



CHAPTER FIVE -- GERMANIC SHIFT

The first major break in the Indo-European dialect mesh, at least in Europe, resulted from the Germanic expansion out of Scandinavia. This, and a few other events, inaugurated a series of changes that totally broke up and redistributed the European language picture over the following two thousand years.

Farming peoples have the ability to evacuate their homelands under adverse circumstances, while hunters cannot. This is possible because they can take in their last crop and move, taking this food-and-seed with them. They also may have better information about where a more suitable environment might be found. More important is their ability to concentrate in large numbers for a move through a narrow space. This concentration can give them immediate military superiority over almost any resistance. Of course, upon settling in a new area they must necessarily disperse themselves to about the same degree as the local residents, and then their temporary advantage is lost.

Simple migrations of farmers, into already farmed areas, are usually absorbed by the previous residents within just a few centuries. If the intruders and residents share similar technologies, economies, and cultural prestige, then it is just a matter of time and mate exchange until the more numerous residents linguistically absorb the newcomers. Ordinarily, such

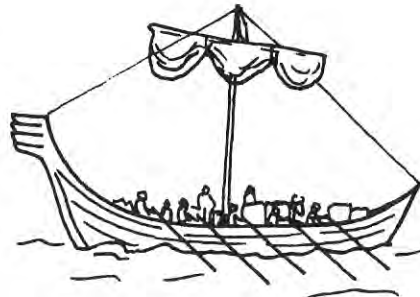
intrusions number no more than a few thousand, or maybe tens of thousands, of people moving into a region that is many times more populous. Migrations of much larger numbers would be decimated by problems of sanitation and disease if they were similarly concentrated. A very large migration might avoid such problems by subdividing into many separate units. But these would usually be distributed in various directions, each of which would ultimately meet the same fate of all other such smaller migrations.

There are some special circumstances under which migrating peoples can and clearly have maintained their ethnic identity indefinitely. If the group occupies an insular or peninsular location in which it becomes the sole or major population, then it might persist. The physical absence or small number of immediate neighbors might serve to insulate them against linguistic absorption.

The other circumstance is where the separate elements of a very large migration maintain communication and close proximity to one another. In this manner they might divide the resident population into relatively small groups between their own immigrant elements. Under ideal circumstances it could be the divided groups of residents who become linguistically absorbed on a large scale. It was apparently a massive migration of just this kind out of Scandinavia that moved into and created what eventually became Germany.

Exodus from Sweden

The Sub-Atlantic phase of climatic deterioration in Europe was a relatively mild episode that affected farming only along its northern fringe of greatest vulnerability. It probably was not even noticed on most of the continent. Its major effect of cooler and damper climate



devastated the Scandinavian Peninsula; the East Baltic region apparently was not much bothered, but this is disputed (Fodor 1976 vs Kivikoski 1967). The Sub-Atlantic spans the last five centuries B.C. During its most intense part, from 400 to 50 B.C., Sweden almost disappears from the archeological record (Pounds 1973:14, Scott 1977:9, and Stenberger 1962:109).

During the late Bronze Age, just before this episode, about one-third of present Sweden had been occupied by farmers--with much of it very densely populated. The coast was occupied half-way up the Gulf of Bothnia. The Norwegian coast was then held by Europeans as far north as Narvik. By 400 B.C. Swedish occupation was reduced to just a thin coastal strip in the south, and the offshore islands. Norway was almost emptied, and its coastal occupation drew back to near Bergen, at about the latitude of Stockholm. Denmark does not appear to have been affected. (See Fig. 16 for the emptied areas.)

The obvious conclusion is that nearly the entire population of Sweden, and most of Norway as well, simply went away somewhere. These areas began to be repopulated after about 50 B.C., presumably by recovery from the fringe settlements and by new immigration, mainly from Denmark.

Other explanations have been offered for this lack of an archeological record for nearly four centuries. The developing Iron Age on the continent at this time has been credited by some authorities with cutting off the affected area from trade and communication, hence the scarcity of datable remains (Stenberger 1962). I fail to understand why such a unique event as this cut-off should have occurred here.

More seriously, some Swedish scholars I have talked to (but failed to note their names) think that there are enough undated Bronze Age graves to fill the gap if they are mostly assigned to this time period. This strikes me as dubious for two reasons. The percentage of undatable graves ought to be roughly constant for all centuries, but we are to suppose that they concentrate on just the afflicted time period. This is so odd as to require some special explanation that is not forthcoming. Also, we do in

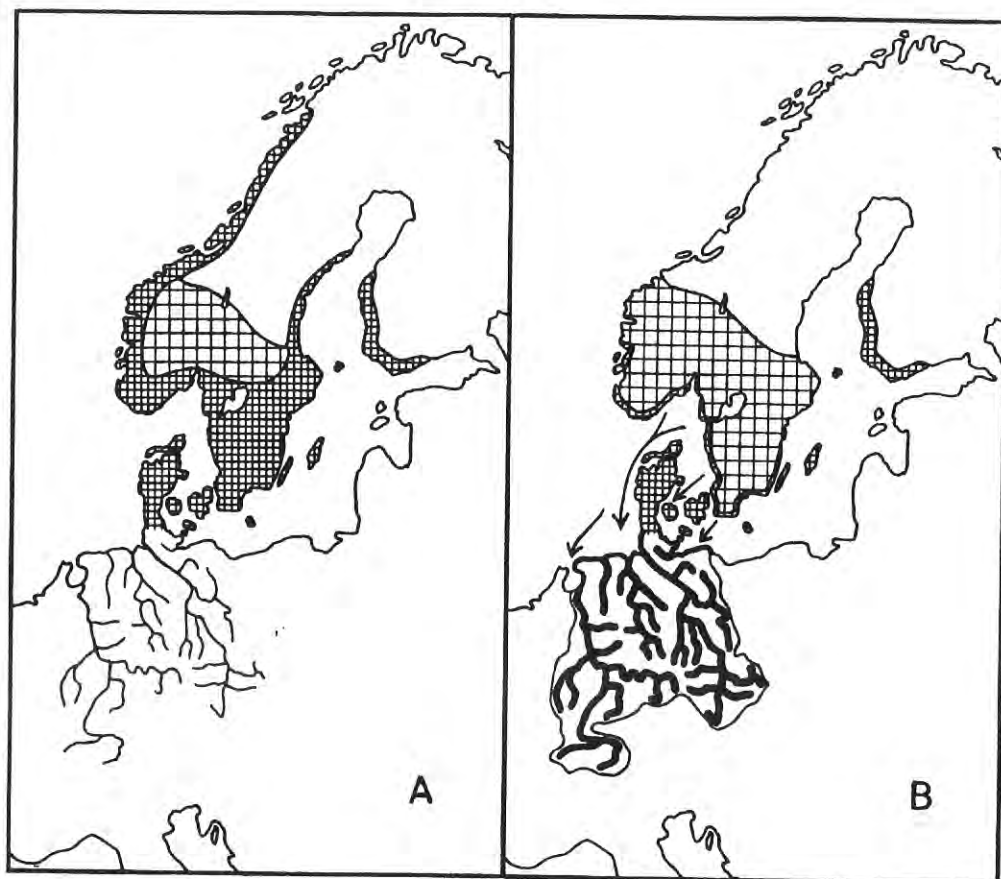


Fig. 16. Germanic shift. Map A (left) shows the original distribution of Germanic in Scandinavia. Open hatching shows the old area of Nordic speech--the sparse pastoralists who should have been assimilated by 500 B.C. To the south are the major German rivers beyond Denmark that would be the goal of emigration from Scandinavia during colder, wetter times.

