26. ADDITIONAL DATA ON THE FARMINGTON COMPLEX, A STONE IMPLEMENT ASSEMBLAGE OF PROBABLE EARLY POSTGLACIAL DATE FROM CENTRAL CALIFORNIA

By A.E. Treganza and R.F. Heizer

The Farmington archaeological culture complex was first identified and defined in 1952 in a report covering field work done in the Farmington reservoir area under the auspices of the University of California and the National Park Service.[1] This first report contained a brief discussion of the Farmington Complex implements and their geologic occurrence.

With additional information now available it appears desirable to offer a more detailed description since these finds have a bearing upon the problem of Early Man in California.

Briefly the Farmington Complex may be characterized, in the light of present knowledge, as a lithic assemblage composed primarily of core tools and large reworked percussion flakes. No polished tools or "refined," pressure flaked tools, are known to occur. The artifact materials are confined exclusively to a light green chert and occasional fine-grained grey volcanics. These rocks form part of the local gravels, and their source is, therefore, the immediate vicinity. No definite tool type may be recognized as being predominant. Choppers, scraper planes, crude plano-convex blades, and a variety of heavy flake scrapers occur. With the exception of blades, which are rare, the artifacts recovered may be said to exhibit a gradation from one type to another. Any attempt to isolate and illustrate "ideal types" would create an erroneous impression of reality.

The geographic distribution of the Farmington Complex is locally limited at present. Some forty streambed stations are known and artifacts number in the thousands. Farmington artifacts occur in three separate localities (Treganza, 1952). In two cases they have been noted as infrequent elements in habitation sites (Sta-5, Sta-10; Treganza, 1952). Their occurrence is most commonly noted on the surface of stream beds, and most important is their association in situ in consolidated, unsorted, conglomerate deposits along the exposed vertical margins of stream cuts as at site Sta-45. In the latter case the position of the artifacts in the gravel is such that there is afforded the possibility of relative dating in terms of geologic and pedologic data.

Although most of the tools characterized as belonging to the Farmington Complex were collected as float material from the surface of gravel bars in the present stream beds of Hood and Rock Creeks there can be little doubt but that they were originally derived from the compact buried gravel deposit marked as stratum C on the diagrams in Figures 3, 4, and 5. However, since the argument could be advanced that these surface examples

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1. Superior figures refer to "Notes" at end of text.

could theoretically be of any age later than that which we propose[2] it is advisable that we discuss and further define the Farmington Complex solely on the basis of those specimens collected in situ from stratum C at the Orvis Site (Sta-45) and hence are above question as to their place of origin. The critical point then is to make some speculations as to the geological history and relative age of stratum C which contains the artifacts.

The fact that the Farmington specimens occur in what may properly be termed "Sierra Nevada Auriferous Gravel Man" in California for the first time since Holmes published his summary of the data in 1901. We can now offer for the first time [3] a series of definite, albeit crude, tools which have been discovered in the auriferous gravels, and collected under controlled conditions. As used here the term "auriferous gravels" requires some clarification. In strict technical usage it would refer only to gravels containing a measurable (profitable) quantity of gold. As applied to the Mother Lode area such gravels have formed and reformed from early Cenozoic times to the present and it should be emphasized that the term auriferous gravels can not be equated to any specific epoch of either the Tertiary or Quaternary period. Earlier, lack of recognition of this point frequently caused confusion where artifacts were reported to have occurred in association with such deposits. Now that the geology is better understood [4] so are some of the related problems. Today the term may be applied so as to include almost any gravel deposit which falls within the geographic province of the old hardrock and placer diggings of the Mother Lode area.

