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D PALEONTO-
OGRAM IN
1950-1951

E R R A T U M

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THE ARCHEOLOGICAL AND PALEONTO-
LOGICAL SALVAGE PROGRAM IN
THE MISSOURI BASIN, 1950-1951

BY PAUL L. COOPER

River Basin Surveys, Smithsonian Institution

(WITH 12 PLATES)

INTRODUCTION

The Inter-Agency Salvage Program in the Missouri Basin continued in operation throughout calendar years 1950 and 1951 with a number of institutions carrying on investigations of archeological and paleontological remains to be destroyed by Federal water-control projects. Activities were on a larger scale than previously because of augmented funds available to the Missouri Basin Project and increased participation by State-supported agencies. Through the combined resources of the various institutions, selected sites in 11 reservoir areas were intensively investigated and many other reservoirs were surveyed more or less exhaustively.

The Missouri Basin Project, a unit of the nation-wide River Basin Surveys of the Smithsonian Institution, continued its studies of archeological and paleontological resources to be lost as a result of the present water-development program. Previous summary reports (Wedel, 1947b, 1948, 1953a, and 1953b) have described in detail the history, organization, and general background of the Survey, and repetition here is not necessary. Suffice it to say that, since 1946, in accordance with various interbureau agreements and operating with funds provided by the Department of the Interior through the National Park Service, the project has visited and examined for archeological and paleontological remains many proposed reservoir sites and has submitted to the National Park Service reports on the results together with recommendations for salvage where this was deemed necessary. During part of this period it also has undertaken intensive investigation of significant sites to be lost.

This report is intended only as a brief review of progress made by the Missouri Basin Project during 1950 and 1951, with summary statements relative to the fieldwork of other agencies active in the salvage program. It makes no attempt at reporting and evaluating

total accomplishments during the period, since these will not be known until the completion of studies still under way. I have attempted to keep interpretations at a minimum, partly because they must rest primarily upon preliminary and tentative statements by the research men, who will undoubtedly in some instances revise their opinions at later stages of their studies. Periodic progress reports and more comprehensive summary reports, when available, have been the main sources relied upon, and I hope that little violence has been done to the facts and to the opinions of those who have compiled the reports.

The work of the Missouri Basin Project continued to be facilitated by the freely given assistance of many organizations, agencies, and individuals. Personnel of the Washington and regional offices of the National Park Service, and of the Bureau of Reclamation and Corps of Engineers, were consistently helpful. In the National Park Service, various officials assisted in planning operations and provided consultative services, especially in the field of historic-sites archeology. Officials in the district and various field offices of the Corps of Engineers and in the regional and field offices of the Bureau of Reclamation contributed in many ways to the success of our fieldwork. In addition to making information of all kinds freely available, both agencies also provided various facilities, including space for field headquarters and storage, and the loan of equipment. In the Fort Randall Reservoir area the schedule for acquisition of certain tracts of land was accelerated, and these were withheld from agricultural leases to permit cost-free access for excavation. State agencies throughout the Basin cooperated in every possible way, including the provision of needed information and making their research and other facilities available. The University of Nebraska, through its Laboratory of Anthropology, continued to provide office and laboratory space and to offer the use of its library. Landowners were uniformly indulgent in permitting excavations, often at the cost of personal inconvenience, and they and other local residents were helpful to field personnel in ways too numerous to mention. As in the past, the Committee for the Recovery of Archeological Remains, representing the anthropological profession, gave invaluable aid and support to the salvage program.

