agricultural activities also could change the nature of the lake floor, as cultivation of the land often resulted in an increase in fine particles being brought into the lake from ditches and streams draining nearby fields. This resulted in the extinction of species requiring a boulder, gravel, or sandy lake floor, and an increase in the 'reed' type of species which thrived better in silty substrata around the edge of lakes.

There was a particularly good collection of exhibits on show. Members were indebted to the following:

Miss A.P.Conolly (University of Leicester) for exhibits on the distribution of Lamium album in Britain, and on the Flora of Lley;

Mr. and Mrs D.Parish who showed a large collection of their own photographs;

Mrs. H.R.H.Vaughan who brought a fine collection of Rosa species;

T.A.W.Davis for an exhibit on the distribution of Polypodium species in Pembrokeshire; and

Dr. J.P.Savidge for exhibits on the preparation of a county flora, progress on the "OO" Survey, and the proposed Flora of Central Wales.

The evening Session began with the adjudication of the entries submitted for the photographic competition. In all, 36 colour transparencies, showing close-up photographs of plants, had been entered.

(continued at bottom of page 10)

ANNUAL GENERAL MEETING, 1966

Minutes of the fourth Annual General Meeting held in the Department of Botany, University College of Wales, Aberystwyth, at 1700h on the 24th September, 1966.

1. The Minutes of the third Annual General Meeting held at Gregynog Hall, Newtown, in 1965, and circulated to members, were approved.
2. There were no matters arising from these Minutes.
3. Apologies for absence were received from E.B. Bangerter and J.M. Brummitt.
4. Secretary's Report. The past year had not been a very encouraging one from the point of view of membership. We have had seven resignations. Some are due to removals from Wales and some may possibly be due to people concentrating their interests and affinities on their own Naturalists' Trust.

The Welsh Region Bulletin has appeared in March and September, the latest issue being mainly concerned with the 'Flora of Central Wales'. This project will obviously have very timely significance now that large parts of Central Wales may be included in a new National Park and still more so because attention is focussed on Central Wales as an Area of National Recreation.

The other main project for 'Plant Distribution in Wales' is making progress, but in both cases there is room for more workers to provide local data. Mr. May's 'Flora of Carmarthenshire' has been accepted for publication by the West Wales Naturalists' Trust with the aid of a grant from the County Education Authority.

All Naturalists' Trusts in Wales have been circularised on the subject of the registration of Common Land which is due to begin on 1st January, 1967. It is hoped that information on Common Lands which hold particular botanical interest will be passed back to the B.S.B.I.

Six field meetings have been held - a two day meeting and five single day meetings. The last one at Stanner Rocks was held in conjunction with the botanical section of the Herefordshire Naturalists' Trust. These meetings were only moderately well attended, with the exception of the one to Stanner Rocks. Eight members from the Welsh Region attended the County Recorders and Local Flora writers' Conference at Bristol on 17th and 18th September.

A new and serious menace to botanical interests in Wales is the construction of a road through the classic area of Kenfig Dunes for conveyance of material for the new Port Talbot docks. This was strongly opposed by the C.P.R.W. and the Nature Conservancy. Protest from the Conservation Committee of the B.S.B.I. was sought immediately on information received, but unfortunately before this could take shape the Glamorgan County Council had conceded permission. The threat to submerge the Upper Towy valley still impends.

5. Chairman's Address. Dr. J.P.Savidge expected the forthcoming year to be a period of consolidation during which the Welsh Region should concentrate on those projects to which it was committed. He was concerned about our ineffectiveness as a body when areas of botanical interest were under threat. He called for the formation of a central body in Wales to which bodies concerned in the conservation of the Welsh flora and fauna could send representatives. This central body should react swiftly when areas of natural history interest were threatened. He then thanked the Hon. Secretary for assuming duties at very short notice and the other Officers for their assistance over the past year.

6. Election of Officers and Committee Members. The Chairman, Dr. J.P.Savidge, and Vice-Chairman, Dr. W.S.Lacey, had a further year to run in office. The following secretaries were elected:

General Secretary: Mrs. I.M.Vaughan, M.B.E., F.L.S.

Minutes Secretary: Mr. D.Davies

Field Secretary: Mr. T.A.W.Davis

The election of Mr. T.A.W.Davis as Regional Representative was confirmed. The following Committee Members were elected:

Senior Committee Members: W.Condry, Miss J.Macnair, Dr. A.J.E.Smith

Junior Committee Members: D.Davies, J.W.Donovan

This left vacancies for one Senior Member and two Junior Members on the Committee and it was agreed to defer the election of further members until the Committee Meeting which was to follow.

7. Registration of Common Lands. The Chairman hoped that members would keep in mind the registration of Common Lands which would begin on 1st January next year. Dr. W.S.Lacey warned that Naturalists' Trusts should be vigilant not only in registering interests in Common but also to ascertain whether any of the Trusts' reserves were registered as Common Land.

The Chairman then declared the meeting closed.

(The meeting was attended by 15 Welsh members).

Report of Autumn Meeting continued from page 8.

The first prize was awarded to a photograph taken by Dr. J.P.Savidge of Orobancha minor growing on Eryngium maritimum at Jersey Marine, Glam. Dr. W.W.Mapleson received second prize for a very fine photograph of Cochlearia officinalis, and a picture of Paris quadrifolia by Mrs. W.Weston was placed third.