Excluding such obvious hoaxes as the Calaveras skull or the fact that on frequent occasions hydraulic operations washed implements from surface sites into the older gravels (cf. Holmes, 1901, Pl. 12) there still remains a body of artifact material reported to have been in direct association with gravels which was never disposed of or explained in a satisfactory way. It remains a likely possibility that some genuine finds of real significance were ignored by being overshadowed by less important but more controversial issues of the times. Artifacts typical of the Middle Horizon of Central California are known to be among some of the earlier reported gravel finds (cf. Holmes, 1901, Pl. 2) and it is not unreasonable to believe that some of these artifacts were actually derived from the later auriferous gravels. It is also possible that unelaborate core and flake implements may have occurred in still earlier gravels and that there was failure to recognize them as tools.

Continued reference and sole dependence to the older literature can at best only resurrect an old problem; its solution will have to be based upon new information. The Farmington finds encourage us to reexamine the gravels of the Mother Lode area for contained artifacts.

Geological Relationships and Age

Essentially the local problem involves an interpretation of valley cutting and subsequent redeposition presumably having taken place from late Pleistocene to the Recent period. The detailed history of such phenomena, is at present, either lacking, or at best, not too well understood. Broad sequential outlines have been presented by A.M. Piper and associates in their study of the "Geology and Ground-Water Hydrology of the Mokelumne Area, California" (1939, pp. 32-57). It is primarily upon

these data and our own admitted speculations that the following discussion of relative age dating and interpretations of the Farmington Complex rest.

During Pleistocene times in the Upper Valley Plain of the Sacramento Valley, from about the Stanislaus River in the south to the Cosumnes River in the north, there existed a series of outwash gravels capping the older Mehrten, Valley Springs, and Ione formations in the form of a broad arched pediment. By name these gravels are known as "Gravels of Uncertain Age" probably Pleistocene or older, and the "Arroyo Seco Gravels" of Pleistocene date. The latter are characteristically composed of unsorted cobbles, gravel, and sand cemented together by a brick-red ferruginous soil. Both of these formations exist in the Farmington-Milton area as highly dissected pediments, relict stream terraces, and remnants of upland plains. It has been assumed that the Arroyo Seco gravels began their history of deposition soon after the Pleistocene tilting of the Sierra Nevada and that the age of final deposition is middle to late Pleistocene. With the dissection of the Arroyo Seco pediment during the early part of the Victor epoch (late Pleistocene) and subsequent time the cobbles of the Arroyo Seco gravel have been washed down and distributed widely over the lower slopes. The streams of the Arroyo Seco epoch are believed to have flowed down the slope of the Sierra Nevada in courses essentially the same as those they now occupy. This being the case it would imply that the present gravel deposits which now fill the old channels could represent deposition in the time span of mid-Pleistocene to present.

In attempting to interpret the gravels of which our artifacts are a part we will have to refer to specific location but at the same time establish that observations made at any given point are also part of a regional phenomenon and not simply the manifestations of a set of local circumstances. To this end we may refer to a cross-section of Hood Creek where there exists a clear stratigraphic sequence (Fig. 3).

Both in reality and from the diagram it is obvious that stratum C containing the Farmington artifacts can not be considered as being of immediately recent origin, for they rest unconformably on the old Miocene tuff (D), and are capped by 48 inches of fairly fine alluvium (B) which is well bonded by a ferruginous agent.

Of importance is the striking contrast in the physical constituents between stratum B, the present surface of the valley, and stratum C, the artifact bearing gravels exposed in the stream cuts (Treganza, 1952, pl. 3, figures b, d). These differences represent differential rates of deposition and hence reflect separate histories. As an explanation we propose that both climatological and geological factors were operative in the past to account for the present stratigraphy.

