

CURRENT PROBLEMS IN RESEARCH

Some Prehistoric Connections between Siberia and America

The intercontinental cultural resemblances can now be studied in terms of more accurate chronology.

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When western Europeans discovered the Americas they not only took on the task of exploring and colonizing the Western Hemisphere, but they also faced the question of the origin of the peoples who inhabited the New World. The name "Indians" was first applied under the misapprehension that the discovery had been made of the outer regions of India. Among the explanations for the peopling of the New World, one of the most common was a connection to the Lost Tribes of Israel.

One of the major difficulties in obtaining a satisfactory answer to the question of the New World population was the limitation of knowledge available during the 16th and 17th centuries about the age of the earth and about the age of human beings on the earth. With the exploration of the north Pacific area and the discovery of Bering Strait, a great many people concerned with the question of the origin of the Indians, recognizing the resemblance of the American Indian to the Mongoloid people, suggested that Bering Strait was the nearest or the easiest way by which people could have passed from Asia into North America. During the 18th and the early part of the 19th centuries, not only the Bering Strait crossing was suggested as a means

by which America was peopled after 2000 B.C., but there were also theories of movements across the Atlantic from the Mediterranean area and of movements of people across the Pacific to populate the southern parts of the New World. Some of these quaint ideas still persist.

During the past 100 years, with the extraordinary growth of knowledge in various scientific fields, it has been possible to provide much more satisfactory explanations of Indian origins. The study of the geological features of the earth, particularly in Europe during the early 1800's proved the great antiquity of the earth. The development of Pleistocene or Ice Age studies in Europe and America indicated very clearly that implements of human manufacture were associated with this last major stage in the shaping of the earth's surface features. The discoveries and study of fossil men in the Old World from *Pithecanthropus* in Java to Neanderthal in Europe, and the recognition of Cro-Magnon in Europe associated with the late phase of the Old World stone industries gave man an antiquity in Eurasia which was not dreamed of in the centuries preceding. The studies of European prehistory certified the existence of a long period of development of human culture and that by the time of the late Pleistocene in Europe man had reached a fairly advanced stage of hunting and gather-

ing economy with a distinctive and spectacular art style. Mural painting begins with the Upper Paleolithic.

Along with these developments in prehistory, the study of the culture of various non-European groups around the world, including groups in the Americas, indicated that there were a number of major groupings or stages of human culture. There were simple hunting and gathering peoples, more advanced food collectors, small-scale food producers, and finally, the more advanced non-European cultures in the New and Old World which had developed complex and well integrated civilizations. In the Americas particularly, it could be seen that the cultures of the primitive groups on the marginal areas of South America and of North America contrasted sharply with the agricultural civilization of Middle and South America, or even with the agricultural groups in the American Southeast and Southwest. Physical anthropologists have indicated that there is considerable variation among the various American Indian tribes and that the Indians did not belong to a single human physical type. There were also indications that the physical type of some of the marginal peoples of the New World corresponded to the physical type of the older American prehistoric skeletal material. Studies of American Indian languages have shown that there are a great many linguistic groups in the New World. The linguistic complexity was one of the main cultural features which indicated a considerable antiquity for man in the New World. For example, it has been said that there was more linguistic diversity within the present area of the state of California than there is in Western Europe. All of the relevant data gathered by scientists on the American Indians implied that the American Indian was indeed derived from Northeast Asia and that he had probably come at a period when he was in a hunting-gathering stage of cultural development. The prevailing opinion is that the major complex agricultural civilizations, which were the wonder of the European adventurers, were developed in the New World.

The discovery of fossil man in the

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Old World and of ancient Old Stone Age implements was an incentive for scholars and other people of curiosity in the Americas to search for similar materials. During the late 1800's and early 1900's there were claims of fossil men comparable to European forms and also claims of very ancient stone implement finds. There were even claims that the Indians had developed in the New World without connections to Eurasia. Critical studies of almost all of these purported fossil men and ancient implements proved that they were not of the same order of great antiquity as those of the Old World.

For some time archeologists in the New World did not think that man had been here for more than a few thousand years before Christ. In the last 30 years, however, archeological work has been able to produce sound evidence of a considerable antiquity for human cultures not only in the Americas (Fig. 1) but also in eastern and northeastern Asia (Fig. 2). Excavations in China have indicated that modern man was there in an Upper Paleolithic stage of development during the closing phases of the last glaciation. A similar situation is found in south central Siberia where man was present during the closing stages of the Upper Paleolithic and in association with extinct animal forms of the closing phases of the ice age. In North and Middle America a considerable number of finds have human implements in association with extinct American fauna and in association with geological formations attributed to the closing phases of the Wisconsin glaciation in North America.

The Siberian Advanced Paleolithic

Much of Siberia was not glaciated during the Pleistocene. Northwestern and extreme northern Siberia, as far as the Taimyr Peninsula, were glaciated as an eastward extension of the major European ice mass. The mountain areas of southern and eastern Siberia were glaciated but there were extensive areas of lowland and plateau where there was not sufficient moisture to allow for the accumulation of a continental glacier. In south central Siberia in the Upper Yenisei and Upper Lena river valleys and in the area around Lake Baikal, there are a number of sites where an Upper Paleolithic culture has been found which is best called Advanced Paleolithic, for the cultural complexes do not correspond precisely

to the sequence of culture types which have been recognized for Western Europe. These southern Siberian early cultures are directly connected with the late Paleolithic complexes to the west, and, from the evidence of faunal remains, it is known that people lived here during the closing stages of the last glaciation. The beasts that were hunted and whose bones are found in the dwelling sites are the mammoth, the woolly rhinoceros, the arctic fox, the reindeer, the cave lion, and the bison. The people lived in semisubterranean dwellings which afforded permanent shelter and a permanent camp for their hunting forays. Most of their flint tools were manufactured by striking long narrow blades of flint from carefully prepared cores. This technique is one of the diagnostic features of the late Paleolithic. Their projectile points were then narrowed toward the top with lateral retouching along one side. Their dependence upon hunting is reflected not only by the animal bones found in their dwelling sites, but also by the types of implements they made, which include a large number of flint scrapers for working hides. They also had piercers or perforators made from flint flakes, blades with very sharp points, and graving tools, for working bone and perhaps wood, which are known as burins. The smaller bones from one of their major food sources were also used to provide bone awls, long bone projectile points, bone handles for the flint scrapers and also bone needles. Effigy figures of birds and, particularly, of the pregnant human female figure were made from bone and other materials. The artifact styles and the general way of life of these early peoples identified particularly at the site of Malta (Fig. 3 and 4) near Irkutsk and Bureti in the Angara Valley are now equated with the cultural stage in Western Europe of Late Solutrean to Early Magdalenian. From the type of soil formation as well as the animals existing there, it is reasoned that the people lived in a tundra environment in south central Siberia. The period should be somewhere between 15,000 and 10,000 B.C.

Some of the Siberian sites have successive levels of human occupation. In deposits above the earliest known remains in south central Siberia, a second stage of the Advanced Paleolithic is recognized at Malta, at the Afontovo Site near Krasnoyarsk, and at a site near Irkutsk. Sites of this period are also found in the Upper Lena Valley between Lake Baikal and Yakutsk. This

second stage of the Advanced Paleolithic is connected with loess deposits, the wind-blown soil which accumulated during the warming phase or climatic amelioration which followed the final glacial retreat. These sites are also associated with indications of the initial return of forest conditions, for the charcoal in hearths is from willow and larch. The rhinoceros disappears, but the mammoth and the other cold-weather fauna are still present. From the artifacts which are found in these sites, it is thought that there is a cultural deterioration, for cruder implement types are more frequently found. There is a pronounced drop in the frequency of the long knifelike blades made from prepared cores, and there are very few pendants, or beads, or sculptures. There are large stone tools, such as scrapers or choppers, which are made from river pebbles which are flaked only along one crescentic edge. These are probably indicative of influences coming in from the chopper-chopping tool industry of eastern and southeastern Asia. Some of the projectile points are ovoid in shape and resemble bifacially flaked tools of the much earlier Mousterian stage of Europe. Some of these specific implement types are indicative of a connection with the late Upper Paleolithic and early Mesolithic or Middle Stone Age finds of Western Europe. The time period is likely to be between 10,000 and 7000 B.C. The estimates of Siberian dates are my own, based on the reported climatic changes.

