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Geolinguistics and haematology: the case of Britain*

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Abstract

The spatial stratification of human and cultural facts on the one hand and of biological facts on the other have indeed attracted scholars' attention for a rather long time. With the discovery of the human blood groups in Würzburg, near Bamberg, Germany, early this century these interdisciplinary attempts gained new momentum. Is there a connection between blood group and membership in a tribe or race and between blood group and language, even between dialectal differences within individual languages? The latter aspect is being addressed in this article mainly with regard to England.

Key words: Blood Groups, Geographic Haematology, Dialectal Differences within English.

One of the results of geographic haematology, i.e. of the regional diffusion of blood groups, was the discovery of the peripheral haematologic position of certain populations based on the knowledge that blood group genes in rural populations tend to remain stable over a very long period of time. By far the highest proportion of blood group 0 is found today at the periphery of Europe, in Mediterranean islands, namely on Crete, Tinos, the Lipary Isles, on Sardinia, Corsica, in the Basque territory, in a number of Alpine valleys, in the Celtic fringe (i.e. in Brittany, Wales, Ireland and Scotland) and in Iceland.[1]

The great scholarly break-through, however, occurred when the genetic code was deciphered by the American scholar James Dewey Watson and the British scholar Francis Harry Crick in 1953. With the famous «double helix» of deoxyribonucleic acid, abbreviated DNA, confined to the chromosomes of higher organisms, and which store genetic information, it became possible to describe and catalogue all the genes in a human body.

(*) Shortened version of a paper delivered at the University of Uppsala, Sweden, on November 7, 1996.

1. The earlier view linked the original colonists of Iceland with the British Isles and thus 'Celtic' influence was postulated. On Iceland cf. now Bernard (1983).

One branch of modern genetics is occupied with the genetic analysis of entire populations. It is interesting to note the attention geneticists give to linguistic facts. With regard to the parallelism between linguistic evolution and genetic evolution Cavalli-Sforza, Menozzi and Piazza note:

> What explanation can one offer for this important correlation? The major explanation is the history of populations. The correlation is certainly not due to the effect of genes on languages; if anything, it is likely that there is a reverse influence in that linguistic barriers may strengthen the genetic isolation between groups speaking different languages. This effect of linguistic isolation on genetic isolation is observable at a level of linguistic difference much lower than that of language phyla, for example, between speakers of different branches of the Indo-European family (or even between languages of the Romance or Germanic branches) (1993: 101).

While geneticists closely collaborate with linguists with regard to the origin of languages (Joseph Greenberg, Merritt Ruhlen and Luigi Cavalli-Sforza must be mentioned here), and while they have concentrated so far on language families and —to a lesser extent— on individual languages within language families, they have hardly touched on the field of dialectal differences within individual languages. I will try to show that this, too, is a fascinating area.

With regard to Britain, blood group frequencies of a considerable number of blood donors are available. What do these statistics show? As was mentioned before, a very high frequency of blood group 0 is found in certain parts of Wales, almost the whole of Scotland and in a large part of Ireland. With regard to Wales, the people with the high frequency of blood group 0 inhabit the more inhospitable areas such as the Black Mountains of what prior to the administrative reform was called Brecknockshire. This leads one to believe that 0 preceded the A wave of invaders. Mourant and Watkin conclude:

> […] there appear to us reasonable grounds for the belief that, prior to the advent of Celtic-speaking immigrants, the British Isles were inhabited by a people whose domain had at one time extended over a considerable part of Europe and North Africa but who under ever increasing pressure from the east had been driven from their homelands. Some, no doubt, found refuge in the more isolated mountain regions, but the remainder were gradually driven westwards and finally came to occupy a limited area near the Atlantic seaboard of Europe (1952: 31).
>
> One wonders, therefore, whether a large part of Britain's very early population did not arrive by the western sea routes and whether Celtic speech was acquired from later invaders […] (Watkin 1966: 383).[2]

2. Bernard supports this and notes: «Les ancêtres des populations périphériques ne sont pas davantage les Celtes venus d'Europe Centrale …» (1983: 121).