Four distinct cycles may be noted to have taken place between mid-Pleistocene times and the present: (1), At least by mid-Pleistocene times the Arroyo Seco pediment had formed as a result of Sierra Nevada uplift. Correspondingly this uplift produced rejuvenation along the stream courses of a degrading or scouring nature and, as in the case of Hood Creek, it caused considerable penetration into the older Miocene andesitic tuffs. (2), By late Pleistocene times the Arroyo Seco pediment was undergoing breakdown and dispersal to lower elevations and at the

same time the Victor formation was well underway in its development. With gradient reduced in the stream channels deposition began with the ingredients being largely supplied from the breakdown of the earlier Arroyo Seco materials. Since the Victor formation developed at lower elevations than those in which the Farmington Complex Complex implements are known to occur, none of its depositional effects are present in the area under consideration. However, since the Victor formation, in part, is derived from the Arroyo Seco (as presumably is our stratum C on Hood Creek) it is our assumption that the artifact-bearing gravels of the Farmington area are contemporaneous with some phase of the Victor formation of late Pleistocene to early Recent times. Examination of stratum C reveals it to be a formation of unsorted constituents ranging from twenty pound cobbles to fine sands (Pl. 1, p). At the base of the Sierra Nevada stratum C is composed of large boulders and cobbles and gradually diminishes in particle size along the twenty mile profile of low gradient leading to the floor of the Sacramento Valley. To account for such a depositional record it is necessary to assume that a climatological situation was formerly operative which differed contrastingly with that of the present day. To this end we suggest Antevs' (1948, p. 176) Anathermal Age of the early postglacial period, for such a thesis appears compatible with the geological sequences. (3), Following the channel filling with the unsorted gravels, which constitute stratum C, it would appear from the physical evidence that the climatic conditions gradually became drier (Altithermal Age, or "Long Drought," or Postglacial Climatic Optimum) and there endured a lengthy period of further valley filling consisting of the fine ferruginous sediments that characterize stratum B. The accumulation of these sediments conceivably could have been both from aeolian and fluviatile sources. Currently stratum B provides the structure of the present valley floor. That this period of alluviation was widespread and not merely of local origin may be noted by the fact that it fronts the Sierra Nevada in the whole Mokelumne-Farmington area. Valleys as much as a mile wide exhibit this feature, and though the depth of this stratum is only 48 inches thick at the point where the profile was taken (Site Sta-45) it has a depth of over 20 feet 10 miles to the west near the town of Farmington. (4), With the onset of present day climates, with the possible lowering of the Sacramento Valley through geosynclinic action, and with continued uplift of the Sierra Nevada, rejuvenation of streams in the old drainage pattern has resulted in downward cutting producing the present features of the inner channels. Figure 3 clearly shows the present drainage in relation to the older features.

The geological and climatological evidence presented thus leads us to conclude that manufacture and deposition of the Farmington implements are contemporaneous with stratum C and that the age of the latter falls within the Anathermal Age of early Recent times. Those individuals obsessed with the idea that man in North America must be older than we have recognized him so far might through choice interpret the geological sequence in a different order. If interpretations are a matter of choice, then we prefer ours, since it is far more compatible with both the local geology and with what we know of man's age in the far West.

We are not in agreement with Carter's statement (1952, p. 455) that the Farmington Complex implements may possibly prove to be of the same related cultural level as his alleged interglacial artifacts from the San Diego area, for several reasons, chief among which is our belief that the stones which he illustrates are not artifacts.[5] We do not here take issue

with Carter, believing that to do so would only encourage him to further excesses.

Having disposed of, to our satisfaction, Carter's gratuitous inclusion of the Farmington Complex implements as possibly related either in time or type to what he interprets as Third Interglacial artifacts from San Diego County, we may note that Antevs, in a recent article on the age of early California cultures, would place the Lake Mohave industry of California at about 9,000 years ago or 7,000 B.C. (Antevs, 1952, p. 28). This date, which is Anathermal (cf. Antevs, this Report) is about what we have proposed for the Farmington Complex at site Sta-45. The probability, based on recent Nevada finds, of man's presence in Central California at this time has been pointed out elsewhere (Heizer, 1951, p. 94), though whether the ancient Farmington culture people had anything to do with the eastward transmission of Pacific Coast shells is obviously unknown.

