

PHILOLOGY

History Through Language

"A Classic of Science"

Words Common to Many Languages Give Clues to Customs Of Our Savage Ancestors, Which Archaeologists Check

THE ORIGIN OF THE ARYANS, An account of the Prehistoric Ethnology and Civilisation of Europe. By Isaac Taylor. New York, Scribner & Welford, 1890. This is an exact reprint of extracts from the original publication.

WHEN towards the close of the last century Sanskrit and Zend became known to European scholars, the new science of Comparative Philology came into existence. The first stone of the edifice was laid in 1786, when Sir William Jones made the memorable declaration that the similarities between Sanskrit, Greek, Latin, German, and Celtic could only be explained on the hypothesis that these languages had a common parentage. Hegel hardly exaggerated the consequences of this discovery when he called it the discovery of a new world.

Fifty years elapsed before Bopp succeeded in establishing, as a settled conclusion of science, what had hitherto been little more than a probable hypothesis. His *Comparative Grammar*, published in 1833-35, has been superseded in its details by other works, and it has now only an historical interest. But to Bopp belongs the honour of having discovered the method of the comparison of grammatical forms, which at once placed Comparative Philology on a scientific footing. In this and subsequent works Bopp showed that Zend and Slavonic, as well as Albanian and Armenian, must be included in what he called the Indo-Germanic family of speech.

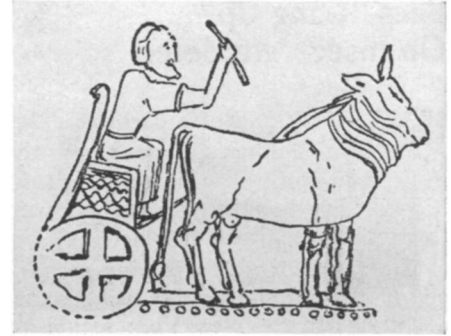
The great linguistic family, whose existence was thus established, embraces seven European groups of languages—the Hellenic, Italic, Celtic, Teutonic, Slavonic, Lithuanic or Lettic, and Albanian; in fact, all the existing languages of Europe except Basque, Finnic, Magyar, and Turkish. There are also three closely related Asiatic groups: the Indic, containing fourteen modern Indian languages derived from Sanskrit;

secondly, the Iranic group, comprising Zend, Persian, Pushtu or Afghan, Baluchi, Kurdish, and Ossetic; and, thirdly, the Armenian, which is intermediate between Greek and Iranian.

No name, altogether unobjectionable, has been devised for this family of speech. Japhetic, modeled after the pattern of Semitic and Hamitic, involves the assumption of a descent from Japhet. Caucasian is both too narrow and too broad, and, if used at all, is applicable to race rather than to language. Sanskritic gives undue prominence to one member of the group. Indo-Germanic and Indo-European are not only clumsy, but inaccurate. The first, adopted by Bopp, is a favourite term in Germany; but French and Italian scholars see no reason why German should be taken as the type of European speech. Indo-European, which they prefer, is too narrow, since it excludes Iranian and Armenian, and too broad, since the languages in question are spoken only in a part of India and a part of Europe.

Aryan, a term invented by Professor Max Müller, is almost as objectionable as Sanskritic, since it properly designates only the Indo-Iranian languages, in which sense it is used by many continental scholars. Moreover, it tacitly implies or suggests that the ancient Ariana, the district round Herat, was the cradle of the Aryan languages, and thus begs the whole question of their European or Asiatic origin. However, since the term has the great merit of being short and compact, and since it is almost universally adopted by English writers, and is increasingly used in France and Germany, it will, in spite of its manifold demerits, be employed in the ensuing pages. . . .

It cannot be insisted upon too strongly that identity of speech does not imply identity of race any more than diversity of speech implies diversity of race. The language of Cornwall is the same as the language of Essex, but the blood is Celtic in the one case and



PRIMITIVE OX-CART

Pictured on a Thracian coin. This type of vehicle, whose wheel had no hub, was one of the earliest inventions of the "Aryan" races.

Teutonic in the other. The language of Cornwall is different from that of Brittany, but the blood is largely the same. Two related languages, such as French and Italian, point to an earlier language, from which both have descended; but it by no means follows that French and Italians, who speak those languages, have descended from common ancestors. The most inexperienced eye can distinguish between a Spaniard and a Swede, and yet both speak Aryan tongues, and even in Northern and Southern Germany there is a manifest difference of race, though the language is the same.

The Neolithic Culture

It is plain that the civilisation which we find in Europe at the beginning of the historic period was gradually evolved during a vast period of time, and was not introduced, cataclysmically, by the immigration of a new race. Just as in geological speculation great diluvial catastrophes have been eliminated and replaced by the action of existing forces operating during enormous periods of time, so the prehistoric archaeologists are increasingly disposed to substitute slow progress in culture for the older theories which cut every knot by theories of conquest and invasion.