In previous years, with a few notable exceptions, funds were provided only for survey and test excavation to determine the extent of the salvage problem. In the meantime, construction on a number of dams was proceeding apace, and the day when large numbers of sites not duplicated elsewhere would disappear beneath the waters of the newly created reservoirs was looming ever closer. Construction on





Fig. 1.—Map of Missouri River Basin (heavy broken line) showing reservoir projects investigated under the Inter-Agency Salvage Program as of December 31, 1951. Numbers on the map correspond to those opposite the project names in the list at the right. Circles indicate archeological investigation, and squares indicate paleontological investigation. (Certain reservoir names have been changed since the compilation of the map accompanying the summary report for 1948. These are: Absaroka, formerly Mission; Beacon, formerly Bridger; Bernice, formerly Terry; Eldridge, formerly Taylor; Nelson Buck, formerly Beaver City; Parks, formerly Rock Creek; Sun Butte, formerly Wilson; and Trenton, formerly Cutlerston.)

the three largest reservoirs in the Basin—Fort Randall, Garrison, and Oahe—was in progress and on the first two had been for several years. It was known that in the Oahe Reservoir alone virtually hundreds of sites, many exceedingly large and showing evidence of long or repeated occupancy, would be flooded. There in late prehistoric and early historic times dwelt a number of semisedentary agricultural groups, the remains of whose earth-lodge villages are among the most impressive sites in the northern United States. Notwithstanding the known presence of the many sites containing irreplaceable data which were certain to be lost in the near future, no excavation other than some small-scale test trenching and the emergency removal of a mound in the Fort Randall spillway area had been possible in previous years in any of the reservoirs on the main stem of the Missouri River. With a substantial increase in funds earmarked for excavation in fiscal year 1950, and presuming that similar funds would be available in subsequent years, the prospect of achieving a significant sampling of the doomed remains seemed much brighter.

The funds were not only greater than in the past, but they became available so late that there was little drain on them for fieldwork in calendar year 1949. Consequently a sizable sum was unexpended at the end of the fiscal year on June 30, 1950. The large carryover permitted the planning and execution of a large-scale program in the summer of 1950, despite the fact that the passage of the appropriation bill for fiscal year 1951 was delayed until late fall. A similar state of affairs existed on June 30, 1951. Such a situation is advantageous for a program of summer fieldwork which of necessity utilizes student labor, ordinarily available only if firm commitments for a full season's employment can be made. It is difficult if not impossible to program effectively for the final quarter of one fiscal year and the first quarter of the next without knowledge of what funds will be available, and when.

In 1950, the Missouri Basin Project had six archeological parties and one paleontological unit in the field. Of the former, one was a reconnaissance team and five were engaged primarily in excavation. An additional excavation unit, to investigate Indian sites in the Fort Randall Reservoir, was planned but could not be activated because of inability to obtain supervision for it. Accordingly, the only unit functioning in that reservoir was one which was committed to excavation mainly in sites of White origin. Again in 1951, there were a single archeological reconnaissance party and one paleontological

party, but seven excavation units were in the field. Of the latter, two were at sites of White origin and five at aboriginal sites.

For the first time, in 1950 and 1951, Federal funds were available for allocation to State-supported agencies, a number of which had assisted in the salvage task in earlier years entirely with their own resources. Under agreements with the National Park Service, agencies in Montana, North Dakota, South Dakota, Nebraska, Kansas, and Wyoming undertook investigations in threatened areas during both years. The Missouri Basin Project participated in this program by recommending sites for excavation, by providing the agencies with previously developed records relating to the sites, and by consultation in the field.

For the Missouri Basin Project, the expansion of the program in 1950 and 1951 meant an increase in staff as well as in transportation and other equipment and necessitated the acquisition of additional working and storage space. Additions to the archeological staff were made under both temporary indefinite and 6-month appointments, and the laboratory and clerical staff was also augmented.

PERSONNEL

There were numerous changes in personnel during the years 1950 and 1951, largely because of the increase in funds available and the expansion of River Basin Surveys activities. Of the professional staff, Archeologists Richard P. Wheeler, Robert B. Cumming, Jr., and Paul L. Cooper were on duty throughout this period. Cooper was designated acting field director in January 1950, after Dr. Waldo R. Wedel severed his connection with the Missouri Basin Project, and was appointed field director in October of that year. Cumming was in charge of the laboratory until October 1950, at which time he assumed the duties of a research archeologist. Franklin Fenenga was appointed as an archeologist at that time and supervised the laboratory activities until the beginning of the 1951 field season, when he assumed supervision of a survey party. Several archeologists were appointed on a 6-month basis to lead excavation or survey parties during the field season of 1950. They were G. Ellis Burcaw, Walter D. Enger, Jr., Donald J. Lehmer, and Robert L. Shalkop. All remained through or nearly through the terms of their appointments except Enger, who left the project late in September to return to school. Lehmer's appointment was extended to March 1951, to permit the writing of a report on the site whose excavation he completed in 1950, and he was reappointed in June to complete