To state our main conclusion, we believe that the evidence favors an Anathermal Age date (7,000 to 5,000 B.C.) for the crude chert artifacts named "Farmington Complex" found in situ in consolidated buried ("auriferous") gravels along Hood Creek a few miles east of Farmington (at site Sta-45), Stanislaus County, California. The type of situation where the chert artifacts occur in place is such that there is reason to believe that for a very long time in the past the spot was a particularly favored one (year round water for men and animals which could be hunted here), and we anticipate that excavation in the proper spot in the vicinity may yield evidence of occupation debris which would be highly interesting because of its age. The only other known Californian lithic complex of possible equal antiquity is the Lake Mohave culture of desert Southern California (Antevs, 1952; Campbell et al, 1937; Rogers, 1939). The Lake Mohave and Farmington Complex artifacts cannot be directly compared due to the scarcity of Farmington artifacts of proved age and to the probability that most of the Farmington artifacts recovered from the buried gravels are probably to be considered either cores or very roughly shaped tools (blanks or first trials?).

Occurrence and Distribution of the Farmington Complex

According to the information now available the implements characterizing the Farmington Complex appear to be centered along the Hood and Rock Creek drainage of Stanislaus and Calaveras Counties with the greatest occurrence being near the Sierra Nevada margin of the Upper Sacramento Valley plain. That this lithic industry appears now to be localized may be due in part to a lack of a comprehensive survey. Some specimens occur in the gravel bars of the Calaveras River but hydraulic mining has destroyed their original location. A careful survey above Jenny Lind in undisturbed gravel exposures might prove productive. The Mokelumne and American Rivers at the elevation of Folsom have been superficially checked with negative results. Much of the foothill drainage as far north as the Pit River was checked in the summer of 1952 at various points and produced nothing resembling the Farmington specimens; however, such spot surveys should not be considered conclusive. To the south the western outwash slopes of the Sierra remain unknown.

In the discovery area the industry occurs most frequently on Hood Creek immediately above and below the late archaeological site Sta-44 (Treganza, 1952, pp. 17-19). In this area certain geological conditions are present which created an environment especially attractive for aboriginal occupation. Normally the streams of this area contain only a subsurface flow from early summer to late fall but the local presence of an intrusive body of Sierra Nevada granite forces the ground water to the surface so that a continuous flow is maintained through most of the year. Figure 5 graphically displays this phenomenon. Stratum C of Figure 5 forms the present stream bed which rests on an impervious base of andesitic tuff. Thus, even during the dry mid-summer ground waters are forced to surface in order to flow over the granite obstruction. Also, as Figure 4 illustrates, the granite makes immediate contact with a zone of schist hence prohibiting Hood Creek from seeking a meandering pattern in an effort to bypass the granite. It is obvious from the presence here of the large recent village site (Sta-44) that the water and granite were influencing factors determining recent aboriginal occupation. The depth of midden deposit of this Late Culture site and the numerous bedrock mortars in the granite (Fig. 4, stratum A) suggest, by themselves, some degree of age (Treganza, 1952, pp. 17-19).

We assume this feature of surfacing ground waters prevailed also in ancient times even to the extent that in former periods of lesser precipitation a sizable marsh area must have been created. It is precisely where, had we known the facts beforehand, we would have deliberately searched for evidence of ancient man. We hope that further detailed study of the locality may be the means of indicating probable spots favorable for ancient habitation, and that these locations will be tested by excavation.

Animals would have been attracted to such a spot, and the presence of game, water and useful tool materials would be sufficient inducement for settlement or repeated visits.

NOTES

1. Treganza, 1952. Discovery of the area from which the buried artifacts discussed in this paper were recovered was made by the present authors in June, 1950 while returning from a preliminary investigation of Moaning Cave (site Cal-13). We have named this locality the Orvis Site; in UCAS records it is listed as Sta-45.

2. Thus, the recent inhabitants of site Sta-44 ("A" in Fig. 4) could have worked over the exposed stream gravels of Hood Creek and left there cores, flakes or chipped tools which could not be distinguished with certainty from similar more ancient objects that were removed by stream erosion from <u>in situ</u> positions in the buried gravels ("C" in Fig. 4).