Celtic gradually replaced the language of the earlier inhabitants of Britain after the Celts had settled there which, as is commonly believed, took place between the 8th and the 5th century B.C.

In the British Isles there is a definite fall in A (said to be the younger Germanic blood group) and rise in 'Celtic' 0 frequency from south to north and east to west thus reflecting historical migration movements. As far as blood group B is concerned, the donor records show with 19.41 per cent a frequency uniquely high for Britain in the extreme north-east of Scotland (in the north-east corner of Caithness and down the east coast to the Moray Firth). Brown (1965) claims that there is an association between people with a high B frequency and the presence of megalithic chambered tombs. The higher B frequency that we generally find in Scotland, Wales and Ireland (vis-a-vis England)[3] seems, therefore, to imply a relationship with very ancient stocks possibly dating back to neolithic times (see also Mourant/ Watkin 1952 and Watkin 1966). Further north a higher A frequency, i.e. almost identical AB0 frequencies, point to a strong Scandinavian component in the population of the Orkney and the Shetland Islands. In a number of contributions Gunnel Melchers of Stockholm University found a still strong Scandinavian linguistic heritage in this part of the British Isles (see, e.g., Melchers 1991).

On Map 1 I restricted myself to blood groups A and 0. Variations of B and AB are slight and are, at least in England, with 10-12 per cent on a low level at that. The B and AB lines do not indicate a frontier along which two different populations meet but establish the existence of a gradual change of one population. As regards 0 and A, the northernmost line on the map (Line I) marks a sharp transition. Another line localizing a marked variation for both 0 and A would seem to be Line X on Map 1 separating England and Wales, but Kopeć in her book *The distribution of the blood groups in the United Kingdom* (London 1970) from which the data and the basic map are taken notes that «this area must at some future time be re-examined on the basis of more extensive data» (1970: 92).

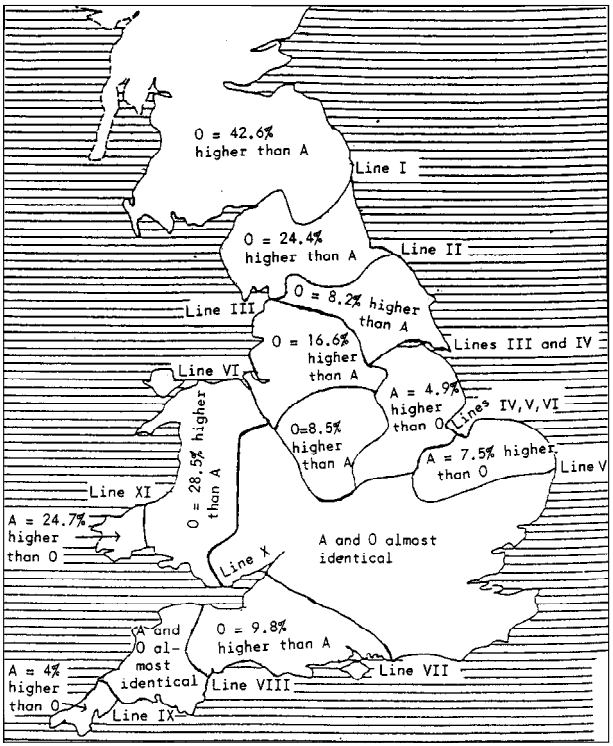
The map further differentiates a number of regions in which one blood group dominates the other variably but significantly from the statistical point of view.

As blood groups carry genetic traits, the question now is whether there are correlations between the structure of the blood groups of the population and dialectal patternings within English.

On Maps 2-10 I present some linguistic evidence published by a number of authors who worked out the patterning of traditional dialects independ-

3. I do not wish to present too many figures. However, in order to illustrate the great differences in the distribution of the blood groups in the Celtic fringe suffice it to say that 0 occurs there between 48 and 51 per cent, A between 30 and 37 per cent, while B is generally attested there only with 13 and 14 per cent (cf. Kopeć 1970: 89-91).