Map B (right) shows the result of the Sub-Atlantic phase, where continuing coastal occupation and Denmark are given in tight hatching. Open hatching shows the area evacuated by farmers, and which presumably remained only sparsely occupied. The German rivers are drawn as solid bars 20 km wide--the presumed strips of earliest Scandinavian intrusion. A fine line is drawn around the drainage area of these rivers.

fact have a continuous record on the coast and islands where the material is clearly datable to the otherwise empty period.

We can safely proceed on the assumption that the major part of the Bronze Age population of Sweden simply moved out. Being farmers rather than hunters, they had this option. It is also evident from the record that they left rather abruptly--the entire exodus must have taken place in less than a century. The only logical direction for them to go was south. It is tempting to see this event as the origin of the German-speaking population on the continent. Before we can draw this conclusion it is necessary to show that such a move is consistent with the rigorous approach used in the rest of this reconstruction.

The recent German area, and especially the rough mapping of the earliest Germanic occupation here, conforms closely with the combined drainage of the Rhine and Elbe Rivers, and the lesser rivers between them. I will go further and postulate that this was exactly their initial area of intrusion. The Oder drainage to the east, and the Vistula basin still farther east, may also have been invaded. Judging from the following calculations, and also from the later pattern of linguistic events, it would appear that these eastern rivers received no more than minimal Germanic immigration, which did not long persist.

As Swedish Bronze Age agriculture was failing in the 5th Century B.C., the affected people would naturally be looking for more suitable lands to the south. They would have had enough geographical knowledge at that time to know that warmer climates lay in this direction. They would also know that the land in this direction was already occupied by settled farmers. There was enough time for explorers to discover (if they didn't already know) that beyond the Danish area there were river valleys that were not well populated. Most of the Celts in the area of modern Germany farmed the better-drained, lighter, upland soils away from the rivers (Pounds 1973), and some of the Scandinavians would certainly know this. A major ecological opening was available at that time for a population that was already oriented to exploit it.

For transportation, Scandinavia was well supplied with large boats. These are well known, indirectly, from two sources. Rock engravings and other art work of the Bronze Age show unmistakable boats, often shown containing numerous men with oars. Of similar age are burial places or monuments--patches of ground outlined with many upright stones in the shape of a ship. It is not presumed that a ship was actually buried at such sites, but the size and shape of one is clearly represented in each case. Most of these range from 6 m to 20 m in length, with a few measuring much more (Stenberger 1962).

There has been much discussion as to the construction of these ships, whether they were skin-covered frames, or were solidly planked. The rock engravings have been interpreted by many authorities to represent the wooden ribs of a ship showing through an ox-hide covering. A simple consideration of their absolute size rules this out. Ever-larger ship frames can be made from timbers of increasing sizes, but ox hides have a fixed thickness and strength. Beyond a few meters length, such a ship would be so heavy that even a gentle scrape against shore gravel would tear through any hide. Multiple layers of tanned animal skins only postpones the inevitable failure. While we do not yet have actual remains of ships from exactly this time, there is one dated to the early 3rd Century B.C. from Denmark. This specimen is 10 m long and is built of planks (Clark 1977:203).

Planked craft, much like the later Viking ships, would be capable of transporting large numbers of people to new locations. Let us suppose a million such people are to be moved out of the southern one-third of Sweden into the middle of the western German area in half a century.

The people would weigh an average of 60 kg (including infants and children) and may have had baggage, equipment, and livestock of 240 kg each, for an estimated total of 300 kg per person. (Modern refugees often move with only a small fraction of this weight.) A fair-sized Bronze Age ship of 15 m could carry 15 to 20 metric tons of cargo, thus about 50 people with their possessions, and a crew of perhaps ten.

At just walking speed, and moving by day only, such a ship could travel from central Sweden to half-way up one of the German rivers and return in less than three months. (Some trips would be longer, most shorter.) Two trips each summer and, allowing for bad weather days, just one winter trip could easily be made by each ship. One fair-sized ship could then transport 150 people per year to their new homes at a leisurely pace. In 50 years a million people could be transported this distance by 133 such ships. If a thousand ships were available (a low estimate) this entire population could have been moved in less than seven years.

Obviously, most of the existing ships would continue to be used for ordinary commercial purposes, fishing, and war during this time. But then, Danish sources would probably have had at least an equal number of ships that would have been available for this move, giving a total of maybe 2000 craft. In a 50-year period, the mass migration of a million heavily supplied people could have been accomplished with the diversion of only about seven percent of the available sea transport.

The Swedish immigration into Germany need not be viewed as a military invasion. Rather, it would have been more like a massive infiltration of settlers into the lightly occupied river valleys. Of course if resistance were encountered, the intruders would have had overwhelming numbers of armed men available at each of their limited paths of entry. These rivers would have been familiar to many commercial shippers from the Denmark area, and no doubt to a few from Sweden and Norway as well. They may also have been regularly visited and fished, with occasional settlers being introduced even before this great migration.

The geographic pattern of the move is both simple and regular. Emigrants from Sweden might naturally assume that a warmer climate was the general necessity, although it was only warmer summers that were actually needed. They would accordingly have felt compelled to concentrate their intrusion into those rivers located to the west of Denmark--to the east winters were just as cold as in southern Sweden.

We can presume a limit to their adventurousness and the distances they were willing to travel, which would also be based on their area of prior familiarity. This limit could be put at 200 km to either side of the base of the Danish peninsula. To the east, in the least favored direction, this gives them access to the coast and lesser streams, but stops short of the Oder river. To the west they would enter the Elbe, the lesser rivers Weser and Ems, and reach into the Zuider Zee. Within this sea they would have access to the Isel River (also Ysel or Ejsel) which is one of the mouths of the Rhine. Progressing up the Isel they enter the main part of the Rhine upriver from its joining with the Maas (Meuse) River. If they were consistent in moving only upriver, then the drainage of the Maas would be omitted from their area of occupation. From this entry pattern we simply follow their advance up every branch of each of these rivers to the limits of their drainage basins and stop there.

During the Roman conquest of Gaul, and over the next few centuries, note was made of the Celtic-Germanic boundary in much of this region. A few tribal assignments in Roman sources may be incorrect, but generally the Germanic area reported at that time corresponds closely with the line based on these drainage basins. My exclusion of the major mouths of the Rhine as well as the Maas tributary was in fact originally suggested by this early mapping of the Germanic tribes. Only later did I find this made perfect geographical sense.

Occupation of Germany

At first glance it might seem that an exodus from just one-third of a small country like Sweden could not possibly have overwhelmed the entire Celtic population of such a large area as modern Germany. However, more careful examination of the details shows it to be quite



feasible, even inevitable.

The land area of Sweden that was seriously farmed in the late Bronze Age, and then evacuated, amounts to some 98,600 sq km by my measurements. In the 2nd Century A.D. it is estimated that the northern part of this, called "central" Sweden, supported a population of at least half a million people, at a density of something like ten per sq km. (Here and elsewhere I have used population estimates from Pounds 1973.) This would involve half of the farmed part of Sweden. For the remainder of settled Scandinavia, as well as for Germany, a density as low as five per sq km is indicated. Seven centuries earlier, Bronze-Age Sweden would have supported at least as many people. Their settlement actually extended somewhat farther to the north at that time, as compared to the early Iron Age, and there were no significant improvements in agriculture during this interval. Assuming the same densities in 500 B.C. as for 700 years later, the other parts of Sweden and evacuated Norway would have held another 472,500 people. Adding these to the population of central Sweden, this gives us the potential for an exodus of 972,500 people. (I have not figured in the native Scandinavian cattle herders of the interior, nor the coastal people to the north. Some of them may have been involved, but this is not certain. Probably they spread into the evacuated areas.)