The third and last stage of the Advanced Paleolithic in south central Siberia is known from sites on the Upper Lena such as Shishkino (Fig. 5), as well as in the Yenisei Valley. These sites are located in a clay soil zone immediately below the humus horizon of the coniferous forest. The climate is clearly dryer and more continental in type, and the rivers are shallow. The animal remains do not include the mammoth or polar fox, for they have moved north. Most of the animal remains are of the reindeer, with a large number of bones from horse and wild cattle. The cultural deterioration noticed in the preceding stage continues, and it is believed that this is, at least in part, the result of the climatic change from tundra to boreal forest conditions. The most common implements are the crude pebble tools which in superficial appearance look as though they belong to a much earlier cultural stage than is actually the case. The climatic condi-

tions suggest that this stage of culture was in existence from approximately 7000 to 5000 B.C.

In Europe and in the Near East following the Upper Paleolithic cultural development, the Mesolithic industries have as a primary flint working tradition the development of a small flint industry with microblades, cores, and burins. This Mesolithic stage small tool industry spreads east across the steppe and desert country of southern Siberia and Mongolia to Manchuria and to Japan. It does not seem to have established a firm foothold in south central Siberia until shortly before the introduction of more advanced imple-

ment types, such as adzes of flint, and the introduction of pottery. There are a number of sites, however, of microlithic implements from the Baikal area which are a part of the closing phases of the Advanced Paleolithic peoples. The present indications are that this cultural stage was rather localized in Siberia and of short duration. It is, of course, possible that future explorations will produce a considerably larger number of sites, and it would be particularly important if these were found in the Lena Valley. Without anything very substantial to go on in the form of evidence, it has been said that the physical type of the Advanced Paleo-

lithic population in Siberia and eastern Asia is closely related to the Upper Paleolithic Europoid types to the west.

The Paleo-Indian in North America

On the American side of the Bering Strait the Wisconsin glaciation covered most of the northern United States and practically all of Canada. Glacial ice moved down the eastern slopes of the American and Canadian Rockies and a short distance out onto the plains. In western Canada this ice advance is in contact with the moraines and other glacial debris from the large central

	NORTHWEST CANADA	HUDSON BAY	SASKATCHEWAN	MANITOBA MINNESOTA	WISCONSIN	ILLINOIS	MICHIGAN	OHIO	NEW YORK	
500	BIRNIRK			ANDERSON LAUREL		LATE HOPEWELL		LATE HOPEWELL	POINT PENINSULA III	500
1 A.D.	FIRTH RIVER	DORSET II			HOPEWELL	EARLY	HOPEWELL	HOPEWELL ADENA	POINT PENINSULA II	1. A.D.
500 B.C.	LATE NEW MOUNTAIN	TI-SITE	SANDY CREEK		EARLY WOODLAND		EARLY WOODLAND			500 B.C.
1000	FISHERMAN'S LAKE	THYASZI (KNIFE RIVER)	PELICAN LAKE	LARTER		EARLY WOODLAND	ANDREWS COMPLEX	ADENA	ORIENT POINT PENINSULA I	1000
1500	N. T. DOCKS		THUNDER CREEK	OLD COPPER		RED OCHRE				
2000	EARLY NEW MOUNTAIN	IGLOOLIK		WHITE SHELL	OLD COPPER		GLACIAL KAME	GLACIAL KAME		1500
2500	FLINT CREEK		AGATE BASIN	MINNESOTA MAN			OLD COPPER	RAISCH SMITH	LAURENTIAN	2000
3000	GREAT BEAR					FERRY SITE				2500
3500										3000
4000	SANDY LAKE		CODY COMPLEX	BROWNS VALLEY						3500
5000	FRANKLIN TANKS				PLANO POINTS				FLUTED POINTS?	4000
7000			FLUTED POINTS		FLUTED POINTS	DALTON POINTS	EARLY ARCHAIC	EARLY ARCHAIC?		5000
9000						FLUTED POINTS	FLUTED POINTS	FLUTED POINTS	FLUTED POINTS	7000
11000										9000
										11000

Fig. 1. Chronology chart of prehistoric complexes in northern North America.

Canadian Laurentian ice sheet which moved west. It is not known for certain whether the maximum advance of the continental sheet and the mountain

ice occurred simultaneously, or whether there was an ice-free corridor from north to south along the east side of the Canadian Rockies all through the

Wisconsin glaciation. The Wisconsin ice advance is thought by some Pleistocene students to have begun about 50,000 B.C., followed by a warmer period cor-

	WESTERN EUROPE	KANSU	SHANSI-HONAN	JAPAN	BAIKAL	MIDDLE & UPPER LENA	LOWER LENA	KOLYMA CHUCKCHI	NORTHERN & CENTRAL ALASKA	
500 A.D.				LATE YAYOI (Iron Age)		Iron Age	Iron Age	BIRNIRK	BIRNIRK	500 A.D.
1 A.D.			HAN						OLD BERING SEA	1 A.D.
1500	Iron Age			EARLY YAYOI		KULLATY I (Bronze)	BRONZE	WELEN-OKVIK		1500
1000			CHOU		SHIVERA	YMYIAKHTAKH		CHIROVOYE?		1000
1500		SSU-WA	ANYANG (Bronze)	LATE JOMON		KULLATY II	KYLARSA			1500
2000		HSIN-TIEN MA-CHANG	PU-CHAO-CHAI		GLASKOVO	TURUKTA KULLATY III	KYRDAL UOLBA LAKE	POMASKINO		2000
2500	Bronze Age	PAN-SHAN	HOU-KANG I YANG SHAO	MIDDLE JOMON	SEROVO	BESTYAKH	CHOKUROVKA?		DENBIGH FLINT COMPLEX	2500
3000	LATE NEOLITHIC			EARLY JOMON	ISAKOVO				ANUKTUVAK PASS CAMPUS SITE	3000
3500		EARLY NEOLITHIC	EARLY NEOLITHIC							3500
4000	LATE MESOLITHIC				KHIN					4000
5000										5000
6000					VERKHOLEN-SKAIA GORA					6000
7000						MAKAROVO				7000
8000	EARLY MESOLITHIC				AFONTOVA II	CHASTINKA				8000
9000										9000
10000					MALTA-BURETI					10000
11000	LATE MAG-DALENIAN									11000

Fig. 2. Chronology chart of prehistoric complexes in eastern Asia and north-central Alaska.

responding to the Würm interstadial in Europe. This may have provided an ice-free corridor east of the Rockies some 30,000 years ago. The furthest south ice advance which produced the glacial stages in the Great Lakes area during the Wisconsin reached as far as central Illinois about 23,000 B.C. and may have closed the postulated gap in western Canada. It is highly probable that by at least 12,000 to 14,000 B.C. there was a corridor between the mountain and continental glacier in western Canada which would have allowed access from northern Alaska and northwestern Canada to the plains area to the south.