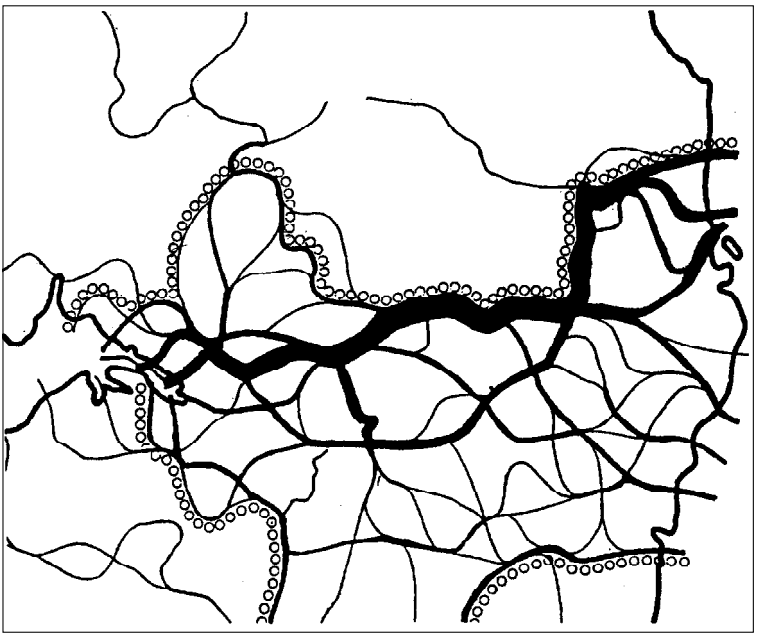
ently in different regions of England. The evidence is taken from different linguistic levels: from phonetics/phonology, from morphology and from lexis. Of these three planes morphology is the least variable and lexis the most fluctuating one. The most stable level of language is that of phonetics/phonology where phonological or phonemic differentiations are, of course, more important than mere phonetic ones. Some researchers rely on a single feature or very few indicative (phonological) features —a procedure called qualitative—, while others count quite a number of mainly lexical features and arrive at different degrees of prominence in their resultant analyses. A good example of such a quantitative procedure is that presented by Fischer (1976, cf. Map 8). The emerging patterning has, of course, more weight when substantiated by the results obtained with data from different linguistic levels. As the maps show this is the case whenever different linguistic planes were analysed. Most of the maps also provide pertinent linguistic examples. For more examples the reader is referred to the cited literature.



Map 1. The distribution of the blood groups A and 0 in Britain (after Kopeć 1970).

The northern detail map (Map 2) is taken from Glauser (1974), as adapted in Glauser (1991), who investigated almost exclusively lexical aspects of the Scottish-English linguistic border. He found a heavy bundling of isoglosses there and grouped them from the point of view whether the words separated by them belonged to the standard vocabulary or not. This classification lead to three types of isoglosses, namely Dialect word(s)/Standard word (see, e.g., *poke* /*bag*, *howk* /*root*, *cuddy* /*saw-horse*), Standard word/Dialect word(s) as, e.g., *gander* /*steg*, *pluck* /*ploat*, *hips* /*choops* testify and Dialect word(s)/Dialect word(s) of the type *foggage* /*fog* 'aftermath', *hunt-a-gowk* / *April gowk* 'April-fool' or *duffy* /*netty* 'earth-closet'. Of these the type Dialect word(s)/Dialect word(s) produced the widest network, covering the whole of Northumberland, North Cumberland and Eskdale, Liddesdale. The rather close correlation with Line I on Map 1 is quite evident.