At six persons to each sq km in the defined basins of the Rhine and Elbe, a high estimate of the target population in western Germany would be about 2,472,000 people in an area of 412,000 sq km. (Duby, 1973, estimates a population less than half this great, but he no doubt would also have reduced the Swedish numbers correspondingly if he had dealt with that area.) The residents should then outnumber the intruders by well over two to one; the invaders having just 28.2% of the combined populations.

Casual examination of rivers and tributaries in the German area shows 6,275 km of total length of significant streams that would be easily navigable for even the largest ships of the time. There is also a northern coastline of 750 km that is of easy and

immediate access. The likely scenario would be for these infiltrating-invading Scandinavians first to occupy the coast and both banks of all these rivers to an average depth of ten km in all directions. (The actual occupation zone would vary greatly from place to place, but this may be used as an average for purposes of computation.) The area of these shoreline strips adds up to a surprising 133,000 sq km, or 32.3% of the total. (See Fig. 16 for a map of this initial area of occupation.) If the intruding population were spread evenly over all this area, to the exclusion of the resident natives, their density would be 7.42 per sq km. This is about the average for the entire source area, and is well under that estimated for central Sweden.

This riverine zone of the German area was originally the least populated part; as noted above, the higher lands were the most favored for their easy farming. If the density of native riverine residents is taken as two per sq km, then some 266,000 people would be living in these strips. This would be only 10.76% of the total Celtic population of the Rine-Elbe basins, who were occupying 32.3% of the total land area.

It may be assumed that the infiltrating Scandinavians would absorb these people into their own groups. Some residents might move away from the shores, while others would be attracted to the newcomers, and these should about balance. The intruders' 972,500 would be augmented by the assimilation of these 266,000, for an immediate total of 1,238,500. In this first action in a limited area the intruders outnumbered the affected residents by almost 4 to 1, so these could have been incorporated with no difficulty. This augmenting raises the population density along these river strips to 9.3 per sq km--almost the same as back in central Sweden, and a workable figure as will be seen.

After the subtraction of these 266,000 people, the remaining Celts between the riverine zones would number 2,206,000. They would be occupying a badly subdivided area of 279,000 sq km, with a density of 7.9. At this point the remaining Celts will still outnumber the intruding Germanics, but the ratio is reduced to less than 2 to 1. Now the intruders have 32.3% of the land and

35% of the population within the whole river drainage area.

The number of rivers and their combined lengths that are used here is somewhat arbitrary. During the first century of intrusion the riverine occupation may have been somewhat less than the total; given time, the occupation could well exceed that calculated here. The rivers figured here are simply those that are shown most regularly on various European maps. The 10-km distance from each bank is based on an easy day's walk to the limit and back. The density of Celtic population along these rivers was arbitrarily set at just one-third of the average reported for the entire country. This riverine population density would then be one-fourth of the density in the remaining higher lands where most of the farming was concentrated. It just happened to work out that when the resident Celts of the rivers are added to the Scandinavian intruders, their total would fill these strips to almost the ten per sq km, just as in the best Swedish lands.

The ecological basis for this newly achieved, high density of riverine settlement must also be considered. Some explanation is needed for the Swedish population here being about four times greater than it was for the natives before they arrived. The two obvious means are fishing and short-term crops.

Fishing skills were increasingly developed as Indo-European farmers expanded to the north. Dietarily essential vitamin D for winter consumption was obtained from sun-dried fish. Water craft and other appropriate fishing technology were devised and adopted from resident hunters, as well as from the Aegean Boat People who were encountered there. Most of the ships from the affected Swedish and Norwegian areas would ultimately end up in Germany, along with the skills to build more. The German river system offered an underutilized ecological opportunity to exploit this large aquatic food supply. This developmental gap eventually would have been closed by a slow filtering to the south of the appropriate skills, and this was no doubt underway. But the process was fortuitously accelerated by the climatic adjustment that drove large numbers of skilled fishermen into the area

during one short time period.

Scandinavian farmers had long been situated up against the limit of the 120-day growing season. This limit is somewhat arbitrary because it depends on the crop, and fluctuates from year to year. Still, it marks the approximate limit of farming that was reached by the first settlers around 3000 B.C.

Yearly variations in the length of the growing season would have adversely affected crop yields on many occasions. This problem would be most frequent near this upper limiting line, but at times it would have affected the greater part of inhabited Sweden and Norway. In bad seasons often only part of the grain crop would mature. This would cause a strong natural selection favoring those variations that matured slightly early; conscious selection by the farmers is not required. The automatic result of short-season varieties may also be at the cost of losing some other desirable qualities.

Seed from these fast-growing strains would have been brought by the settlers into the German area and would be sown in the river valleys. The German rivers, especially the Rhine, have a spring flooding as they drain meltwater from the snowfall in higher altitude areas to the south. Accordingly, their bottomlands cannot be tilled and sown until much later in the season than the surrounding uplands. This results in a growing season that was too short for the Celtic farmers to use. However, selected northern seed was better able to mature in the available time. Scandinavians were able to take large yields from this unusually fertile soil. Again, the techniques and seed might eventually have filtered down to this area, but it was a climatic shift that brought them in abruptly at this time.

Celtic and Germanic peoples would find their respective territories interfingered in a complex pattern, with each group of one ethnic type partially surrounded by groups of the other. With total population figures for the entire region still running almost 2 to 1 in favor of the Celts, they eventually would have assimilated the Germanics if all other factors were equal. Several additional factors tipped the balance in favor of the

Germanics. (Throughout this discussion I often use "Germanics" for Germanic-speaking people, "Celts" for Celtic speakers, and so on, for easy flow in the narrative. I am sorry if this shorthand form bothers some readers.)

The scenario of intrusion given here is somewhat artificial for the sake of simple presentation. I have described how the river zones were occupied as a first stage, which was followed by the taking of the intervening higher lands. Actually, many of these between-river spaces in the north would have been taken early in the movement, and long before the river zones were filled in their more distant southern parts. The actual process of filling in between the rivers was probably progressing as a "second front" a few hundred km behind the advance wave up the rivers themselves. The time taken to evacuate Sweden also imposes some constraints on this model.

If the evacuation was accomplished in 50 years, there had to be enough land available at the end of this time to support all these people. If the riverine settlements had progressed just half of the 600 km straight-line distance through Germany in these 50 years, they would have acquired 66,500 sq km of river zone territory. The invaders' full 972,500 people, plus 133,000 from half of the Celtic riverine population that would be incorporated at this point, add up to 1,105,500 Germanics. At the previously calculated density of 9.3 per sq km, only 609,150 of these could be settled in the partially occupied river zones. The other 496,350 must be settled in other places. At the assumed upland density of 7.9 per sq km (as with the Celtic farmers), another 62,800 sq km are needed to locate the rest of the Germanics. In order to take this much territory the full Germanic advance over the land area must have moved almost 150 km, or one-fourth of the total distance. Out of a total linear distance of 600 km, if the riverine advance had reached 300 km in 50 years, the total occupation must have gone half of that, or 150 km.

A new aspect to the intrusion now appears in the above version of upland occupation following shortly behind the

riverine expansion. No provision was made for the Celtic population that had been living on these uplands. Many Germanics would have been lost in the inevitable wars, and others lost through temporarily strained refugee living conditions. Their places would have been filled by many thousands of Germanized Celts. I cannot imagine that any more than half of these upland Celts would have been incorporated into the Germanic ranks. That still leaves the other half with nowhere to go but out. The exodus of these Celts is discussed in the next section.