There are a number of finds which support the argument that man may have been in the New World, particularly in the western part of North America, some 30,000 to 20,000 years ago. The evidence for man at this time is, however, not completely convincing, and the majority of American archeologists are hesitant about accepting it. The reason for hesitation varies from find to find. If a clearly defined cultural complex is radiocarbon dated and is in agreement with the correct geological formations and faunal associations, then certainly the majority of American archeologists will be willing to accept such evidence. If early man did come in and occupy the North American continent 20,000 or 30,000 years ago, it would mean that he must have come in during the interstadial between the early and later Wisconsin glaciations or in pre-Wisconsin times, or both. This would imply that the physical type of man associated with such early finds could be very close to Neanderthal in appearance. It would further imply that the cultural type associated with man at this stage would be one resembling the Mousterian of Europe, or the chopper-chopping tool industry of eastern Asia. Neither man nor cultural material has been found in sites of the required age in southern and eastern Siberia.

We are certain that the earliest American Indians were in the United States area by between 10,000 to 12,000 B.C. This is based on radiocarbon dates of some 11,000 years ago from the Rocky Mountain areas in the west and the implied evidence that man was in the southeast and eastern part of the country at approximately this same time. Furthermore, the degree of cultural diversity between finds in the west and in the east are an indication that no small time must be allowed for

such a differentiation of culture types in the New World. While there are no skeletal remains clearly associated with the most ancient definite cultures in the New World, there are crania with an antiquity of around 8000 B.C. which are of the same general physical type as that thought to be associated with the Advanced Paleolithic cultures in Siberia.

Our best evidence of man in the period from 10,000 to 12,000 years ago is in the general High Plains area where the economy was that of a hunting-gathering people with heavy emphasis upon the use of game animals for food and for clothing. The general way of life in America was very much

the same as in the early Advanced Paleolithic culture of Siberia. Many of the beasts which were hunted are similar, for the mastodon and the mammoth, the bison, horse, camel, and other such herbivores are found associated with remains of early man. The early American hunters of the east and west had about the same inventory of flint artifacts, such as the scraper, the perforator, and the graver, but not the burin, and probably very similar bone implements. These Paleo-Indian hunters did not make their projectile points from carefully prepared blades which were struck off from carefully shaped flint cores, but instead produced their projectile points from large flakes struck

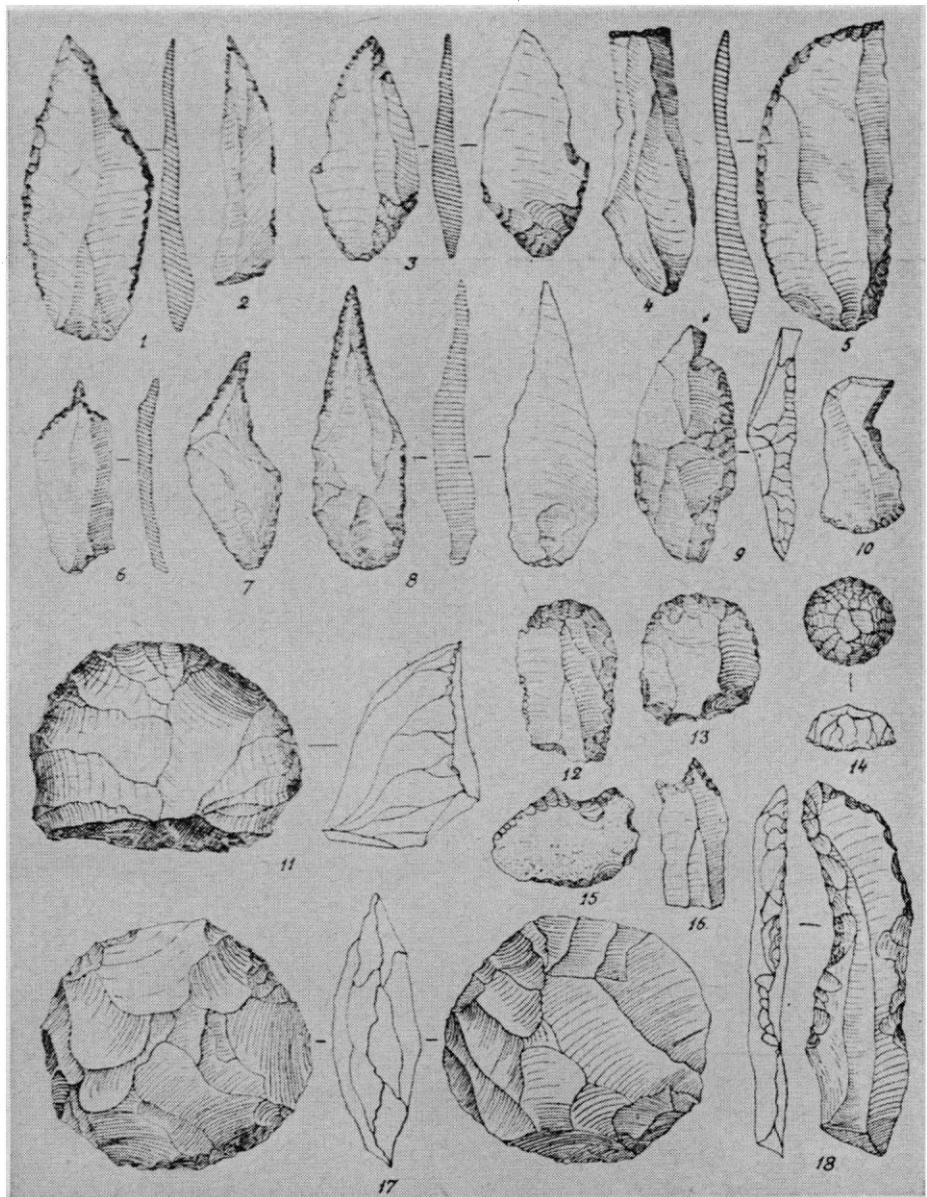


Fig. 3. Flint tools from the early level of the Malta Site, Siberia. 1-3, Points worked on one face only; 4, blade with transverse retouch; 5, blade with curved edge; 6-8, perforators; 9, 10, burins; 11-14, scrapers; 15, 16, concave scrapers; 17, disk-shaped implement; 18, notched blade. [From Bonch-Osmolovsky and Gromov (6)]

off from flint blocks. They also did not make human figurines. A significant new development is the production of bifacially flaked projectiles which have long flakes removed from both faces of the point by means of very careful and excellent chipping techniques from the bases of the projectile (Fig. 6). This carefully controlled technique of bifacial flaking is one which does not appear in the Siberian area until close to the Neolithic and is one of the reasons why

some of the prehistorians were loathe to accept a high antiquity for these finds in North America. It must be assumed, on the basis of present evidence, that the culture trait is primarily an American development, along with the distinctive fluting which removed flakes from both faces of the projectile.

Mary Haas has recently presented the view that the Muskhogean and Algonkian languages which almost blanketed the area east of the Mississippi are descendants of an ancient common

language of some 8000 or more years ago. This could mean that the Paleo-Indian hunters of the east spoke related dialects of a common language and that the marked linguistic diversity of modern times was initiated during the long Archaic period.

We have seen that at the close of the Pleistocene in southern Siberia an Advanced Paleolithic culture was established with a Europoid physical type, and with the amelioration of climatic conditions there was a tendency for the cultural type to deteriorate. It may be that as the climatic conditions were modified, people hunting the big game animals followed the animals northward into the tundra ecological zone and on to a much wider Siberian coastal plain which would have been in existence at that time, because of the lowering of the sea level. From there they could have moved eastward across the Bering Strait, where a land bridge would have been in existence some 10,000 to 15,000 years ago, and thence moved to the valley of the MacKenzie (1). The northern section of Alaska north of the Brooks Range and a significant area of the Alaskan coastal shelf were tundra vegetation at this time, and unglaciated. This is also true of the Seward Peninsula area and the Chukchi Peninsula. They would still have been in a tundra ecological zone in their spread up the MacKenzie until they came into the prairie grassland areas of the eastern slopes of the American Rockies. It is also possible for man to have moved from the Seward Peninsula area into the boreal forest of the Yukon, up the Yukon Valley to the east and southeast, and finally to have come into the MacKenzie Valley and northern plains in northern Alberta and northeastern British Columbia.