Mr. and Mrs. D.Parish then showed some superb colour transparencies of the more interesting plants of Teesdale. They then went on to give an illustrated lecture on the flora of Newborough Warren and Llanddwyn Island. The evening ended by everyone agreeing that they had never seen such a large number of excellent slides at any one meeting.

Various sites in the Aberystwyth area were visited on the 25th when weather conditions were perfect for an excursion. A good attendance of 25 members, together with numerous prospective juvenile members, in 11 cars were rather too much for the narrow lanes, 1 in 4 hills, many sharp hairpins of about 310°, and farm gates which had to be opened and closed! The meeting was most successful and will be fully reported in Proceedings.

WELSH REGION PHOTOGRAPHIC COMPETITION, 1967

The Welsh Region Committee has decided to organize another photographic competition and all B.S.B.I. members resident in Wales are invited to take part. As in 1966, three prizes are to be awarded, and suitable entries may be selected for publication in the Welsh Region's book on 'Plant Distribution in Wales'. The Rules are:

A. There are three classes:

- 1) 35mm colour transparency of a close up of part or the whole of one plant or a group of plants;
- 2) 10" x 8" black and white print of a close up of part or the whole of one plant or a group of plants;
- 3) 10" x 8" black and white print of a habitat or plant association.

B. Photographs must be taken in Wales.

C. The competition is confined to B.S.B.I. members who are resident in Wales.

D. The winner in each class will receive a New Naturalist book of their own choice.

E. Transparencies and prints must be sent to Dr. J.P. Savidge, Dept. of Botany, University College of Wales, Aberystwyth by 18th September, 1967.

F. The entries will be judged during the tea interval and during the evening session of the Welsh Region's 1967 Annual Meeting. They will be judged on botanical, photographic and topographical merit, as well as their suitability for reproduction in the New Naturalist books.

G. The Welsh Region reserves the right to publish blocks obtained from suitable entries in 'Plant Distribution in Wales', in which due acknowledgement will be made, without making any claims on the copyright of the photographs. The owners of photographs used in the book may be eligible for royalties.

H. Entries should be submitted with a completed entry form.

An entry form is included with this issue of the 'Bulletin'. Extra copies may be obtained from the Editor. The number of entries is not limited.

FIELD-MEETINGS FOR 1967

Saturday, APRIL 22nd : RHANDIRMWYN, CARMS. Leader Mrs. H.R.H. Vaughan (A joint meeting with the Cotswolds Naturalists). Meet at Rhandirmwyn School (SN 782440) at 11 a.m. to visit a number of areas in the Upper Towy Valley.

Saturday, JUNE 3rd : LLANDEILO, CARMS. Leader Mrs. H.R.H. Vaughan (Joint meeting with the West Wales Naturalists' Trust). Meet at Llandeilo Car Park (SN 625226) at 10.30 a.m. to visit Dynevor Park and a number of habitats in the Llanstephan area.

(continued on page 12)

Saturday, 17th JUNE : LLANDUDNO, CAERNBS. Leader Morris Morris
(Joint meeting with the North Wales Naturalists' Trust).
Meet at the entrance to the Marine Drive on the West Shore just beyond
the Gogarth Hotel at 11 a.m. to visit sites on both the Great and Little
Ormes.

Saturday, 24th JUNE : FERRYSIDE, CAERNBS. Leader R.F. May
(Joint meeting with the West Wales Naturalists' Trust)
Meet at Ferryside Railway Station at 11 a.m. to visit salt-marshes and
sand-dunes in the Towy estuary.

Saturday, 8th JULY : LLANBEDR, MERIONETH. Leader P.M. Benoit
(Joint meeting with the West Wales Naturalists' Trust)
Meet about one mile west of Llanbedr at the end of the road to the estuary
(SH 568272) at 12 noon., to visit sand-dunes and salt-marsh at MOCHRAS.

Saturday, 15th JULY : EGLWYSEG, LLANGOLLEN, DENBS. Leaders Mrs. P. Parr
and Dr. J.P. Savidge.
(Joint meeting with the Charles Kingsley Naturalists, Chester)
Meet at Worlds End at 11 a.m. to visit the limestone rocks at Eglwyseg.

Saturday, 2nd SEPTEMBER : DYFI ESTUARY, CARDS. Leaders Miss V.J. Macnair
and W.M. Condry.
(Joint meeting with the Montgomeryshire Natural History Society)
Meet at Glandyfi Station at 11 a.m. to visit the salt-marshes and neigh-
bouring areas of the upper Dyfi estuary.

NOTE : There may be some alterations to the above programme. If there are
alterations, they will be given in the next issue of the Welsh
Region Bulletin, to be published in April or May, 1967.

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WELSH REGION BULLETIN  
ES E I N B U L L E T I N

The Welsh Region Bulletin has now be on the go for three years. It's main  
purposes are to provide Welsh Region members with details of Regional  
activities AND to enable members to publish items of botanical interest,  
especially reports and notes that members would not normally send to  
B.S.B.I. periodicals and Nature in Wales. The main article in this  
issue of the Bulletin is obviously not suitable for publication in these  
journals, but, we hope, is of sufficient interest to some Welsh Region  
members to warrant its inclusion. SO, if you have any notes and articles  
which you think would be of interest to Welsh Region members, but which  
are not sufficiently detailed or complete for publication elsewhere, why  
not send them to the editor? If you have nothing to offer at the moment,  
then could we suggest that you should try to write a short account of some  
botanical feature that you come across next year, 1967. Here's wishing  
you a profitable and interesting year during 1967, and looking forward  
to your contributions to Welsh Region Bulletins 10, 11, 12, 13..... Editor