Something like this double pattern of advance is probably close to what actually happened. The advance wave of riverine occupation would eventually absorb and Germanize all of the 266,000 Celts who lived there. The second wave of upland occupation that followed behind would Germanize about half of the Celtic inhabitants (ultimately 1,103,000 people) over a protracted period of time, and force the departure of the other half.

The numbers involved can now be reviewed in terms of the originally described two-stage occupation of Germany. The initial riverine occupation by 972,500 Scandinavians would absorb 266,000 natives and become a population of 1,238,500. These would then assault the upland Celts in a piecemeal fashion and eventually absorb 1,103,000 of them in modest increments. This leaves 2,341,500 Germanic people in a previously Celtic land, while another 1,103,000 of these Celts have gone elsewhere under pressure. It still remains to be explained why the invaders should have prevailed over the residents so often that such an impressive Celtic withdrawal would have occurred.

River shipping of large volumes of produce gives a significant economic advantage to those with the equipment and locations to accomplish it. They can also transport large populations both up and down the rivers as circumstances call for. Military reversals in local conflicts need not be total for those who have ships. The simple expedient of crossing a river can often provide a safe retreat--an opportunity that is denied to land-based foes under comparable circumstances.

It can safely be presumed that the recent mass migration out of Scandinavia and the continuing upriver settling would mean these people had a degree of cooperation and coordination far greater than that found on the Celtic side. Finally, there is the simple fact that these northerners were bigger and stronger, on the average, than their Celtic adversaries. In combat with hand weapons this gives a substantial advantage to one side, all else being equal. The effects of a similar body-size discrepancy between Celts and the still smaller Mediterraneans were often noted by classical writers among the latter. Absolute body size in this part of the world varies with latitude in a regular geographic manner.

It must be stressed that the details given here of exact land areas, populations, and densities are actually only approximate. The succession of events is also not necessarily exact. This picture is built up from the most probable parts known, and the result is not only inevitable, but it accords well with historical facts that were recorded by civilized people around the edges. Details might well have varied, but the general picture is probably true as given here. The most precise, and hopefully testable, prediction here is that German ultimately relates more closely to ancient Swedish than it does to Danish.

The numbers and distributions of ethnic forces given here would have been just barely sufficient to ensure ultimate Germanic dominance of the Elbe-Rhine drainage basins. Another factor that probably contributed to their success was the sparse population of the region surrounding the Low Countries. The presense of non-Germanic and non-Celtic place names here indicates that it must have been ill-filled in the first wave of Neolithic settlement. Barraclough (1978:85) maps this area as including the coastal 30.3% of the drainage basins under consideration here. If we assume this place held just half the number of people as in other Celtic areas, then an across-the-board reduction of 15.2% can be made. Applying this correction factor throughout all the previous calculations would mean that

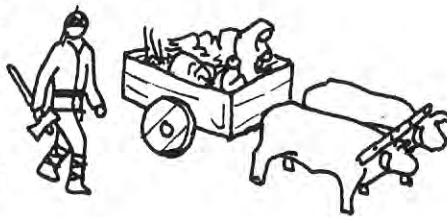
the initial riverine zone of Scandinavian occupation would have contained 39% of the total drainage basin population. If the previously calculated 35% was sufficient, then this likely 39% makes their success even more understandable.

A large ethnic group of native Mesolithic people continued to exist as cattle herders for some time in the interior of the southern part of the Scandinavian peninsula. We do not know exactly when these Nordics were assimilated into the Germanic agricultural population. If they still existed as a separate entity at the time of the evacuation of Swedish farmers, they could have expanded to fill some of that void. (Remaining Swedes, reverting to a Mesolithic economy with some pastoralism, could have filled it just as easily. Lappish reindeer herders may also have temporarily extended their area.)

It is much more likely that these Nordic natives were absorbed into the Germanic speech community well before this time of exodus. These people are the only obvious source of the non-Indo-European vocabulary found in the Germanic languages. Since this includes German itself, the absorption must have occurred before the southward move began in 500 B.C.

Celtic Diaspora

According to many prehistoric reconstructions a great expansion of Celtic peoples began about 800 B.C. This was supposedly because of their military and commercial power that was based on the ironworking in their central European homeland. Archeological evidence of the spread of Hallstatt iron work was probably just that--and no human movement need be supposed. Only after 500 B.C. is there clear indication of human migrations, and their explanation given here turns out to be quite different from the usual image of a conquering ethnic group. An ethnic expansion of the Celts is



no more logical than the supposed ethnic spread of the Kurgans out of the Pontic Steppes.

During the intrusion of Scandinavian immigrants into central Europe large numbers of the Celtic natives evidently left this area. The entire Rhine through Elbe drainage basins has an area of 412,000 sq km, and was then the home of about 2,472,000 people. The considerations developed above indicate that nearly half of this population, an estimated 1,103,000 people, departed under pressure within the period of 450 to 50 B.C. Massive movements of Celts were noted by Roman and other historians during this same time. These migrations clearly stemmed from a source generally in the German area, just as postulated here. While some authorities assume they are refugees fleeing from advancing Germanics, many others see this as part of an overall Celtic expansion on its own merits. There are no natural factors that would appear to support this latter interpretation.

A "domino" effect is described here where Scandinavians make one shift, and this causes Celts to make the second. The lasting effects of these two moves, however, are totally different. A presumed 972,500 Scandinavians made a concentrated move in one direction into a clearly delimited territory. The circumstances were such that the ethnic composition of these intruders would be preserved and was automatically imposed on those of the fragmented resident populations that remained. The exodus of 1,103,000 Celts was dispersed to the west, south, and east, in at least six identifiable groups. They were locally successful in conquering pieces of territory and maintaining their ethnic identity for some time. In the long run, however, their dispersion was too wide-spread for any of them to have preserved their languages longer than about four centuries.

If we assume these Celts left in only the six groups identified here (an unlikely assumption), they each could have numbered 184,000 people. More likely, these six groups were only about half this large, while the remainder was distributed in many smaller movements. A wide dispersal of so many groups, some of them very large and others small, could easily create the

impression of an expanding ethnic type. This is especially true if they were militarily powerful, and if their spread was accompanied by the diffusion of advanced ironworking techniques. The actual cause of this movement has been obscured by the fact that historical sources were often so situated as to observe the Celts, but largely missed the driving force behind them.

The Belgae of northernmost Gaul were noted by Caesar in the middle of the First Century B.C., and he was told that they had recently come from the region of Germany. These were Celtic people, in large numbers, who had also entered Britain by that time. The area in question of northern Gaul should have supported a minimum population of 450,000 at six per sq km.

Obviously, even a full one-sixth part of the Celtic dispersal (184,000 people) would have constituted no more than a rather influential, and possibly a conquering, force. They apparently did not have the benefit of any major new technology, nor any unique geographical circumstances, that would have enabled them to make an ethnic replacement in settled agricultural regions. But it is possible that they were the first Indo-European farmers to occupy some parts of the Low Countries that up to then had remained in Mesolithic hands. In most of both Gaul and Britain they should have made little difference because the previous residents were also Celts.

Similar intrusions are known to have occurred in Iberia in the 5th Century B.C. These would therefore have been among the earliest Celtic groups leaving the German area. They are known from place names to have settled in various locations over half of the peninsula. The resultant ethnic mix is sometimes called Celto-Iberians or Celtiberians. Only in the northwestern corner did their language apparently persist until Roman times where it formed a distinct dialect after Latinization. This corner, still known as Galicia, was semi-protected from linguistic assimilation by the fact that there were no neighbors along half of its boundary. Assuming the Celts entered Iberia around both ends of the Pyrenees, we could count these as two of the six major groups that exited from Germany.