From about 10,000 to 8000 B.C. the Paleo-Indian fluted-blade hunters occupied most of the United States east of the Rocky Mountains and south of the retreating Wisconsin ice. These Paleo-Indians seem to be the earliest people east of the Mississippi. There are distinctive local complexes and a number of significant variants in the shapes of the fluted projectile in the east. 8000 B.C. may be said to be a convenient dividing line between the Paleo-Indian and the Early Archaic culture of the east, because after this date the fluted projectile style tends to disappear and most of the Wisconsin ice has moved north of the Great Lakes.

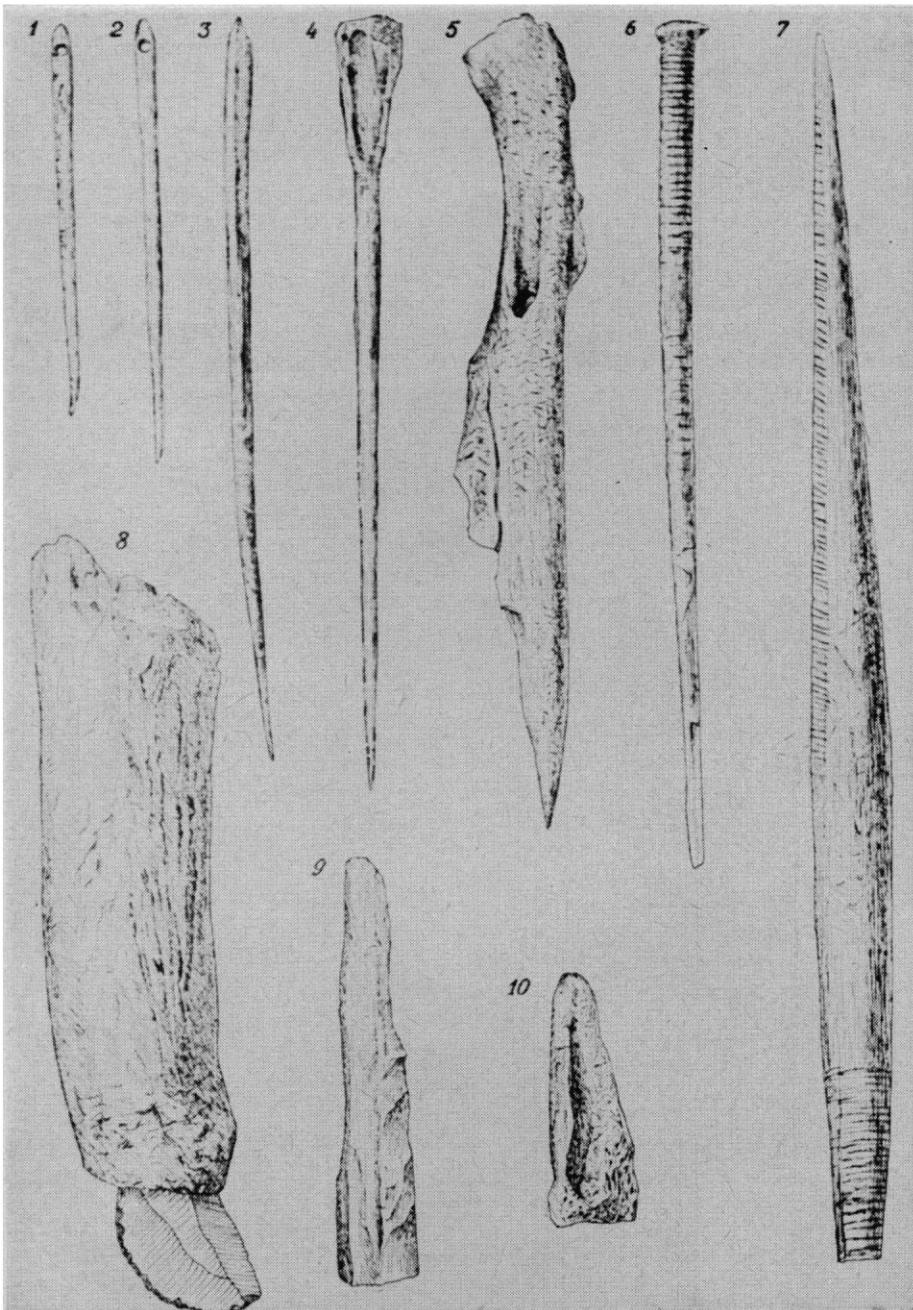


Fig. 4. Bone and antler objects from the early level of the Malta Site, Siberia. 1, 2, needles; 3-6, points or awls; 7, spearpoint with beveled proximal end; 8, reindeer antler haft and scraper; 9, 10, worked bone fragments. [From Bonch-Osmolovsky and Gromov (6)]

The American Archaic

The Early Archaic of 8000 to 4000 B.C. is a continuation of the hunting-gathering way of life. There are increasing indications of regional differences reflecting local ecological and climatic zones. A wider variety of projectile forms are known and heavy chipped stone choppers or diggers are found. During this period the seasonally migrating small bands of people were becoming familiar with the native mineral, animal, and plant resources. Many of the major flint quarries were discovered, and certain spots were selected as seasonal camping grounds, where deep refuse deposits bear witness to their intermittent occupation.

In the western plains the Plano cultures are known during the Early Archaic period. They had a pronounced emphasis upon hunting both the large extinct bison form, during the early Plano, and the modern bison at a later time. The prairie hunting adaptation spread north into Alberta and Saskatchewan with the return of the grassland to those areas. The long, slender,

beautifully chipped projectiles of the several Plano styles are known as far east and north as southern Manitoba, along the shores of glacial Lake Agassiz, on the north shore of Lake Superior on a high ancient beach ridge, and as far as northern Lake Huron.

Up to about 4000 B.C. the cultural developments in the east are primarily of American origin and are part of natural cultural changes. Between 4000 B.C. and about 1500 B.C., however, there are new artifact types which have both formal and functional resemblances to northern Eurasian forms. Prominent among these are the gouge and the adze in the Great Lakes to New England region and the grooved axe in the area from the Ohio Valley to northern Alabama. These heavy, wood-working tools are of ground stone and may have had their prototype in chipped flint and stone choppers known in Early Archaic sites. Other artifact similarities to northern Eurasia are various ground slate, knife, spear and projectile forms in sites from New York to New England, and almost identical forms made of native copper from the

Wisconsin-Michigan area. It is possible that some of these artifacts of slate and copper are copies of bone and flint implements.

The artifact similarities of the gouges, adzes, and slate forms are closest between the New York-New England area and northern Scandinavia and Karelia, where on sites indicative of some antiquity the gouge, adze, and slate forms are well represented. The present tendency is, however, to date these forms in extreme northern Europe at about the same time period that they are known in the northeastern United States. One of the adze forms from Karelia is very much like the beveled Lamoka adze in New York of 2500 to 3000 B.C., but it is not found east of the Ob River in western Siberia. These artifacts have often been referred to as a part of an eastern circumboreal spread, but they do not have sufficient continuity across Siberia, Alaska, or northwest Canada at a sufficiently early period to support either a suggested movement of people or diffusion from the Old World to the New. Of the two possible explanations of cultural move-