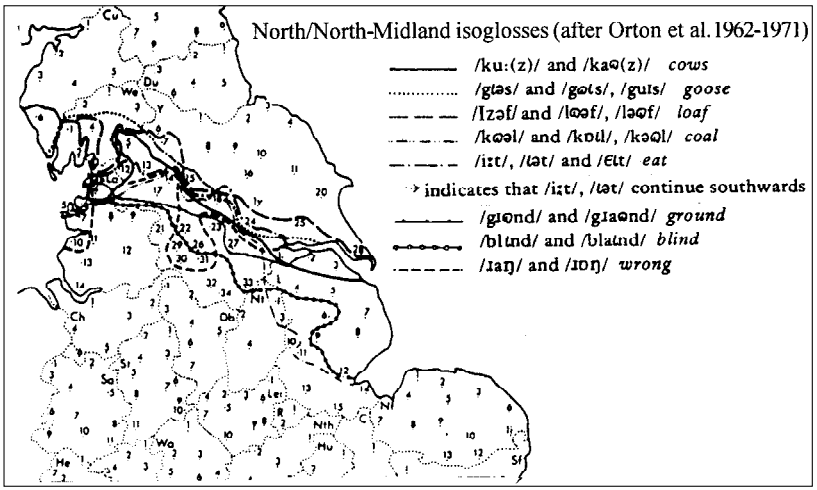
The same is true of Line III. The bundling of some historically very important isoglosses is shown on Map 3 taken from Wakelin (1983). The boundary begins roughly at the mouth of the Humber and passes along the Ouse and Wharfe valleys and out of Lancashire via the Lune and Ribble valleys. This division corresponds to the ancient boundary between the Anglo-



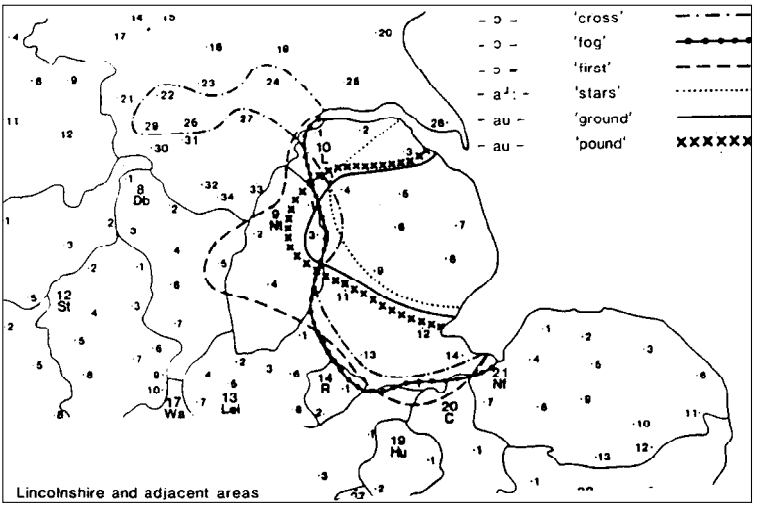
Map 2. Glauser 1991: 2.

Saxon kingdoms of Northumbria and Mercia (cf. also Viereck 1975: Maps 3 and 5 with more examples).

Further correspondences between blood group differentiation and linguistic differentiation are revealed not only in the three relic areas Lincolnshire (Maps 4 and 5), East Anglia (Maps 6 and 7) and the Southwest of



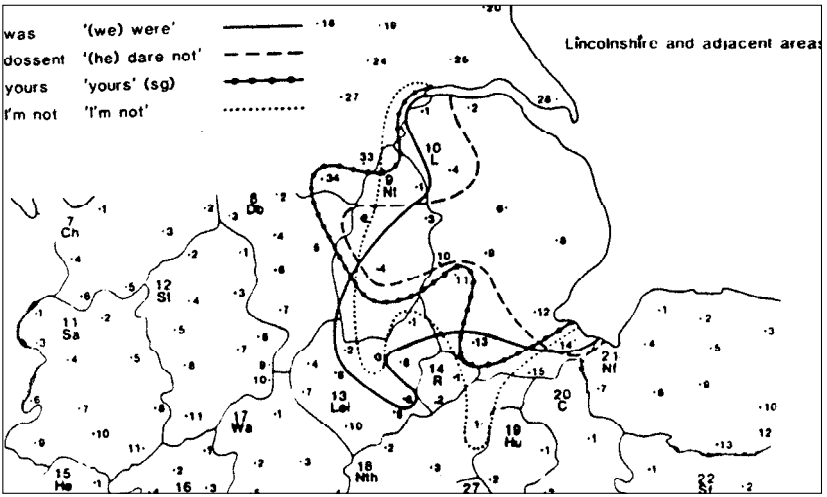
Map 3. Wakelin 1983: 3.