The most recent results of philological research, limited and corrected as they have now been by archaeological discovery, may be briefly summarised. It is believed that the speakers of the

primitive Aryan tongue were nomad herdsmen, who had domesticated the dog, who wandered over the plains of Europe in waggons drawn by oxen, who fashioned canoes out of the trunks of trees, but were ignorant of any metal, with the possible exception of native copper. In the summer they lived in huts, built of branches of trees, and thatched with reeds; in winter they dwelt in circular pits dug in the earth, and roofed over with poles, covered with sods of turf, or plastered with the dung of cattle. They were clad in skins sewn together with bone needles; they were acquainted with fire, which they kindled by means of fire-sticks or pyrites; and they were able to count up to a hundred. If they practised agriculture, which is doubtful, it must have been of a very primitive kind; but they probably collected and pounded in stone mortars the seeds of some wild cereal, either spelt or barley. The only social institution was marriage; but they were polygamists, and practised human sacrifice. Whether they ate the bodies of enemies slain in war is doubtful. There were no enclosures, and property consisted in cattle and not in land. They believed in a future life; their religion was shamanistic; they had no idols, and probably no gods properly so-called, but revered in some vague way the powers of nature.

This general picture of primitive Aryan culture has now to be substantiated in detail, and the gradual progress in civilisation and the arts of life has to be traced from the scanty materials which we possess.

Metals

That the Aryans before the linguistic separation, were still in the stone age may be inferred from the fact that no Aryan etymology has been found for the word "metal," which is regarded by Oppert and Renan as a Semitic loan-word obtained from the Phoenicians. There is no common word in Aryan speech to denote the art of the smith,

and many of the words relating to his trade refer primarily to stone. Each of the Aryan families of speech has an independent name for the smith, a sufficient proof that the arts of smelting and forging metal were later than the linguistic separation. More especially the old theory that the Celts were the vanguard of the Aryan race, who brought with them into Europe the knowledge of metals, falls to the ground, in face of the fact that the Celts have for the smith their own peculiar designation, *goba*, which bears no resemblance to the corresponding words in other Aryan languages, such, for instance, as the Latin *faber*, the Greek *chalkous*, the Teutonic *smid*, or the Slavonic *vutri*. . .

Cattle

The wealth of these primitive people consisted almost wholly of their herds. This is indicated by the fact that the collective name for cattle, which appears in Latin, Sanskrit, Zend, Lithuanian, and German, denoting originally that which has been tied up, has been the source of numerous words denoting property and money, such as *peculium* and *pecunia* in Latin, and our *fee*, which is the Anglo-Saxon *feoh*, meaning both property and cattle, and identical with the German *vieh*, a cow. The ox, which is figured on early Roman coins, may be a survival from the time when the ox was the standard value and the medium of exchange, and the coin may probably have at first represented the value

of the animal. This is supported by the fact that in the Homeric age the measure of value was the ox. The arms of Diomed are worth nine oxen, those of Glaucus are worth an hundred. The tripod, which was the first prize for the wrestlers, was worth twelve oxen. One female slave is valued at twenty oxen, another at four. . . .

Dress

The clothing of the Aryans of the neolithic and even of the bronze age consisted chiefly of the skins of beasts, the flesh, and perhaps the hair, having been removed by stone scrapers, which are extremely numerous, even as late as the bronze age. These skins were sewn together by means of bone needles, which are found in great abundance. Caesar says of the Britons *pellibus sunt vestiti*, and Tacitus tells us that the same was the case with some of the Germans. In the Swiss and Italian pile dwellings fragments of leather, tanned by some rude but effective process, have been found.

Flax, whose very name implies that it was used for weaving (Latin *plecto*, German *flechten*), was spun and woven by the women of the neolithic household, as is evidenced by the spindle whorls and loom weights so abundantly found in the Swiss dwellings of the stone age. In several settlements linen fabrics have been discovered. The threads of the warp, consisting of two fibres of flax twisted together, must have been hung with weights from a

MEDICINE

Sick Scientist Calls "Mild" Wrong Word for Typhus

TYPHUS FEVER in the United States is officially termed mild endemic American typhus. Dr. R. E. Dyer, U. S. Public Health Service scientist who was stricken with the disease while investigating it, now thinks the word mild hardly strong enough to describe it.

"Where do they get that mild stuff?" Dr. Dyer ironically asked fellow scientists who have visited him at the U. S. Naval Hospital where he is slowly recovering from the disease.

Dr. Dyer has been ill since October 1, and is not yet able to sit up, though he is already directing the work of his

assistants in the laboratory. Visitors find that he shows plainly the effect of the acute illness he has suffered. He is haggard and has the appearance of a man who has been very sick. His normally strong, masculine voice is now weak and quavering. Yet he has retained his optimistic outlook on life and is keenly interested in the typhus fever research.

Dr. Dyer directed the work which resulted in discovering the flea as the carrier of American typhus fever, and he and his associates have been trying to develop a vaccine to give immunity to the disease.