Also in the 5th Century B.C. a massive Celtic intrusion occurred in the Po valley of northern Italy. This was previously a thinly settled area, and these "Cisalpine Gauls" were a powerful force. They were suppressed by the Romans some 400 years later, and ultimately assimilated. Part of southern Poland is still known as Galicia from the ancient Gauls, or Celtic settlers from the same diaspora. The Galatians of central Anatolia were well known to Christian missionaries of the First Century A.D. They supposedly arrived early in the 3rd Century B.C., and eventually disappeared as a linguistic entity. The movements into Italy, Poland, and Anatolia may be considered as three of the six major Celtic migrations. (See Fig. 17 for a map

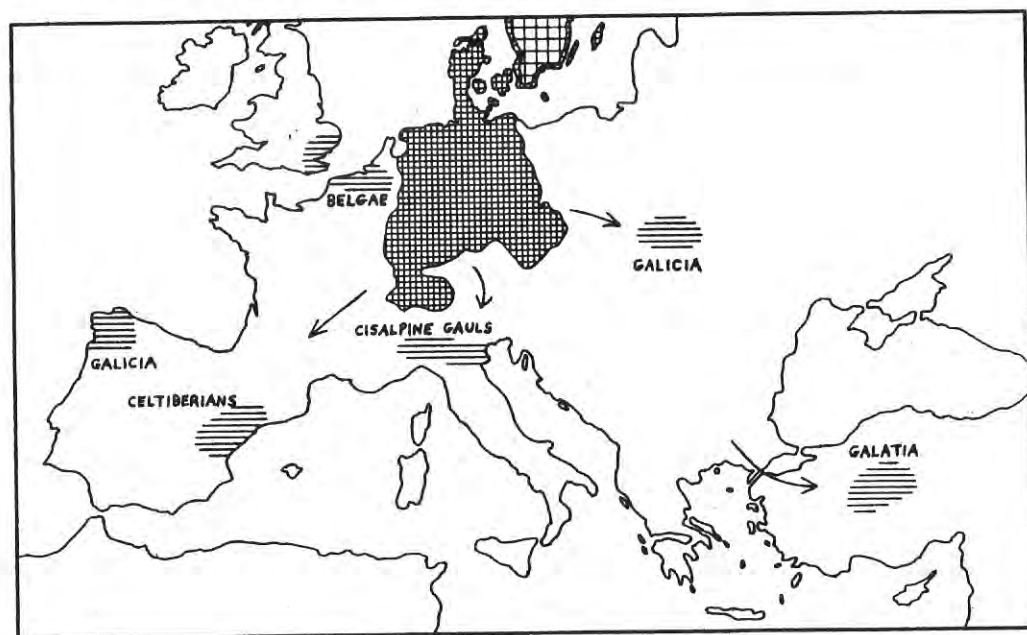


Fig. 17. Celtic Diaspora. The German river basins, from Rhine to Elbe, are included in the Germanic hatched pattern. Major groups of historically known Celts are named and marked with close horizontal lines. These are interpreted here more as refugees than as a conquering expansion.

of all six.) If this reconstruction of events is correct, the absence of many more migrating Celtic groups should become increasingly conspicuous.

While this Celtic dispersal apparently involved a slightly larger population than the initial Scandinavian intrusion that ultimately forced them out, they left no more than indirect linguistic evidence of their fate. They do not appear on my language maps that summarize each time period. The predictable geographical and technological circumstances that assured Scandinavian success on the continent were equally definitive in leading to the ultimate disappearance of these migrating Celts.

Language Map

Linguistic distributions in Europe at the end of this phase of Germanic migration overlap somewhat with the changes that are introduced by the next major event, the Roman Empire. These two events can be separated arbitrarily at the year One (Fig. 18). This assumes the Germanic move was complete, and that Sweden and Norway were repopulated--these were not quite true at that time. It also assumes that Latin had not yet supplanted any of the languages that it later did, though this was actually beginning to happen.



The map differs in just a few particulars from that of a few thousand years earlier. These can be mentioned in their logical, and somewhat temporal, order of priority.

The separate ethnic group of cattle herders in Scandinavia is gone. These Nordics almost certainly had merged with the northernmost Indo-Europeans before the Germanic move began in 500 B.C. This would represent the beginning of the Germanic separation which Lockwood (1969) argues must have occurred in a small area in relative isolation from the rest of Indo-European.

The Germanic expansion onto the continent changed their

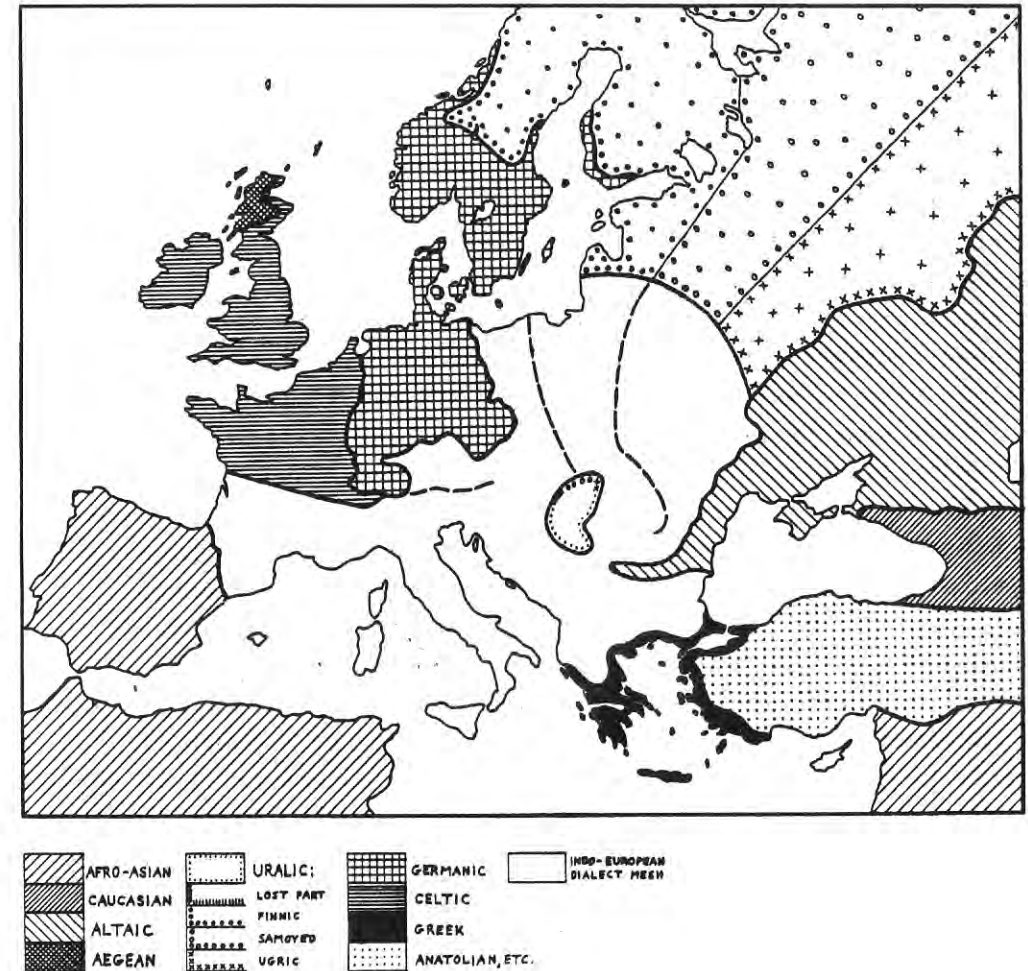


Fig. 18. Language map in the year one. The Germanic expansion onto the continent has created a strong boundary against other Indo-European dialects, thus allowing them free linguistic drift. The Germanic move also cut-off western Celts from their dialect chain and initiated their free drift. Greek expansion followed a similar pattern, cutting off the Anatolians and themselves to drift. All other areas remain constant.

boundary from what may have been only a dialect transition into that of a fully bounded language. From this time on, its own dialect mesh drifts independently of the rest of the Indo-Europeans. This may have been the first break in the dialect mesh of the original Indo-European spread.