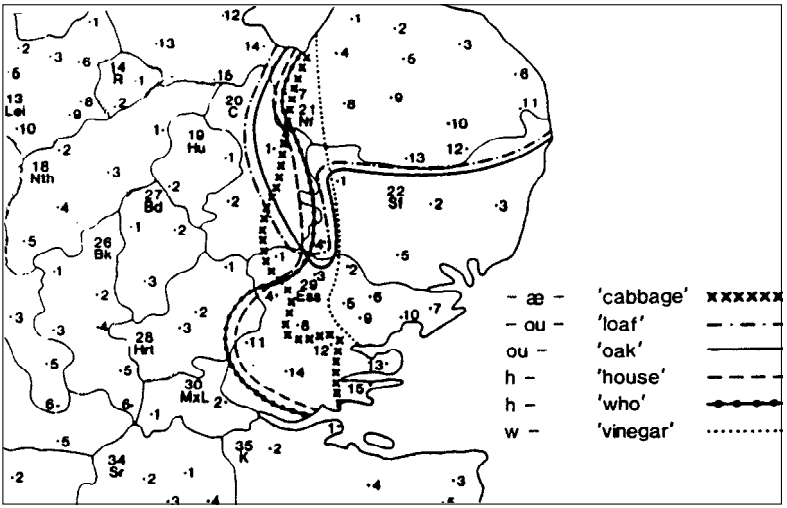
Map 4. Viereck 1986a: 247.

England (Maps 8 and 9) but also, with Line VI, in an area most decisive, according to Wakelin (1983), in dividing 'northern' and 'southern' traditional dialects in England (Map 10).

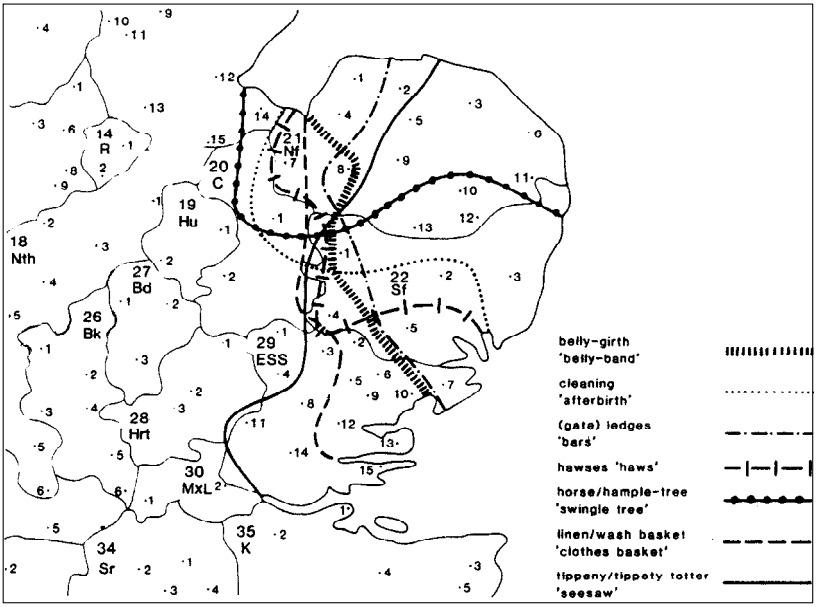
Other lines on Map 1 are less marked linguistically but even they differentiate quite a few dialectal items. As regards Line II, it separated in the