3. O.P. Hay's work on the Pleistocene vertebrates of western North America (1927) considers the problem at some length, but he offers no new observations to support his opinion that the auriferous gravel artifacts are of Pleistocene date.

4. For the geology of the Sierran gravels see: A.M. Piper, H.S. Gale, H.E. Thomas and T.W. Robinson (1939); Lindgren (1911); Jenkins (1946); Jenkins (1948); Bowen and Crippen (1948).

5. Our opinion is shared by a large number of other archaeologists, one of whom refers to the San Diego rock as "Cartifacts."

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Explanations of Figures 3-5

Figure 3: Profile of Hood Creek above Site Sta-44.

A. Present streambed of Hood Creek, 60 feet wide. Gravels in bottom derived from Stratum C.

B. Surface alluvium (red, tightly cemented sand -- small gravel) 48 inches thick, 600 feet wide.

C. Coarse cemented gravels, 36 inches thick.

D. Low ridges rising about 150 feet lying beside stream, formed of soft gray Mehrten andesitic tuff. In a few spots this formation is exposed in the creek bottom.

E. Remanants of dissected pediment of Arroyo Seco Gravels or Gravels of Undetermined Age.

F. Farmington Complex artifacts exposed in stratum C.

Figure 4: Profile of Hood Creek at Site Sta-44.

A. Dark midden deposit of Site Sta-44, a known historic and late-prehistoric occupation site.

B. Surface alluvium which has been capped by midden deposit.

C. Coarse cemented gravels containing Farmington Complex artifacts.

D. Most westerly exposed outcrop of Sierra Nevada granite.

E. Outcrop of schist presumably younger than the Granite ("D").

Figure 5: Longitudinal Profile of Hood Creek Near Site Sta-44.

A. Sierra Nevada granite.

B. Surface alluvium.

C. Coarse cemented gravels containing Farmington Complex artifacts.

D. Mehrten andesitic tuff which has formed around the older Sierra Nevada granite.

Plate 1: Chert Artifacts from Sta-45 and Vicinity

a-h; show obverse and reverse of eight green chert specimens found in situ in stratum C (buried gravel), site Sta-45.

i-o; green chert tools recovered from gravels of present stream bed ("A") in Figure 3) in immediate proximity to site Sta-45 and from other localities in the Farmington area.

Wherever the original surface of the green chert cobble remains the primary tan patination varies from a depth of one to two millimeters. All specimens recovered in situ (a-h) show percussion flaking with secondary patination of the flake scars.

A large number of specimens recovered from the present stream bed (for example: k, l) are not water worn and show precisely the same patination exhibited by the specimens recovered in situ from the undisturbed gravels (specimens a-h). The presumption is that such patinated pieces have been removed by stream action with the downward and lateral erosion of the buried gravels.

Another group of flaked chert pieces occurring in the present stream gravels are typologically similar to the specimens in situ and show little or no secondary patination. These may be either of a lithic material which is highly resistive to surface oxidation, or are of relatively recent manufacture. It should be noted, however, that no similar flaked material was recovered from site Sta-44, a known historic village in the immediate locality ("A" in Fig. 2).

Description of Illustrated Specimens.

a, Heavy "hand pick." Length 6.25 inches; Sta-45; UCMA 1-151294. Depth from surface 43 inches. This is the specimen shown in Treganza, 1952, Pl. 3B, D.

b, Plano-convex blade. Length 3.5 inches; Sta-45; UCMA 1-154326. Depth from surface 30 inches.

c, Plano-convex scraper. Length 4 inches; Sta-45; UCMA 1-154326. Depth from surface 30 inches.

d, Discoid scraper. Diameter 2.6 inches; Sta-45; UCMA 1-154349. Depth from surface 36 inches.

e, Heavy flake with one retouched margin. Length 4 inches; Sta-45; UCMA 1-154330. Depth from surface 30 inches.

f, Heavy flake scraper with some retouching of margins. Length 5.25 inches; Sta-45; UCMA 1-154338. Depth from surface 54 inches.

g, Heavy coarse flake with minor edge retouching. Length 3.8 inches; Sta-45; UCMA 1-154325. Depth from surface 43 inches.

h, Thin flake with retouched convex edge. Length 3.5 inches; Sta-45; UCMA 1-154333. Depth from surface 53 inches.