When the Germanic expansion reached the Alps it cut off the western Celts from all contact with the rest of the Indo-European mesh. This continuity had previously been maintained by a chain of dialects around the eastern Alps. The language line across southern France could no longer be circumvented, and Celtic also becomes free to drift on its own course.

For some three centuries Greek had been the socially dominant language of the eastern Mediterranean and was being adopted by various peoples around the Aegean and up the Balkan Peninsula. This amounts to a folding back of one language over several dialects, though by adoption rather than by human replacement. It is clear that Greek had acquired linguistic independence from the rest of Indo-European by this time. Of course the Greek of Linear B was distinct from written Hittite a thousand years before, but the possibility of a chain of connecting dialects of nonliterate peoples between them at this time cannot easily be dismissed. Greek expansion also served to separate the original Indo-European mesh into its Asian and European halves and set them free to drift independently of one another. While little attention is called to this Greek phenomenon, it is actually a small version of the next major event that centers on Rome. Greek certainly had a much wider distribution in the cities of the eastern Mediterranean than is shown here, but it is primarily the rural speech that is estimated in this map.

The category "Anatolian" continues to be used for all the Indo-European languages of Asia without distinguishing the Iranian area.

Other language breaks might have been created in the Balkans by the repeated incursions of Kurgan horsemen out of the Ukraine. These are known from archeological records going back to well

over 4000 B.C., and are here assumed to have been made by Altaic speakers. Domestication of the horse enhanced the military capacity of these people, but it would not have increased their population, nor in any other way enable them to make ethnic conversions. I am now inclined to think that the Indo-European dialect mesh survived their activities in good order.



CHAPTER SIX -- PATTERN OF LATINIZING

A highly civilized society has the potential of spreading its language over the less civilized people under its influence. The most significant and lasting example of this process in European history was the spread of Latin during and after the dominance of the Roman Empire. This was well underway before 100 B.C., and was only slowing down by 500 A.D.

High civilizations had begun as early as 3000 B.C. in and around southwestern Asia. Small areas of conquest were soon built out from some of these. Great empires that actually incorporated many diverse nationalities did not appear until much later. The first major example in this sense was the Achaemenid Empire of Persia, dating from 550 B.C. One might suspect that the pertinent administrative procedures were only being slowly developed up to this time. The potentiality of great empire building spread westward, and there soon appeared the likelihood of a sea-based power of this sort in the Mediterranean.

Early Greek colonies had spread widely through much of the Mediterranean and Black Seas, but they showed little tendency toward political unity. By 330 B.C. much of the eastern Mediterranean was included in the Macedonian Empire that was in this area based largely on sea connections. The Macedonian and later Greek empires extended their rule over peoples who were

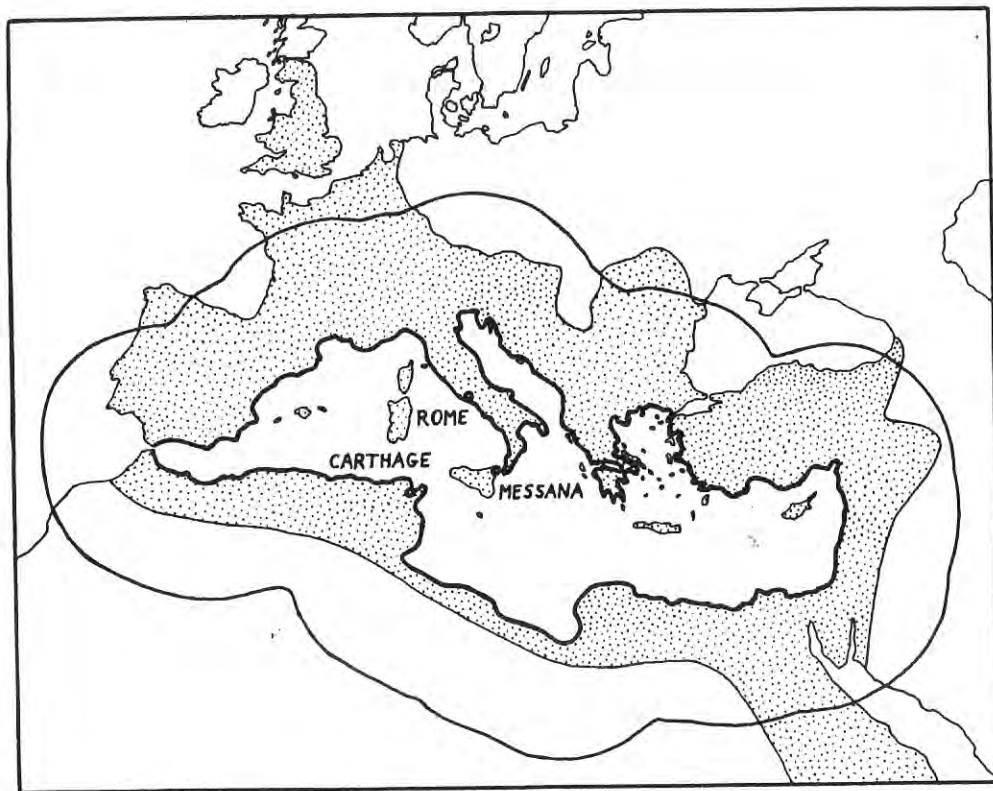


Fig. 19. Mediterranean Empire. A heavy line is drawn around the entire Mediterranean coast, and a medium line is drawn 600 km beyond it. This may be compared with the actual outline of the Roman Empire--stippled and bounded by the fine line. The Empire falls short of the 600-km line in deserts, deep soils, and some areas of cold winters. The Empire extends well beyond the 600-km line only in Britain and Egypt where there is ethnic continuity and easy access. Rome, Carthage, and Messana are potential centers, any one of which would have built essentially the same empire.

mostly of an equal or higher level of civilization than Greece itself. Accordingly, while Greek became the major language of high-level government, commerce, and culture, it had much less effect on the speech of the majority of real people in the area.

It was only a matter of time before this political trend would spread to the west and an all-encompassing Mediterranean empire would appear. Greek, Phoenician, Etruscan, and other sources were soon competing to become the focus of this obvious development. One of these "other" sources was Rome.

The Empire

The geographical extent of the Roman Empire can be described, perhaps even predicted, by a single rule with a handful of logical qualifications. The location of Rome is almost central to the Mediterranean Sea (the Greek city of Messana in northeastern Sicily would be even closer to the center). Roman influence, especially in the form of their control of communication and commerce, was based on sea travel throughout the Mediterranean. Its military power was based on its armies that moved mainly on roads that circumscribed this sea, but they maintained contact with the political center by water-borne communication.



To delineate the Empire a line should first be drawn around the entire margin of the Mediterranean Sea. A second line can then be drawn at a constant 600 km away from this shoreline. This second line is close to the actual border, with just a few exceptions (Fig. 19). Roman power was limited, and their economic interest was low, in the deserts of northern Africa and Arabia. The Empire also did not extend to the 600 km line in the colder climates well beyond the Alps, nor in the higher mountains of eastern Anatolia. The deep soils of the Hungarian Plain were still unusable to farmers, and this grassland area remained in

the hands of its native horse and cattle breeders.