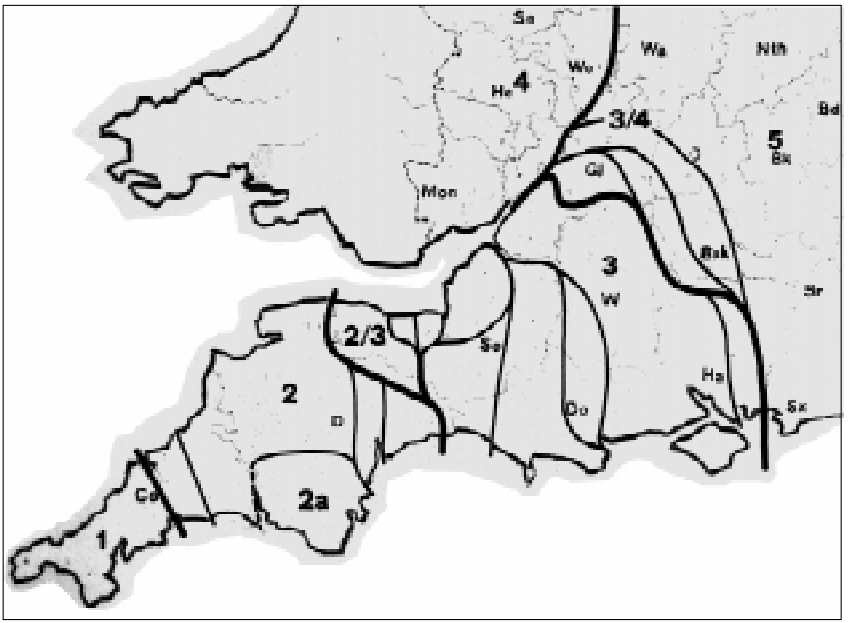
Map 5. Viereck 1986a: 252.



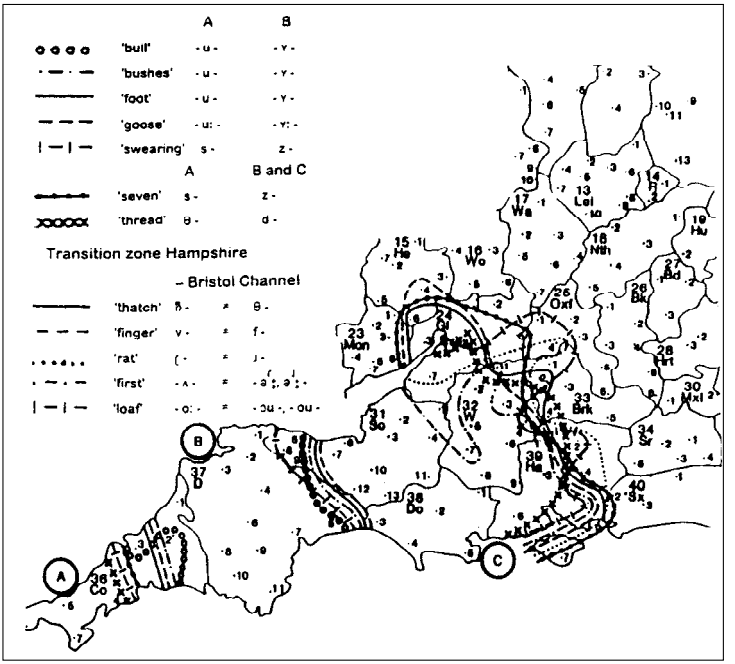
Map 6. Viereck 1986a: 249.



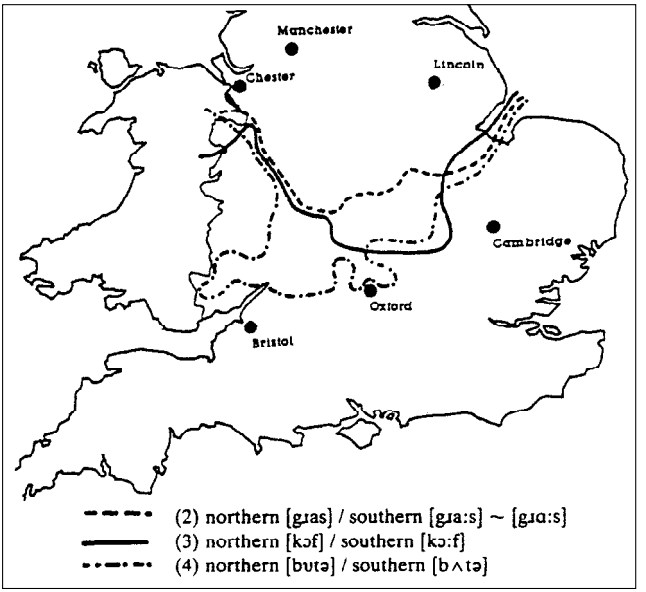
Map 7. Viereck 1986b: 738.