With the exception of specimen b the others in this group (a-h) do not appear to be definitely purposely made artifacts and can be best characterized as workshop refuse, the retouching present being a minor feature and insufficient to warrant ranking them as intentionally fashioned functional tools. They are, nevertheless, in every instance beyond any doubt the product of human hands and in this sense they may be classified as artifacts.

The remaining specimens I(i to o) were collected from the gravels of the present gravelly bed of Hood and Rock Creek in various localities in the Farmington area.

i, Scraper plane with percussion bulb base. Length 4 inches; Sta-73; UCMA 1-151274.

j, Large flake scraper with secondary flaking around greater portion of periphery. Length 4 inches; Sta-64; UCMA 1-151322.

k, Plano-convex blade blank. Length 4.25 inches; Sta-45; UCMA 1-128930.

l, Scraper plane composed of large percussion flake with secondary abrasion around working edge. Length 4 inches; Sta-45; UCMA 1-150775.

m, Long thin flake with percussion bulb under side. One edge is intentionally flaked or battered back through use. Length 4 inches; Sta-50; UCMA 1-150002.

n, Concave scraper showing considerable retouching on concave margin. Length 3 inches; Sta-70; UCMA 1-151052.

o, Possible blade blank. Length 2.25 inches; Sta-45; UCMA 1-150781.

p, A. Treganza pointing to chipped implement imbedded in lower gravels at site Sta-45. Note color break between alluvium cap and lower gravels.