the excavation of another site, begun in 1950. In April 1951 Donald D. Hartle was added to the staff as archeologist. Two archeologists were employed during this period to excavate sites of White provenience; Thomas R. Garth served on the staff from July of 1950 to May of 1951, at which time G. Hubert Smith was appointed. During the field season of 1951, Dr. Waldo R. Wedel, curator of archeology, U. S. National Museum, assumed supervision of one of the excavation parties from June to September, having been detailed to the River Basin Surveys for that purpose. Carl F. Miller was transferred from the River Basin Surveys staff in Washington, D. C., to lead a historic-sites party from July to September. The River Basin Surveys paleontologist, Dr. Theodore E. White, was on duty in the Missouri Basin May 15–November 15, 1950, and June 8–November 6, 1951.

The laboratory and office staff was considerably expanded in 1950 and 1951 to handle the processing of specimens and records and to perform other functions relating to the administration and technical activities of the organization. Among the full-time personnel, Dean E. Clark, in charge of specimen processing and protection, and George Metcalf and J. M. Shippee, field and laboratory assistants, were on duty throughout the period. A record clerk, Evelyn Bauman, and an administrative clerk, Lawrence L. Tomsyck, were added to the staff during the spring and summer of 1950. A second clerk-stenographer was also employed; Erma Jean Piest held this position from January to June 1950, when she resigned to leave the city, and was succeeded by Doris Winninger, who was appointed in July 1950. Ina May Reagan, clerk-stenographer (secretary) resigned at the end of March 1950, and was replaced by Clara Rehn. In the photographic department, Alva E. Nixon served throughout 1950 and until March 1951, when he went into the armed service, and it was not until early September that a full-time photographer, Nathaniel L. Dewell, was appointed to succeed him. In June 1951, La Verna Pendleton was transferred to the project from Washington, D. C., and during most of the remainder of that year supervised the routine laboratory activities.

Others employed in the office and laboratory on a temporary or part-time basis were Richard Holmes and Herbert Ball, draftsmen; Rose Lee Cohen, draftsman and illustrator; Halcyon Harris and Alice Rowe Bell, illustrators; and Lee Madison, laboratory helper.

Field personnel consisted largely of students from various parts of the country, although local labor was also utilized where available. In some instances, especially with larger parties, members of the per-

manent staff or others, usually students, with previous field experience were assigned as assistants to the party chiefs. J. M. Shippee assisted Wheeler during both field seasons, except for about two weeks with Fenenga in 1951. George Metcalf assisted Wheeler briefly in 1950 and Burcaw, Smith, and Hartle in 1950 and 1951, when he was not leading a reconnaissance team in the Garrison Reservoir area. Those employed as assistants during the 1950 field season were Donald D. Hartle, with Lehmer's party, and Harold McAllister, assisting Garth. Shalkop was accompanied during much of his reconnaissance by Gordon F. McKenzie. In 1951, Hartle was assisted by Lynd Esch, Smith by Byron Houseknecht, Wedel by William Bullard, Cumming by Harry Meyers, and Lehmer by Thomas Cummings and, briefly, by Raymond Price, who also worked for a short time with Miller. Edward Moorman, transferred from the River Basin Surveys in Texas, also assisted Wedel and led a reconnaissance team in the Oahe Reservoir area. Fenenga was assisted in his reconnaissance at different times by Homer Aschman, Frederick Hadleigh-West, and W. Raymond Wood. The paleontologist was accompanied in 1950 by Prentiss Shepherd and William Harrup and in 1951 by Harrup and William Easton.