Map 8. Fischer 1976: 292.



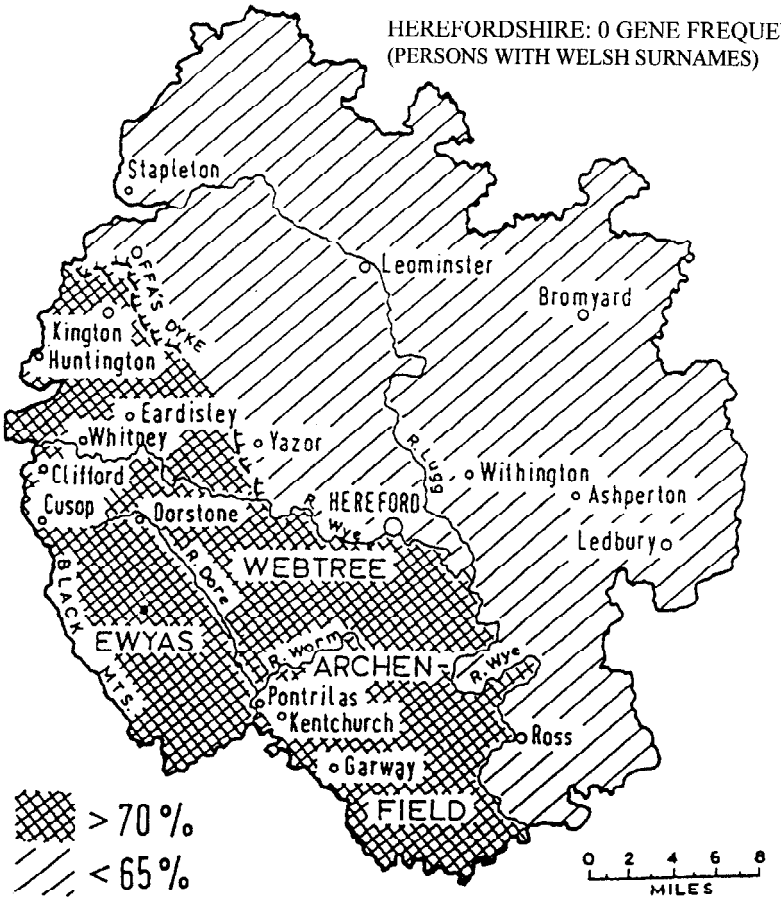
Map 9. Viereck 1986a: 248.



Map 10. Glauser 1991: 6.

1960s and 1970s, if not later, *skinch* from southern *kings*, two of children's truce words, *cuddy-handed* from *gally-handed* 'left-handed', *I is* from *I am* or the dropping versus the retaining of initial *h-*.

With regard to Wales there is an exceptionally high A in what prior to the administrative reform used to be Pembrokeshire (see Map 1, Line XI). This is to be explained by Viking settlements in an area the south-eastern part of which is traditionally called «Little England beyond Wales». According to the *Survey of Anglo-Welsh Dialects* (cf. Parry 1977, 1979 and Penhallurick 1991), this region is characterised, e.g., by a disproportionately high number of English (versus Welsh) lexemes for the same notions compared with «the rest» of Wales.



Map 11. Watkin 1965b: 91.

The data published in Kopeć (1970) are based mainly on the groups of blood donors, classified according to their place of residence. Her data take no account of birthplace or ancestry. For a large part of Wales and the problematic Welsh borderland Kopeć's data were supplemented by the investigations of I. Morgan Watkin who classified his subjects according to their Welsh or English surnames. For former Pembrokeshire Watkin (1952 and 1960) confirmed the rather high A, and proportionately lower 0 gene frequency especially in its south-eastern part, i.e. in «Little England beyond Wales». Among donors with Welsh surnames, Watkin finds a similar higher A and lower 0 in western Monmouthshire[4] and east Glamorgan (cf. Watkin 1965a). Watkin's results thus differ from the ones presented by Line X on Map 1. As he points out, in 1851 approximately one half of the Monmouthshire inhabitants originated from outside the county and English immigrants were far more numerous than those from other Welsh counties. According to the 1911 Census, 35 per cent of Glamorgan's inhabitants had been born outside the county and about half of them in England.