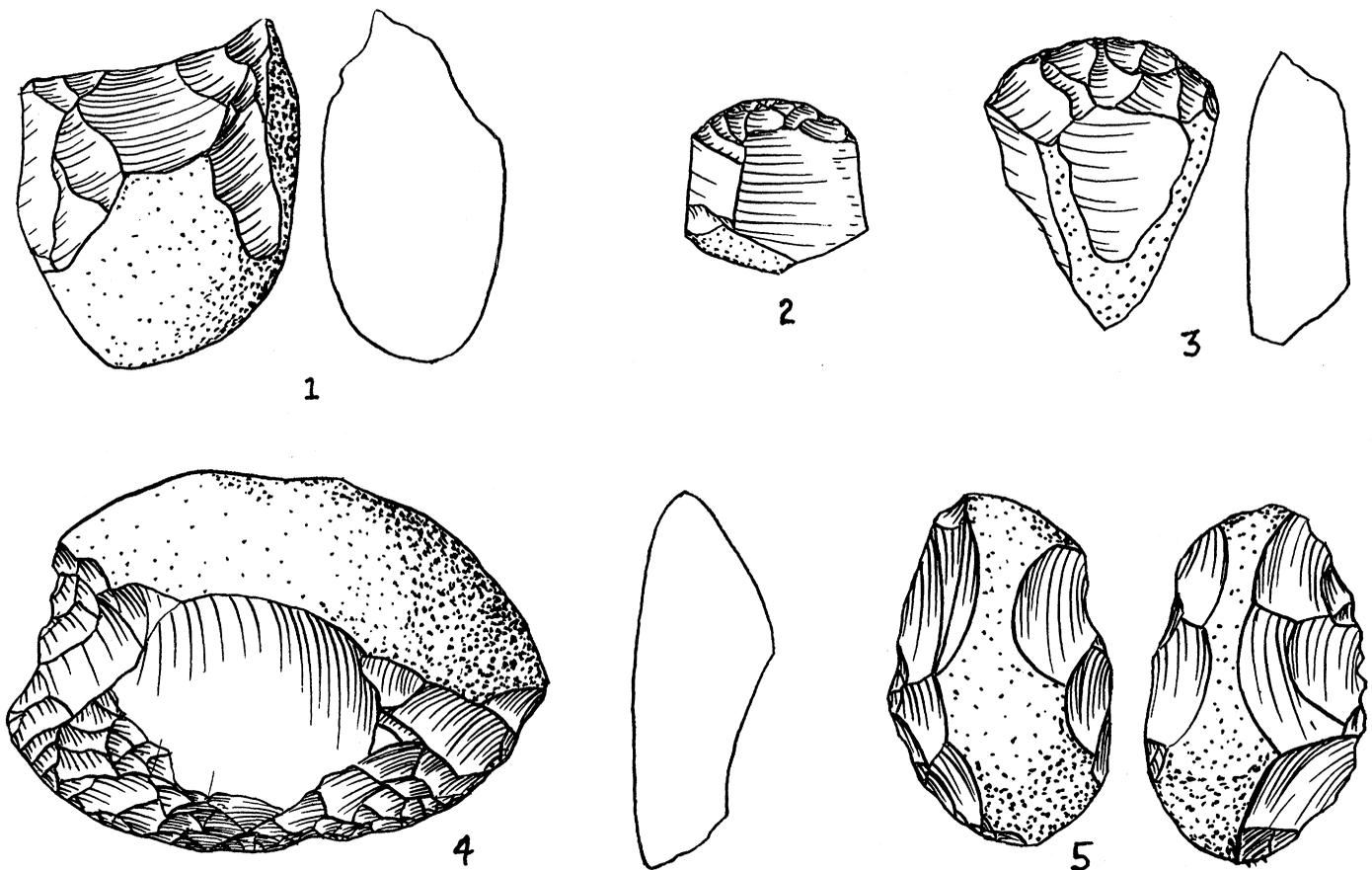


Fig. 5. Flint tools from Shishkino, a late Paleolithic site in the Upper Lena Valley. 1, 4, 5, Pebble core scrapers or choppers; 2, 3, end scrapers. [After Okladnikov (2)]

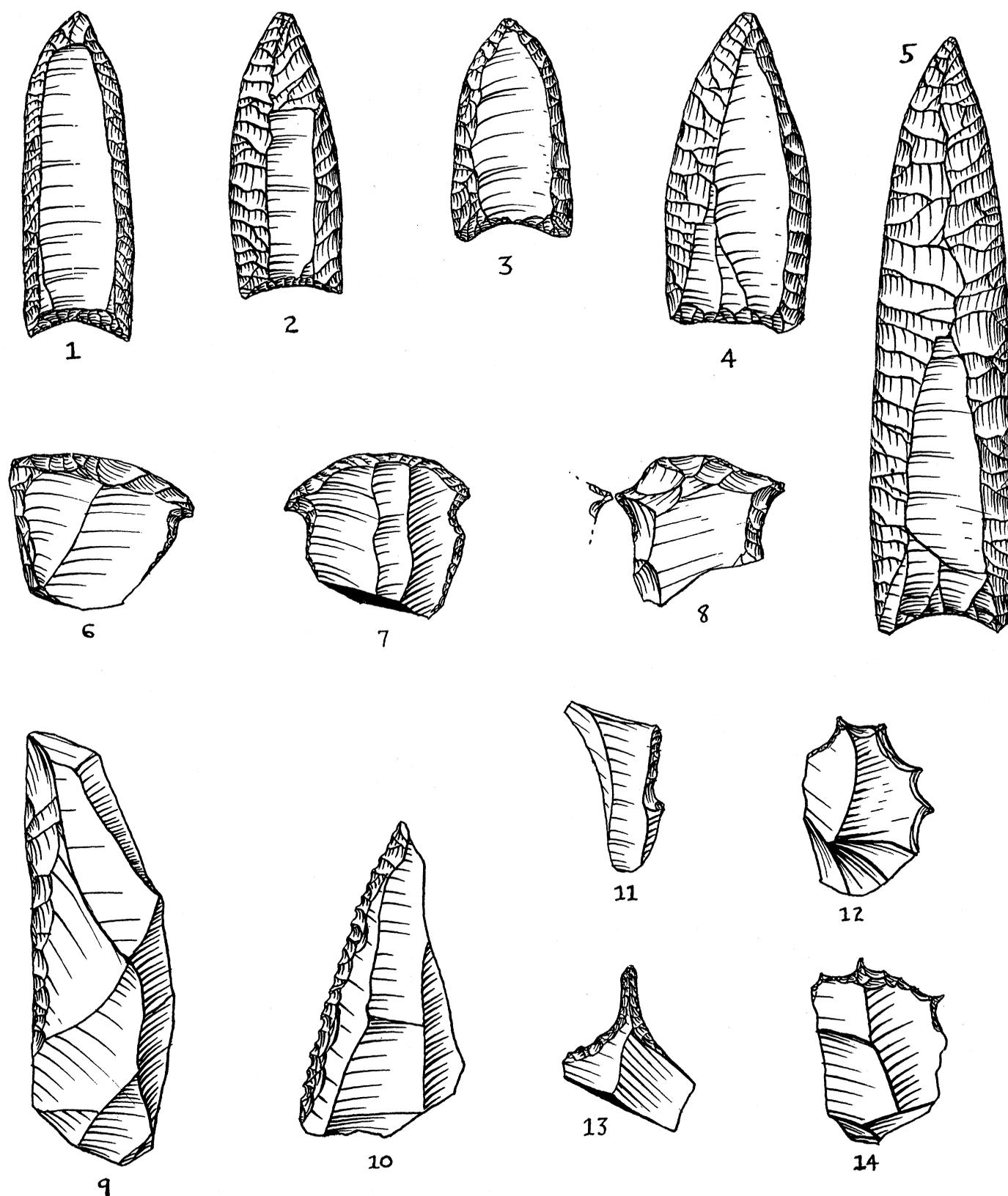


Fig. 6. Selected flint implements of the fluted blade complex in the United States. 1-5, Fluted projectile points from western and eastern United States; 6-8, end scrapers combined with gravers; 9, 10, side scrapers; 11, used flake; 12-14, gravers and drill. Implements 1, 6, 9, 11, and 13 are from the Lindenmeier Site, Colorado (7). Implements 2, 7, 10, and 14 are from the Quad Site, Alabama (8). Implement 4 is from Bull Brook, Massachusetts (9). Implement 5 is from Black Water No. 1 locality, New Mexico (10). Implements 3 and 8 are from Michigan. [Museum of Anthropology, University of Michigan]

ment, slow diffusion would appear to be the best hypothesis, which future excavation may document.