The field parties varied in size with the nature of the work and the availability of labor. During the main part of the season, while students were generally available, the average number of workers with the excavation parties was 10 or 11, although there were sometimes as few as 6 or 7, and one party consisted of nearly 20 persons.

LABORATORY ACTIVITIES

As in previous years, the headquarters of the project were in the Laboratory of Anthropology, University of Nebraska, and throughout 1950 and part of 1951 all laboratory activities were carried on and much of the specimen storage was in space provided there. Some specimens and most of the project's equipment were stored in a building at the Lincoln Air Base during this period. Because of the rapidly increasing bulk of collections and equipment, the expansion of the staff, and the certainty that these storage facilities would soon become unavailable through reactivation of the Base, the first floor and basement of a store building a few blocks from the University campus were acquired by lease early in 1951, and equipment other than vehicles was immediately installed there. During the spring the specimens and processing activities were transferred to the new quarters. By the end of the year, the records and photographic departments

were functioning there, although the project office and a considerable part of the research activities continued in the Laboratory of Anthropology on the campus.

The increased intensity of field activities in 1950 and 1951 resulted in a much greater flow of specimens and records into the laboratory than in former years. This fact, together with an attempt to make the basic-site files more nearly complete than had previously been possible with limited personnel, drastically increased the workload. Thus, the number of reflex copies of field records made and incorporated in the files was almost 25,000. Most of these copies went into a control file and a file that is available for use in the field or for loan to qualified persons outside the organization.

During this period 153,600 specimens were cleaned, cataloged, and filed. Many of them required, in addition, such special attention as treatment with preservatives or minor repairs to prevent their deterioration in storage or in handling during analysis. Restoration was on a rather limited scale, partly because restorable pottery vessels or other objects were not often recovered in the excavations and partly because the time of qualified persons could not be spared for such work. A number of partial restorations were made, however, and two small vessels from mounds in the Fort Randall Reservoir and a pot from a site in the Boysen Reservoir were completely restored.

Animal bones recovered by excavation were identified by the paleontologist in the Lincoln laboratory, but bones identified generally as canine, fish, and bird were sent out for more specific identification by specialists, as were molluscan, vegetal, and White trade materials. Additions were made to the comparative collections of identified animal bones and molluscan remains previously begun. It is evident that the large mass of documented animal bone accumulated from various localities throughout the Missouri Basin and from different time periods constitutes a valuable body of data relative to the problem of faunal variations in time and space. This opinion is fortunately shared by the director of the University of Nebraska State Museum, Dr. C. Bertrand Schultz, and an agreement was reached that, when proposed new storage space became available, the Museum would accept those collections for permanent preservation. That the generally unexploited potential of such material for cultural interpretation may be considerable is suggested by a study made by the paleontologist on the staff of the animal bones found in certain sites from the standpoint of the butchering techniques employed by the inhabitants.

The much-expanded excavation program during this period resulted not only in a greatly increased quantity of specimens and

records to be processed for incorporation into the files but also, because of an attendant shift in emphasis to preparation of technical archeological reports, in the need for many photographs, maps, and profiles for illustrative use in the resultant publications. As persons qualified to perform this task were available, drawings of artifacts were made to supplement the photographic presentation. Approximately 1,100 such drawings, mostly of specimens from sites in Medicine Creek, Boysen, Angostura, and Oahe Reservoirs, were completed. Photographs of specimens for use in plates made up a larger proportion than previously of the more than 3,600 negatives processed and the 13,000 contact prints and 500 enlargements made. The approximately 1,000 color transparencies added to the files were, on the other hand, almost exclusively made in the field. In the drafting department, scores of maps, ground plans, profiles, and other drawings were made for inclusion in final reports, in addition to maps for appraisals and the inking and tracing of field drawings for preservation in the permanent record files.

The time of the archeologists in the laboratory was spent on appraisal statements or detailed archeological reports, depending upon the nature of their field activities. Because of the preponderance of excavation in the field program, by far the greater effort was expended on detailed analysis of specimens and writing of technical reports.