FIGURE 3

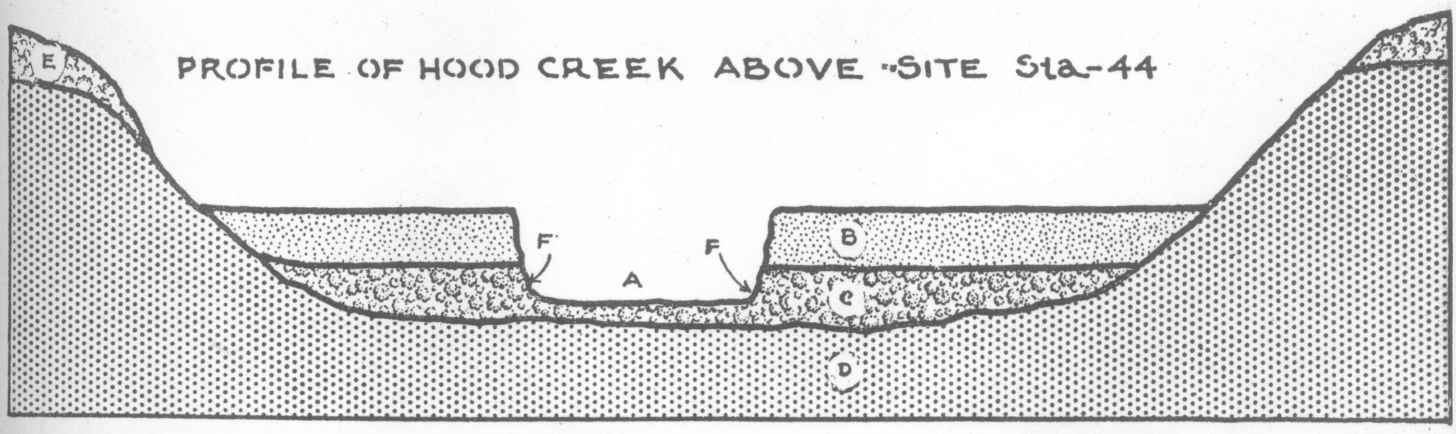


FIGURE 4

PROFILE OF HOOD CREEK AT SITE Sta-44

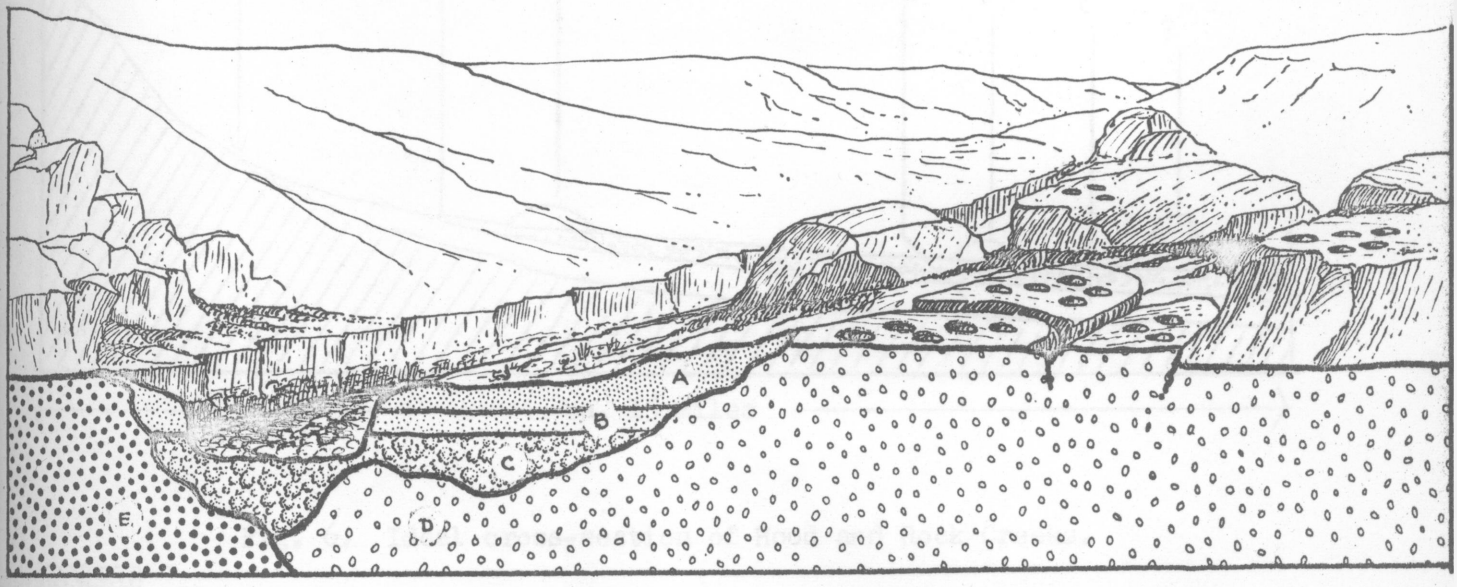
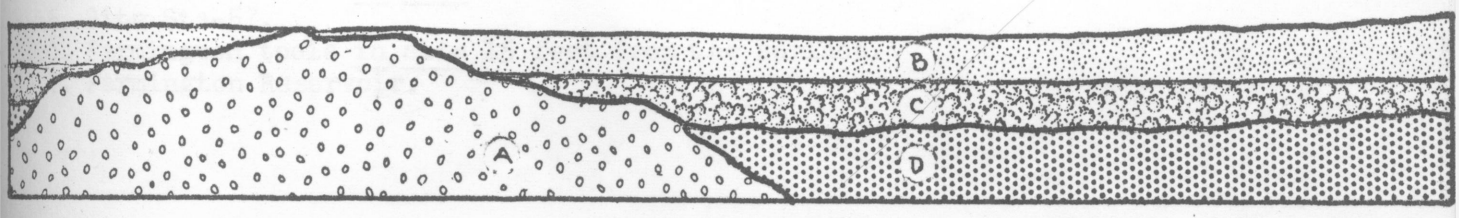