In areas of ethnic continuity and relative ease of access the Empire stretched beyond the 600-km line. Egypt came under their domination as a single unit. Northern Gaul, Belgium, and Britain were inhabited by much the same Celtic peoples as were in central Gaul. There were no great barriers in this area, and Rome just happened to be located more than 500 km in this direction from the most central location that would have been in Sicily. (A comparable extension into the western German area met with less success because of an even more war-like people with a great hinterland of kinsmen behind them.) The northwestern corner of Iberia was included to round-out the area by just a 200-km extension of the frontier to the Atlantic. A small strip at the eastern end of the Black Sea consisted of fertile lowlands of easy access through this watercourse. Other places around the coast of the Black Sea were at least associated with the Empire.

Language Effects

The subject peoples within this Empire may be divided, for present purposes, into two categories (Fig. 20). Most of the eastern part had a level of civilization equal to or above that of Rome itself. In these areas Roman conquest was mainly a matter of decapitating the state, but leaving its commercial, legal, and other institutions largely intact and managed by local personnel. The Latin language made little headway there beyond the higher social levels.

Some parts of the east, and most of the west, were of a lower level of socioeconomic integration. Here the Roman authorities introduced a unified system of economic, legal, commercial, military, and governmental institutions. These peoples were also connected by a network of transportation and communication facilities. This entire civilized superstructure



was created and managed by Romans down to the local level. This was quite unlike the practice in most of the east where such institutions already existed.

The Latin language was the medium of communication in all of these new organizations throughout half of the territory of the Empire. It became in the best interest of all individuals there to learn to speak Latin for economic gain and social security. This linguistic transformation was certainly not completed by the

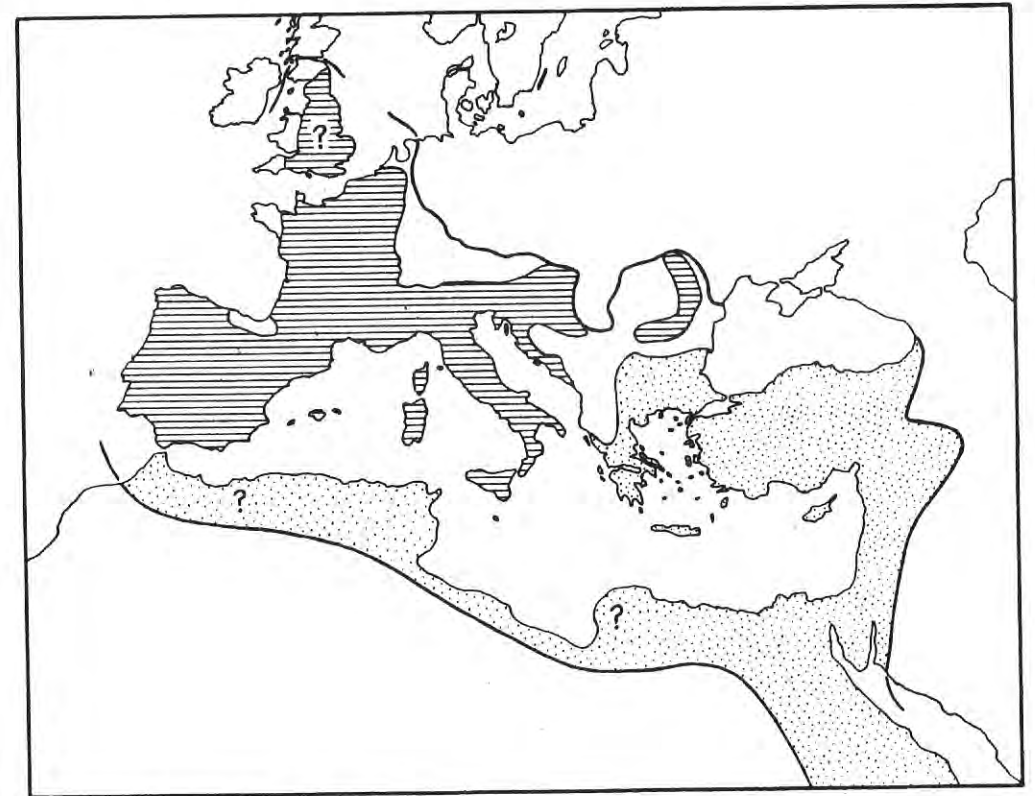


Fig. 20. Levels of Latin influence. Stippled areas show where civilized infrastructures existed, local Roman control was minimal, and native languages continued. Horizontal lines mark the areas where Romans developed the full infrastructure, for which Latin was the official and lasting language. Blank areas within the Empire remained un-Latinized for various reasons.

fall of Rome, but it had progressed so far that the remaining native speakers eventually conformed to the most influential language. Some parts of the western Empire resisted Latinizing. It is well known, for example, that the north-central coast of Spain remained Basque speaking.

The Breton peninsula of France remained Celtic speaking, and most closely related to Cornish which was its nearest British neighbor. Celtic is divided into two groups, P-Celtic of Ireland and Scotland, and Q-Celtic of the rest of Britain and Gaul (Lockwood 1969, Baldi 1983). That Breton is closer to Cornish than Cornish is to Goidelic (Ireland) is to be expected; that was the situation in Caesar's time as well. The claim of a more recent intrusion of Breton from Great Britain is too improbable to consider seriously--the historical move between the 5th and 9th Centuries could have been little more than a refugee group of British nobility. Even Lockwood (1972) doubted that a Saxon invasion in the south-east of Britain would have caused an emigration from the south-west corner. He suggested the possibility of at least a small Celtic survival in Brittany throughout Roman times that might have attracted refugees from an Irish intrusion into Britain.

In Britain itself, Wales and Cornwall remained Celtic in spite of some degree of Roman control. Like Brittany, these hilly and infertile areas are not amenable to maintaining Roman villas, and thus were under less social pressure to conform to the "universal" tongue.

Whether the area of England itself was Latinized is largely irrelevant because the later Anglo-Saxon conquest overran whatever speech was most common there at the time. The Rhineland Germans, although part of the Empire, were not well assimilated. Unlike the Gauls, these Germans had a large hinterland of unoccupied peoples of their language group. Beyond the Alps the provinces of Rhaetia and Noricum (roughly Bavaria and Austria) seem to have preserved their language for some time. This was known as Rhaetic, a part of the Indo-European continuum that was geographically and linguistically intermediate between Celtic and

Illyrian. These two provinces, plus Pannonia (western Hungary), may have become strongly Latinized in later years, but this was all overridden by other peoples soon thereafter.

Within the Balkans, excepting Greece, there apparently was a three-part division. Thracian in Bulgaria may have held out as a "civilized" area, but it soon disappeared from a later cause. Illyrian-turned-Albanian (an approximate relationship) held out for lack of significant penetration of their mountain core by Romans or anybody else. Much of the remainder was Latinized, and even settled, by Romans.

The Adriatic coast (Dalmatia) was thoroughly Romanized. The area of present Croatia was more accessible and clearly more settled by Romans than was Serbia, hence the foundation of their present division. Slovenia is likely explained by its being part of the Venetic speaking area. This old Venetic area is probably also represented today by the Friulian language immediately to the west within Italy.

Daçia (modern Romania) was somewhat Latinized, and its southern and eastern Transcarpathian foothills were also settled by Romans. This latter area survived the Slavic expansion, and eventually recovered its original territory and more.

The fringe of northern of Africa, outside Egypt, and much of interior Anatolia were no doubt largely Latinized, but these were overrun later by Arabic and Turkish expansions. The Latinization of North African cities is well known, but the language of the rural population at that time is mostly unknown.