There are many polished stone forms which also serve to characterize the Late Archaic in the east. Among these are banner stones, boat stones, and birdstones. These are believed to have been attached to the throwing stick which acted as an added lever to propel the spears during the hunt. These forms have no known Old World or American arctic counterparts. The wide variety of projectile forms and other flint and bone implements of the Late Archaic are best regarded as local developments. The projectile forms particularly cannot be derived from Siberian or American arctic prototypes.

The Arctic Denbigh Complex

If a satisfactory demonstration of cultural movement from Siberia to eastern North America cannot yet be made, which would strongly affect the Late Archaic cultures, there is abundant documentation (in the archeological sense) for a significant cultural spread from Siberia to the American Arctic from about 3000 B.C. to 1500 B.C. As already indicated, following the Advanced Paleolithic stage in Siberia there is a movement into southern Siberia from the south of the small tool complex of blade, core, and burin and small, bifacially flaked arrowpoints, which make their appearance before the introduction of pottery. By the time this complex is *known* to have reached the Middle and Lower Lena, however, pottery is always associated with it.

In Alaska, however, this small tool complex is known from a series of sites from the Brooks Range to the Aleutians where pottery is not in association. The complex is best known from the stratified Iyatayet Site at Cape Denbigh, on the south side of the Seward Peninsula (Fig. 7). In addition to the small flint tool complex, there are a large number of beautifully flaked projectile-point forms which have been compared with Plano points, and it has been suggested that these have diffused to the Seward Peninsula from the northern plains. It is also possible that they are a local development based on the bifacially flaked points and side blades of the early eastern Siberian Neolithic. This suggestion is favored in this article because the Denbigh complex also has

small bifacially flaked triangular arrow or harpoon points which are very much like the Siberian Neolithic points.

Former assessments of the age of the Denbigh complex have usually been to a period from 8000 B.C. to 4000 B.C., based on the interpretation of geological evidence and a natural inclination to connect the small core, blade, and burin with the Eurasian Mesolithic culture, and as close to that time period as possible. Such an antiquity was never completely acceptable. The view presented in this article is that the lower occupation level at Iyatayet was in existence at 2000 B.C., and this is supported by a series of radiocarbon dates from the site. The core-blade and burin may have appeared in Alaska somewhat earlier. The Denbigh small tool complex, with variations, does spread to the east, where it has been found on the Firth River in extreme northwest Canada; from Knife River in northeastern Manitoba; from the Melville Peninsula; and as far east as Disko Bay in central-western Greenland. The location of some of these sites in the area around Hudson Bay are such that they could not have been occupied because of ice, or later marine submergence, at an age compatible with a high antiquity for the Denbigh complex. On the other hand, the spread of this complex into the central and eastern Canadian tundra between 2000 B.C. and 500 B.C. would be geologically completely feasible.

While the full Denbigh complex does not penetrate into the Great Lakes area and the northeast, the core and blade technique, but apparently not the burin, does appear in the Lower Mississippi Valley in the form of the microflint industry of the Poverty Point culture. The radiocarbon dates for this introduction would be somewhere around 1000 to 500 B.C. Larger blades struck from a variety of core types are a diagnostic feature of the Hopewell culture of the Upper Mississippi and Ohio Valley and of Point Peninsula II in New York.

The Siberian Neolithic

The most striking and widespread prehistoric material culture trait of eastern North America which can be attributed to an origin in the Siberian Neolithic is the Woodland pottery tradition which covered a wide area from the Rocky Mountains to the Atlantic, and from the Gulf of Mexico to south-

ern Canada. In Canada, Woodland pottery is known from southeastern Alberta to southern Quebec and Nova Scotia. For many years the majority of American anthropologists believed that all of the prehistoric pottery of the North American Indians was derived from Mexico and was associated with the northward spread of American agriculture. This view is gradually being abandoned in favor of an Asiatic origin.

The earliest known eastern Siberian Neolithic is in the Baikal area, according to Russian archeologists, and their use of the word "Neolithic" indicates the presence of pottery, ground and polished stone tools and ornaments, arrowheads, and other bifacially chipped flint forms, but does not mean that agriculture was practiced. The most experienced Russian excavator in central and eastern Siberia and the most prolific producer of papers on the area is A. P. Okladnikov (see 2). Many of his papers have now been abstracted or interpreted by American scholars. Parenthetically, it may be observed that Okladnikov is conversant with the American archeological literature.

There are three sequential premetal archeological phases in the Baikal, which are named Isakovo, Serovo, and Kitoi. Some traits of the postulated earlier nonceramic Khinskaya culture persist, such as small cores and blades, and the bifacially chipped arrowpoints which become much more common. Some of the characteristic traits of Isakovo are given below. The arrowpoints are trianguloid with a concave base and asymmetrical barbs. One of the distinctive traits derived from Mesolithic cultures to the west is a long bone point which has slots along the sides for the insertion of flint side blades. They are identified as spears, and similar but shorter forms are called daggers. There are composite knives of large side blades inset into bone handles, large flint ovoid and elliptical scrapers, chipped and ground slate and nephrite knives, and large chipped and partly ground adzes and gouges. The pottery has a shape like the lower half of an egg. It is low fired, relatively thin (about 5 mm), was tempered with crushed rock, and was, of course, handmade. The vessel exterior is covered with net impressions made while the clay of the shaped vessel was still plastic. Impressions made from these pottery fragments clearly show the net knots and connecting threads. Okladnikov

kov thinks that the Isakovo vessels may have been made in net-lined pits in the ground. The pottery of the succeeding period, however, is clearly coiled or ring-built and then paddled to apply a variety of surface finishes. The use of small paddles is well documented ethnologically and archeologically throughout the distribution of the Siberian Neolithic and in North America. It is one of the important concepts as to how pottery should be made on this primitive level. Okladnikov has proposed a time period of 4000 to 3000 B.C. for the Isakovo phase of the Lake Baikal sequence, but in the chronology of this article, it is placed at 2500 B.C.

The succeeding Serovo phase continues many of the earlier cultural traits, but with some significant additions and changes. The basic pottery form takes on a more rounded base and small, thick lugs, which may have been used for suspension. The most common surface treatment is still with a net, but the surface was usually smoothed over before the vessel was fired. A new decorative treatment is presumably derived from the comb ceramic areas to the west. These dentate stamp impressions were apparently made with small, narrow, slate fragments with grooves cut across the edges. Around the outer rim of the vessel there are one or more horizontal rows of small bosses or protuberances made by pushing a small rod into the inner wall and forcing the boss to appear on the outside. Polished stone knives increase in number and variety of form. Polished stone fish effigies were used as lures. The chipped flint adzes and gouges are well polished. Unilateral and bilateral barbed bone harpoons are found for the first time, as are barbed bone fishhooks. A distinctive braced or composite bow is unique to the Serovo phase, and comes in with small stemmed arrowheads. Most of the arrowheads are small triangular forms. The archeological evidence, then, suggests a strong emphasis upon fishing in the Serovo culture, for beside the spears, harpoons, and fishhooks, nets were used. There are bone and antler flakers with which the Serovo people produced long side blades with ripple flaking for bone daggers and spears, as well as long flint knives and daggers, some of them also with parallel oblique ripple flaking.