FIGURE 5

LONGITUDINAL PROFILE OF HOOD CREEK NEAR SITE Sta-44



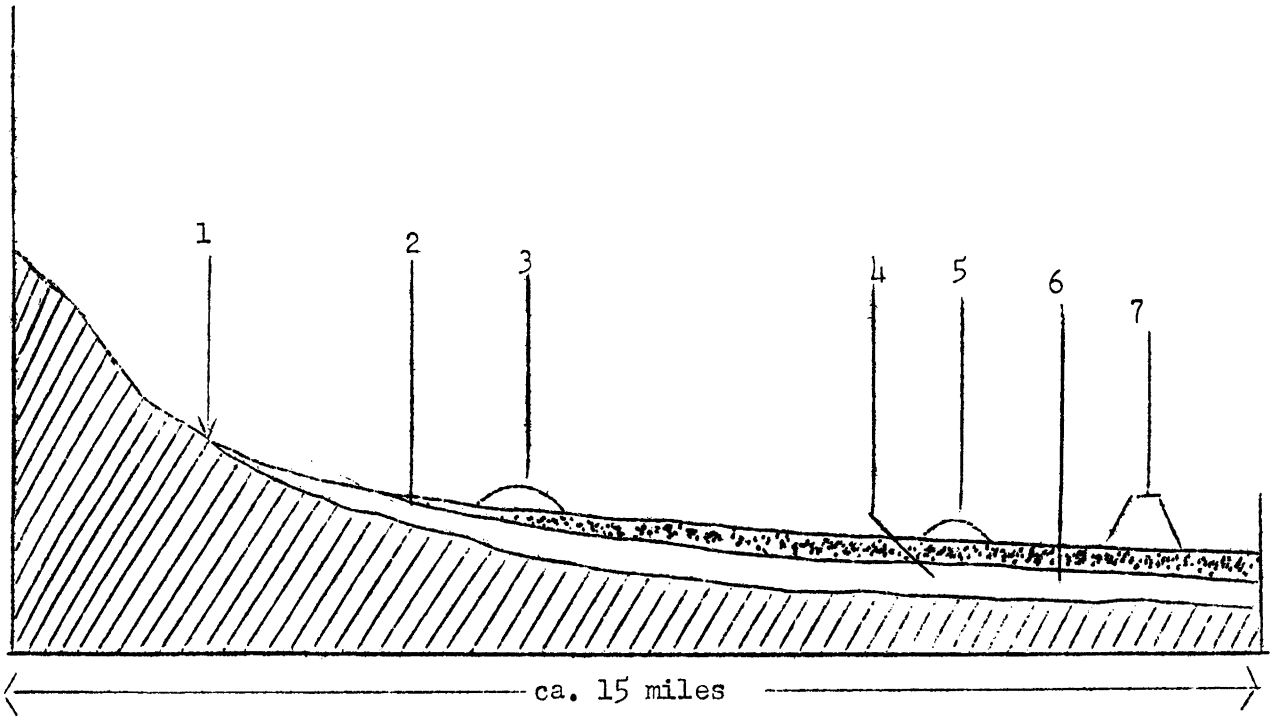


Fig. 6. Ideal cross-section of Hood and Rock Creeks.

Alluvium

Unsorted cobble and gravel strata containing Farmington Complex artifacts

1. Break in gradient between Sierra foothills and Upper-Valley plain.
2. Farmington Complex tool in situ.
3. Site Sta-44.
4. Farmington tools in situ 8 feet from the surface.
5. Site Sta-57.
6. Farmington tools in situ 15 feet from the surface.
7. Farmington Reservoir.

PLATE I FARMINGTON ARTIFACTS