Science News Letter, October 29, 1932

Shower of Stars

Which fell on the night of Nov. 12-13, 1833, is described by eye-witnesses in

THE NEXT CLASSIC OF SCIENCE

horizontal bar, the similar threads of the woof being interlaced by means of needles of bone or wood. That the flax was cultivated is shown by the stores of linseed which have been found. In some of the earlier settlements in Southern Germany, where flax was unknown, ropes and mats were made of bast, prepared from the bark of the clematis or the lime. There is no evidence that hemp was known in the age of stone or even of bronze.

Curiously enough, though flax was so commonly used for weaving in the stone age, there is no evidence in the pile dwellings of Switzerland or Italy of the weaving of wool, even in the bronze age, when sheep had become numerous. Evidently the sheep skins were worn with the wool on, as is still the case with the peasants of Central and Southern Italy. Woollen fabrics have, however, been found in Jutland, and in Yorkshire, associated with interments of the bronze age. . . .

The Boat

Some sort of boat, or rather canoe, must have been constructed in the primitive period, since the Latin *navis* can be traced in Sanskrit, Greek, Celtic, and Teutonic. But the word cannot at first have denoted more than the trunk of a tree hollowed out by the stone axe, with the aid of fire. This is indicated by the etymological relation of the Sanskrit *daru*, a boat, to the English *tree*, and the Celtic *daur*, an oak. Similarly the old Norse *askr* denotes a boat as well as an ash tree. Several "dug-outs," hollowed out of a single trunk, have been found in the neolithic lake settlements of Switzerland, Italy and Ireland. The Celtic *barca*, the old Norse *barki*, and the English *barge* and *barque* are indications that the Northern Aryans also constructed canoes of the bark of some tree, probably the birch.

The canoes were propelled by oars or poles, since the Latin *remus* can be traced in Sanskrit, Greek, Celtic, and Teutonic. Sails, however, were unknown in the primitive period, as is shown by the fact that the German *segel*, our *sail*, is a loan-word from the Latin *sagulum*. Thus the Teutonic invasions of England were only made possible by previous contact with Roman civilisation.

An examination of the nautical terms in Latin yields some curious results. According to George Curtius, they divide themselves into three classes. We have first the proto-Aryan words *navis* and

remus; secondly, *velum* and *malus*, which are words of Italic origin, not belonging to the general Aryan vocabulary; and thirdly, a large number of loan-words from the Greek, such as *gubernare*, *ancora*, *prora*, *aplustre*, *anquina*, *antenna*, *faselus*, *contus*, and *nausea*. Hence it would appear that the undivided Aryans had invented canoes and oars, that the mast and the sail were used on inland waters after the linguistic separation of the Italic and Hellenic races, while the fact that the Latin word for sea-sickness is a loan-word from the Greek may indicate that the Italic peoples did [not?] venture to navigate the sea before they came in contact with Greek civilisation. It has already been noted that while the words relating to pastoral and agricultural pursuits are to a great extent identical in Greek and Latin, those referring to fishing, such as the names of the net, the line, and the hook, are entirely unrelated.

The Ox-Waggon

Indubitably the greatest invention of the primitive Aryans was the ox-waggon. The names of the wheel (Latin, *rota*), of the yoke (Latin, *jugum*), of the wain (Sanskrit, *vahana*), and of the axle (Sanskrit, *aksha*), are common to all Aryan languages. The old Irish *carr* and the Latin *carrus* may also be compared with the *karama* which Hesychius tells us was the name of the covered waggon, or tent upon wheels, in which the nomad Scythians moved from place to place in search of pasturage for their cattle.

On a Thracian coin of the beginning of the fifth century B. C., which is attributed to the Odomanti, who inhabited the pile dwellings in Lake Prasias, we have the earliest representation of the primitive Aryan ox-cart. The body is of wicker-work, poised over the axle, and is drawn by means of a pole by a yoke of oxen. . . .

The primitive ox-waggon must have been constructed without metal. The wheel and the axle were probably in one piece, made out of the section of the trunk of a tree, thinned down in the middle so as to form an axle, and leaving the two ends to serve as wheels. Such waggons are still used in Portugal. They are drawn by oxen, and have two wheels only. A log is cut from the trunk of a tree, and the centre is hacked away, leaving two solid wheels united by an axle.

Science News Letter, October 29, 1932



SWINGING ROOF GOES UP

ENGINEERING

Sheet Steel Roof Swings Over Building

A STRIP of a novel sheet metal roof is shown by the view above swinging into place over grain elevators at Albany. The long ribbons of steel hang 140 feet between sides of the building as a grape vine swing might loop from tree to tree in the forest. It is claimed that this novel, self-supporting roof, without columns, stanchions or purlins common to other types, is more economical than the usual kind. The strips of steel, which are slightly more than four feet wide, were welded together by the Lincoln Electric Co. More than 400 tons of metal were used.

Science News Letter, October 29, 1932

Latest scientific methods of removing coats of varnish and dirt from valuable old paintings reveal that modern concepts of some of the old masters' favorite colors have been considerably off-key.