Okladnikov has suggested that a reasonable estimate for the age of the Serovo phase would be 3000 to 2000 B.C. In the chronology adapted here the dates are 2500-2000 B.C. This may

be somewhat too early, particularly if published statements on the presence of cord-marked and linear stamped pottery in Serovo are true (3), but I have not been able to verify this from the translations available or from illustrations. The age of the early Baikal Neolithic is not firmly established. On the hypothesis that the ceramic tradition of this area should be allied to, and in part derived from, the Early Neolithic pottery in the belt from China to Japan, the presence of a number of types of surface finish, such as cord-marked, linear stamped, and check stamp, should not be earlier in the Baikal and Lena valleys than it is in China. The Isakovo pottery does not have a direct ancestor in northern China, but would not precede the introduction of pottery into China on an early, simple "Neolithic" level. China may be regarded as a primary center for the hypothetical Early Neolithic, as it was for the subsequent Late Neolithic of the Yangshao and Lungshan complexes, and for succeeding cultural developments.

The Kitoi phase of the Baikal sequence certainly has cord-marked pottery, but the dominant decorative devices are dentate stamp, punctates, and linear punctates. These are placed on the outer rim in vertical, horizontal, or zigzag patterns. The use of linear punctate with raised rim patterns is reminiscent of certain Japanese styles such as the Shiboguchi type (4). Distinctive new traits are three-stop bone flutes and bone "panpipes." While bone flutes are a part of the Late Archaic in the eastern United States of at least 2500 B.C., panpipes are not known until the Hopewell culture of around A.D. 1. Another new Kitoi trait is the free use of red ochre in graves, either on flexed burials or cremations. An increased emphasis upon fishing is indicated by large numbers of composite fishhooks. Harpoons are unilaterally and bilaterally barbed, and many of them have perforations for a line attached through a flange near the base of the harpoons. Side-bladed knives, spears, and daggers continue, as do the adze and gouge. The true celt makes its first appearance in the Kitoi phase. A distinctive, narrow, hammerheaded bone point has been likened to those from pit and catacomb burials of southern Russia and from a Bronze Age site in Scandinavia of about 1800 B.C. There is an increased use of ground and polished nephrite for knives, points, adzes, and axes. Bone

bracelets, pointed instruments, and needle cases are decorated by incised circle and dot decoration, which is also present in Eastern European Bronze Age sites. While Okladnikov suggests a time period from about 2500 to 1750 B.C., in this article Kitoi is placed between 2000 and 1500 B.C.

While actual metalworking is not known in the next phase, Glaskovo, it is clear that it is temporally on the same level as the Bronze Age cultures to the south and west, while by the following Shivera phase local metallurgy is known in the Baikal area.

The Middle Lena Neolithic complex is significantly different from the Baikal area for a number of reasons. The majority of the ceramic-bearing sites in this area are associated with a strong element of small cores, blades, and burins, as well as the small bifacial arrows, and side blades. Either this small flint-tool complex has survived from an earlier local unidentified nonceramic phase, or it may have moved into the Yakutsk area from Manchuria. This latter area seems to have furnished many ceramic elements such as the check stamp, linear stamp, and cord-marked surfaces, which tend to supersede the Baikal-derived, net-impressed surfaces. Another possible ceramic trait from Manchuria is seen at the site of Kullaty, where some of the vessel rims are thickened and incised with horizontal lines. There may also be some vessels which had a woven fabric impressed against the walls of the vessel. This type of surface treatment may resemble that from the eastern United States, or it may be more like fabric or cloth impressions from an early ceramic site of about 500 B.C. on the north side of Seward Peninsula (5). The dentate stamp is also significant as a decorative device. The developed Neolithic of the Middle Lena is regarded in this article as being about 1500 B.C. This area and the Lower Lena would seem to be the major known concentration of Neolithic pottery which is directly ancestral to the Norton pottery of the Seward Peninsula and the Firth River pottery of northwestern Canada.

In the Lower Lena Valley some of the earliest known sites have long trihedral points with short stems, or stemless forms, which are very similar to those of the Lake Onega area of northwestern Russia, where they are said to date between 2000 and 1500 B.C. In general, the flint industry resembles that of the Middle Lena, with an em-

phasis on burins, small cores and blades, triangular bifacial arrowheads, side-blades, semilunar knives, and a few chipped and polished adze fragments. The pottery includes cord-marked, check and linear stamp, and dentate stamping. Because of the large size of the squares on much of the check stamp pottery, and the organic temper, most of this pottery would seem to be quite late. This is based on the late time position of these traits in western Alaska. There are other sites between the Lena and the eastern part of the Chukchi Peninsula. They have not been fully excavated or reported, and additional work will be required to adequately document the cultural movements which must have taken place into Alaska.

The earliest described pottery in Alaska is the Norton complex at the Iyatayet and related sites in western Alaska. This complex is directly derived from the Lena linear stamped and check stamped types. In turn, Norton is the western progenitor of the Firth River pottery in northwest Canada, where it has been reported that in addition to the Norton types of surface finish there are also dentate stamp and cord marking. The Norton complex is dated a few hundred years either side of A.D. 1, and the Firth River pottery should be

about the same age. This early pottery in the American Arctic is associated with a flint industry of Denbigh complex origin. The pottery is not known to have moved south through the Boreal forest into the Great Lakes area, nor has any other early ceramic complex appeared in that area.

The Transitional and Early Woodland Complex

During the period of 1500 to 500 B.C., there are a number of new cultural developments in the northern part of the eastern United States. This time period can be called Transitional between the Archaic and the Woodland cultures or regarded as Early Woodland, particularly when pottery is associated with the rest of the culture. One of these developments is the increased attention to mortuary observances in the Red Ochre, Glacial Kame, Point Peninsula I, and Red Paint phases from Illinois and Wisconsin to New England.

There is a marked emphasis upon the burial of cremated human remains in excavated pits. These burials are accompanied by a variety of the polished stone forms mentioned above and caches of projectile forms, which show a marked preference for triangular

points. Another feature was the custom of burying fire-making sets of iron pyrites and a flint striker. The pyrites is usually found as yellow limonite. This is the period of the first certain recognition of percussion fire making, and should be connected not only with the historic distribution of this method in the northeast and American Boreal forest and Arctic, but should also be derived from Eurasiatic percussion techniques which are certainly known during the Neolithic and Bronze ages, and probably earlier as well. The grave area, the artifacts, the skeletal material, or the cremated bone were covered with a considerable amount of red ochre.

To each of these local complexes is added the earliest known Woodland pottery, which is thick, very coarsely tempered with large particles of crushed rock. The vessels are either cord-marked on both the inner and outer surfaces or, more rarely, may be smoothed on both surfaces. The vessel shapes are conoidal, rounded on the base, or flattened. This early variety of Woodland pottery belongs to the same tradition as the early arctic pottery, but a close counterpart is not known either in America or Asia. Perhaps this is another example of stimulus diffusion, where knowledge of a particular technology moves across a geographical