The linguistic result of the phenomenon of Rome was the spread of a single language over vast areas of that Empire. Unlike most of the events described here, this was not based on a movement of people, but of cultural prestige that led to voluntary language change. This survives today in the form of modified descendant languages in most of Spain, Portugal, France, Italy, Romania, and half of Belgium.

This vast out-flow of one language from a single city may seem to be one of those unique phenomena of the "historical" type. Actually it was a very predictable phenomenon of the time.

During the last few centuries B.C. there were several rising city powers in the west-central Mediterranean, and one of them was bound to succeed in forming the inevitable circum-Mediterranean Empire. That it was Rome, and not Carthage, Greek Messana, or an Etruscan city is largely irrelevant. The result would have been roughly the same with any of them, except that a different language would have played the role that Latin did. All told, there is relatively little in this section on Latinizing that is controversial other than its proposed regularity and/or predictability.

Language Map

The linguistic picture of Europe after Latinizing cannot be fully separated from the next phenomenon of the Slavic expansion. An arbitrary division can be made at about 300 A.D. by presupposing the Latinizing that was actually completed only much later in some places. This date also just precedes any visible movements of the Slavs and Magyars who were already beginning to expand out of their core areas. (See Fig. 21.)

Western Europe at this time has lost the original Indo-European dialect mesh, and most of the Afro-Asian as well. The greater part is now overlain by Latin and is already beginning to form its own dialect mesh. It is also subdividing according to the distributions of the underlying languages. Germanic covers another large area to the north, from Germany through much of Scandinavia. Germanic and Italic now share a long common boundary, from the Alps to the North Sea, along which other languages are in the process of being digested by these two. Celtic survives in Brittany and the British Isles, with perhaps some Latin in England itself.

In eastern Europe the original Indo-European dialect mesh

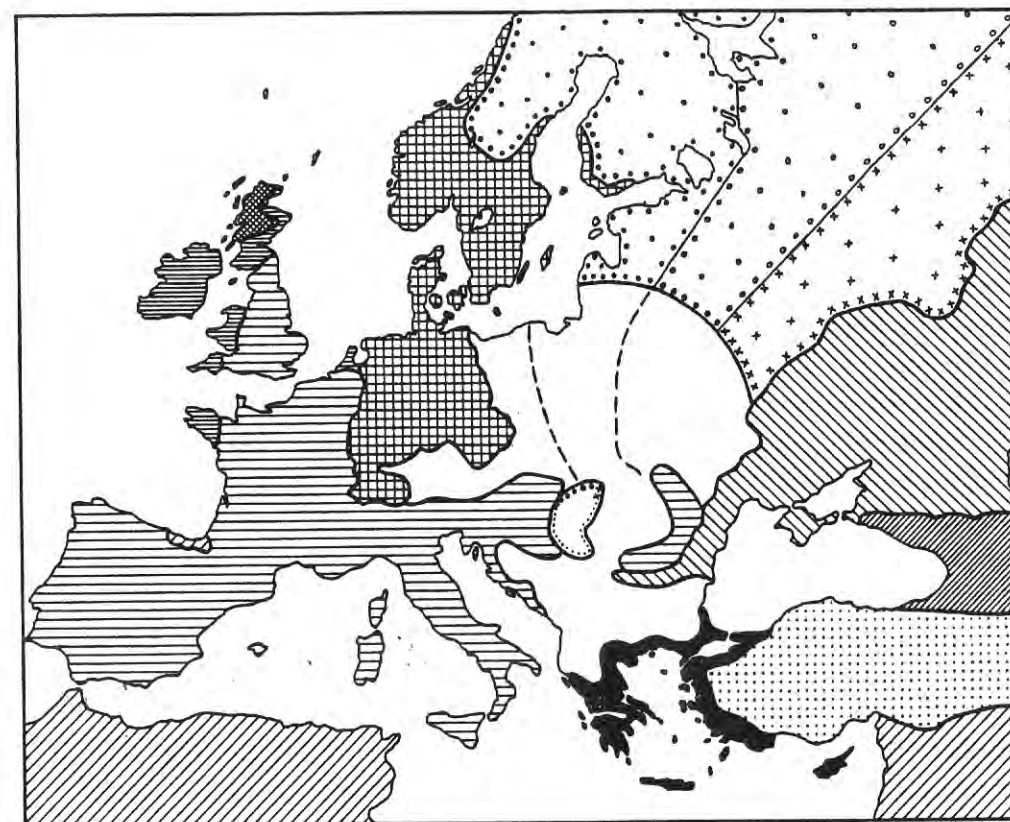
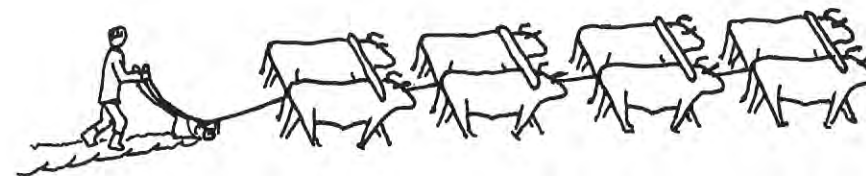


Fig. 21. Language map in 300 A.D. Italic languages, almost all derived from Latin, have spread over much of Europe, especially in the west. They replace large areas of Celtic, Afro-Asian, and much of the Indo-European dialect mesh in the south-central part. Other changes are minimal.

still covers a large area, but it has also lost ground here. Greek no doubt progressed farther up the Balkan Peninsula and formed a distinct language line against Illyrian on the west and Thracian on the east. This fold-back phenomenon had long since engulfed those dialects that formerly were intermediates between Greek and its northern neighbors. Latin was injected into the northern Balkans--as the leading language in Dalmatia-Croatia, and as a lasting phenomenon only along a curving strip around the eastern Carpathians in Romania. Magyar continued as an island of alien speech in the Hungarian Plain. The name "Anatolian" is still used here for all of the Indo-European languages in Asia.

The rest of eastern Europe constituted the remains of the original Indo-European language spread, as yet unaffected by linguistic events elsewhere. Very strong contrasts would have distinguished the speech of different parts of this mesh because of distances and time for dialect development. An eastern version of what still might be called Celtic existed in the Oder River basin and nearby. (Some Germanic may also have penetrated this area.) This was locally separated from Baltic by the ancient dividing line that dates from the initial occupation by farmers. Baltic itself would have coastal and interior halves divided by a similar, but no doubt weaker line. Proto-Slavic is not geographically set apart except for the modest barrier of the Pripet Marshes against interior Baltic. Slavic would grade imperceptibly into the other parts of the remaining Indo-European dialect mesh in all directions from its central location. This continuity would be broken by the next cultural event that goes so far as to replace almost this entire remaining mesh, and more territory as well, with an expansion from that small Slavic area within its center.



CHAPTER SEVEN -- SLAVIC EXPANSION

Background

At about the same time that Roman power was beginning to wane, a new ethnic movement was getting underway in eastern Europe. This was the expansion of Slavic-speaking peoples that has been back-tracked in time and space, by most authorities, to about 200 A.D. somewhere in the middle Carpathian region. Unlike the influence of Rome, this event was not based on higher level of civilization, nor on any particular military capacity.

Sheer numbers are all that can be found to explain this movement that constituted an irresistible flood for many centuries.

Estimates of population density for most of eastern Europe at 200 A.D. center on around two per sq km, a figure far lower than in all regions to the south and west. This is largely a consequence of the smaller fraction of the land that is suitable for plowing. This density must be multiplied by about four times in order to create the kind of population pressure that would have enabled the Slavs to overrun most of their neighbors, many