Herefordshire was officially regarded as part of Wales for several centuries after the Norman Conquest. The Welsh language was spoken there until the end of the sixteenth century. For this county Watkin investigated «whether there is any significant difference between the part of Herefordshire conquered by the Anglo-Saxons and the area called 'Welsh Herefordshire'» (1965b: 83).

He takes Offa's Dyke erected in the 8th century A.D. as a general line of demarcation between England and Wales (see Map 11). The 0 gene frequency on the western or Welsh side is higher and the A frequency lower than on the eastern or English side. The difference, however, is not statistically significant. A further subdivision of the blood donors into those with English and those with Welsh surnames shows that «there is a significant difference between those with Welsh surnames on the two sides of Offa's Dyke» (Watkin 1965b: 93), whereas persons with English surnames are similar on the two sides of the Dyke.

With regard to the region north of Herefordshire, i.e. Shropshire, Welsh continued to be spoken in much of the county until as late as Elizabethan times. There is no significant difference between the AB0 blood group distribution in western and that in eastern Shropshire. However, when

> […] the population of western Shropshire is separated into those having English surnames and those bearing names usually conceded to indicate a Welsh origin, a very significant variation comes to light. The Welsh are found to be appreciably higher in 0 and lower in A than the English (Watkin 1964: 61).

4. Monmouthshire formed the Kingdom of Gwent until the Norman Conquest in 1066, a name that this region received again after the area reform of 1974. Since the formation of the county in 1536, it has been administered as part of England, but it is now regarded as part of Wales.

Also in the northernmost Welsh borderland area Watkin researched blood group frequencies and notes high A gene frequencies of persons with English surnames in and around the city of Chester, which point to Viking settlement (Watkin 1966: 384).[5]

It thus comes as no surprise that the study of surname frequencies has become a popular method for assessing population structure because large datasets are easily acquired, surnames are believed to be selectively neutral, data can be obtained for past populations, and their history spans a circumscribed period – in southern and western Europe roughly 40 generations. Of course, there are exceptions to the time span, such as Wales where surnames

> […] only began to be hereditary among the gentry during the reign of Henry VIII but the custom spread so slowly that it did not take root among the working classes in parts of north-west Wales until the 19th century (Watkin 1964: 62).

Wales differs also from all the countries of western Europe in that it possesses very few local surnames, a mere sprinkling of trade names and hardly any nicknames. About 95 per cent of present-day Welsh surnames are derived from Christian or baptismal names. For England some research on the spatial distribution of surnames has already been carried out, but the onomastic base is still rather limited.

There have been efforts to correlate the dialectal continuum in many countries with culture areas in a broader sense. The most important factors found to contribute to dialectal patterning in Britain are of very long standing, namely topography and politics. Among other factors that have successfully been drawn upon in England to account for linguistic divisions are the density of population, economy and trade, as well as material culture, such as types of houses, indeed features of architecture, even shapes of bread. With regard to England and Wales I hope to have shown that geographic haematology provides a worthwhile addition to this list. The correlations between blood group diffusion and the diffusion of traditional dialectal features are indeed striking.

5. Watkin sees a parallel development with «Little England beyond Wales»: «… of the countries from which people are thought to have migrated to Little England, Norway and Sweden stand out as being the only ones which harbour populations having the type of A gene frequency found in its south-eastern part. Not only does blood group anthropology endorse the views of the Royal Commission on Ancient Monuments on the existence of a Viking settlement in one of the more coastal parts of Pembrokeshire, but it demonstrates that the colony in and around Chester was not an isolated phenomenon» (Watkin 1966: 381). Watkin also notes: «In view of the association in Britain between high B gene frequencies and early human settlements, the raised B frequency of the English element in south-western Cheshire and of the Welsh element in eastern Shropshire point to the survival of some prehistoric stock» (1966: 384). This view is in line with Brown (1965).

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