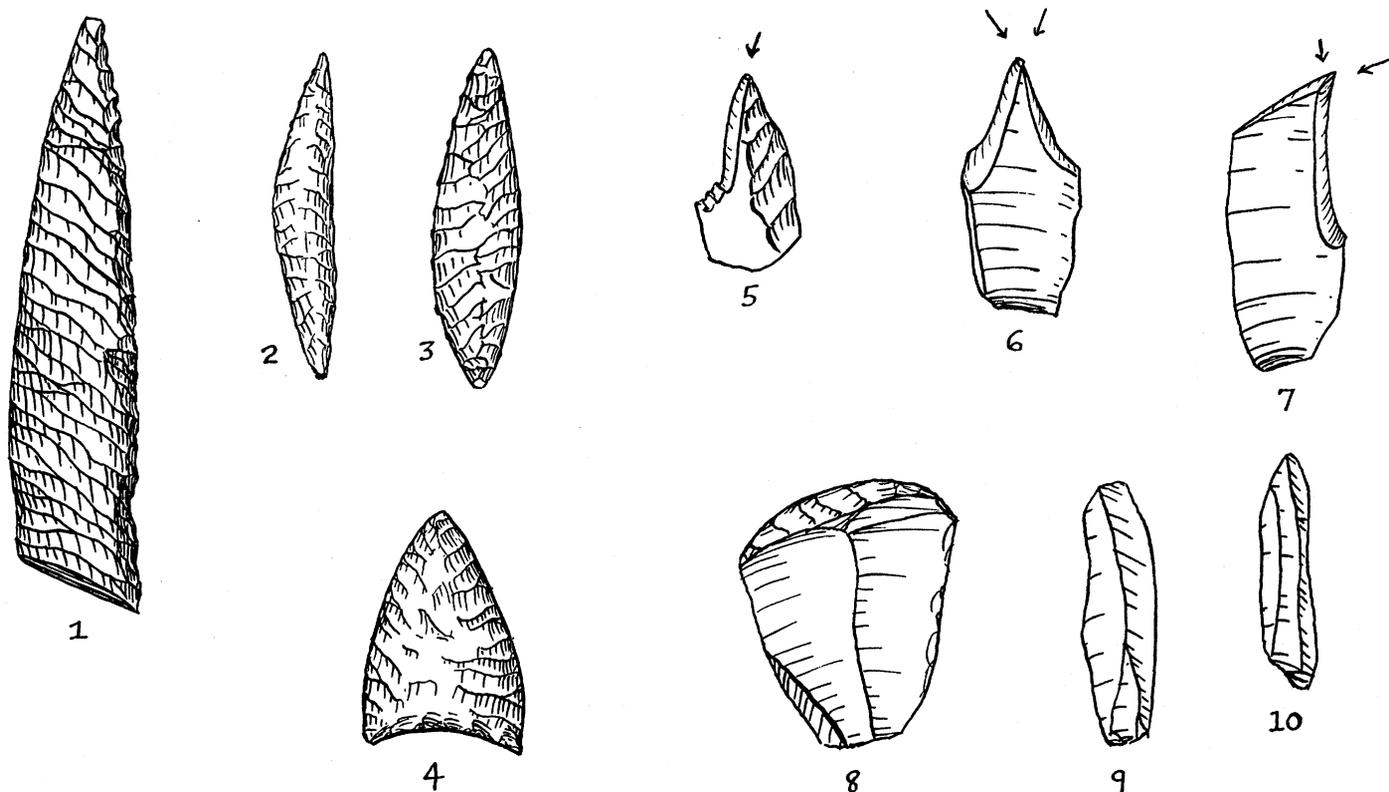


Fig. 7. Flint implements of the Denbigh complex from Cape Denbigh, Alaska. 1, Side blade about 3.3 cm long; 2, crescentic side blade; 3, plano-convex point; 4, small triangular point (harpoon or arrow?); 5, small angle burin; 6, chisel burin; 7, angle burin; 8, small end scraper; 9, 10, retouched lamellar blades. [Drawn from illustrations in Giddings (11)]

area, in this case, from northern American Arctic to the Great Lakes; and it appears in a variant form without a specific prototype in the Arctic. In any event, knowledge of and the manufacture of pottery spreads south. From the Ohio Valley to the Tennessee Valley the earliest pottery has a fabric-impressed surface and a conical or flat base. The textile which was employed had a wide warp and closely woven weft threads of twisted bast fibers. It is not coiled basketry, nor was the pottery made in a basket. In Georgia the Early Woodland pottery is fabric-impressed, dentate stamped, or simple stamped, with linear impressions somewhat like the Siberian and early arctic American linear stamp. Once the concept of using a carved paddle instead of a cord or fabric-wrapped paddle was adopted in the southeast, there developed a center of check stamp and complicated stamp designs with a great many striking similarities to the pottery of the eastern Chinese area during the Chou and Han dynasties. These similarities can be regarded as parallel developments based on the common possession of a general technique or tradition as to the correct manner of pottery manufacture.

A number of examples will help to demonstrate that formal resemblances between Asiatic and American pottery are not always to be regarded as evidence for a direct connection between these two widely separated areas. Following the first appearance of Early Woodland pottery around Chesapeake Bay, a net-impressed pottery becomes the most common type. It is almost identical in surface appearance to the early Baikal pottery, but this style of surface finish is not found on early pottery between the Lena and the Potomac. The linear stamped pottery of the Late Neolithic of northern China has its closest parallel in the post-1200 A.D., Plains area grooved paddle pottery. The zone-decorated, fine Hopewell pottery of the northern Mississippi Valley between 200 B.C. to A.D. 250 has its closest stylistic resemblance in Middle to Late Jomon pottery of Japan. This style is not represented in the pottery of northeastern Siberia or northwestern North America. A very distinctive stamped design is composed of groups of adjoining small diamonds with a raised dot in the center. This has been recognized from sites near Hongkong and from Manchuria and probably belongs to the Chou to Han periods in eastern Asia. An almost identical

design is found only in America from Early Woodland sites near Savannah, Georgia.

Another significant cultural addition of the 1500 to 500 B.C. period is the trait of burial mounds in the Illinois and Ohio valleys which begin as small, low, dome-shaped earth constructions over a burial complex analogous to the specialized interments of the Transitional period mentioned above. The mound burial ceremonialism develops over a thousand-year period to about A.D. 500, and very large complex burial mounds containing hundreds of burials were erected by the Adena and Hopewell cultures. Burial mounds are distributed over a wide area in Eurasia but are not a part of Neolithic or Bronze Age sites from the area east of the Upper Yenisei to the very late mound constructions of southern Manitoba.

A number of perishable products made their first appearance in eastern America about 1500 to 500 B.C. Among these are skin bags, thread, simple fabrics, nets, and fish weirs. They were probably also in use during the Archaic but were not preserved.

During the Archaic the skull form of the burials is predominantly long-headed. A number of regional variants of this archaic population are recognized but not clearly defined. During the Late Archaic and Early Woodland a roundheaded cranial type appears in the northeast and in the Ohio Valley. Whether this is the result of a gradual change in the resident population or the result of the introduction of a new population from the south or from the northwest is not definitely known. One possibility is that it is a population movement from northeastern Siberia.

The most significant cultural event which gradually transformed the Archaic societies to the developed Woodland cultures was the addition of agriculture from Mexico. From 500 B.C. to A.D. 500, gourds and perhaps corn were added to the food supply. There are, in addition, a few traits of the developed Woodland culture which are clearly derived from Mexico. The last major prehistoric stage in the Mississippi Valley from about A.D. 800 to the historic period is known as the Mississippi pattern or culture. It was strongly influenced by concepts of Mexican origin which were in turn integrated and developed in the eastern United States for 800 years into the distinctive cultural forms of the early historic period.

Summary

The prehistory of the American Indian in the eastern United States, in spite of an impressive amount of excavation and study, is still in an unsatisfactory state, even though the major outline of cultural change and development is known. The earliest food collectors of the area, the Paleo-Indians, possessed a culture type of more or less close connection to the Siberian Advanced Paleolithic groups. During the long Archaic period from 8000 to 1500 B.C. a variety of minor culture changes and adaptations take place which are primarily developments of the native American populations. There may well be significant increments from Asia during the Late Archaic, as has been postulated for the heavy woodworking tools such as the gouge and adze, but to definitely establish such influences, their manner of spread needs to be adequately documented.

There are a number of cultural traits which appear in the eastern United States between 1500 to 500 B.C. which are best explained as the result either of diffusion from Asia or to some degree also by population movement. These are added to the resident culture and this merger, along with agriculture and influences from Mexico, produced the developed Woodland cultures of eastern America from 500 B.C. to A.D. 500. Following this period, Mexican influences, but not a migration, shaped the dominantly agricultural societies of the Mississippi Valley in the early historic period.

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