A number of mimeographed appraisals, containing recommendations for salvage in reservoir areas investigated, were transmitted to the National Park Service, while others were nearly ready for distribution as the period ended. Preliminary appraisals of Bixby Reservoir, South Dakota; Moorhead Reservoir, Montana and Wyoming; Rockyford Reservoir, South Dakota; and Onion Flat, Raft Lake, and Soral Creek Reservoirs, Wyoming, were distributed in January 1950. They had been completed in December 1949. Similar statements prepared and distributed during the period were on the Sun River Basin, Montana (including Nilan and Wilson Reservoirs); the Jefferson River Basin, Montana (Apex, Brenner, Clark Canyon, Kelley, and Landon Reservoirs); the Niobrara Basin, Nebraska (Colwell, Crookston, Eli, Kilgore, Long Pine, Meadville, Merritt, Ponca Creek, Sparks, and Thacher Reservoirs); Keyhole Reservoir, Wyoming; Lovewell Reservoir, Kansas; and Narrows Reservoir, Colorado. Preliminary appraisals of Alzada Reservoir, Wyoming, and Little Bighorn Reservoir, Montana, were nearly ready for duplication on December 31, 1951. In addition, a supplementary appraisal of the Moorhead Reservoir was written and transmitted.

A few brief articles based on the work of the Missouri Basin Project appeared in print during 1950 and 1951, but comprehensive reports of the results of fieldwork were either in press or still being prepared. During 1950, two papers prepared by former staff members were published. They were: "Birdshead Cave, a Stratified Site in Wind River Basin, Wyoming," by Wesley L. Bliss, in *American Antiquity*, vol. 15, No. 3, and "An Experiment in Relative Dating of Archeological Remains by Stream Terraces," by Jack T. Hughes, in *Texas Archeological and Paleontological Society Bulletin*, vol. 21. Also published during 1950 was the "Proceedings of the Sixth Plains Archeological Conference, 1948" (*University of Utah Anthropological Papers* No. 11), in which appeared a number of brief papers by members of the staff. A paper based on his excavations in the Oahe Dam area by Donald J. Lehmer, "Pottery Types from the Dodd Site, Oahe Reservoir, South Dakota," appeared in the September 1951 issue of the *Plains Archeological Conference News Letter*.

A few reports intended for publication were completed during the period but had not yet been printed by the end of 1951. They included a report on the Woodruff ossuary, prepared by Marvin F. Kivett (1953) on the basis of his excavation of the site in 1947; a paper synthesizing data from the Oahe Dam area, by Donald J. Lehmer (1952); two papers on paleontological subjects, one on the Boysen Reservoir area, the other on the Canyon Ferry area, by Theodore E. White (1952b, 1954); and a paper by White (1952a) on the butchering techniques of the inhabitants of two sites in the Angostura Reservoir area as reflected by the animal bones recovered.

The status of reports uncompleted at the end of 1951 varied greatly, depending partly on the schedule of excavations. The manuscript of the report on excavations at the Dodd and Philip Ranch sites, in the Oahe Dam vicinity, in 1950 and 1951 was all but complete (Lehmer, 1954), while in other instances, where the first excavation was accomplished during the summer of 1951, analysis had just begun. This was true of the Oldham site in the Fort Randall Reservoir, Fort Stevenson in the Garrison Reservoir, the Cheyenne River site in the Oahe Reservoir, and the various sites in the Keyhole Reservoir. In the case of the Rock Village, in the Garrison Reservoir, where excavation was begun in 1950, additional large-scale excavation was undertaken in 1951 to round out the picture of that extremely important site. Reporting of the work of 1950 in Tiber Reservoir was held in abeyance, since it was felt that additional work should be done in a significant buried site, 24TL26, which had been inadequately explored. Analysis of the results at Angostura Reservoir

in 1950 and previous years and at Boysen Reservoir in 1950 was well along, but it was believed that a more coherent presentation of archeology in the northwestern Plains would result from the incorporation into a single report of the description of these areas and of the Keyhole Reservoir, investigated in 1951. Similarly, although a summary report on the historic sites investigations in the Fort Randall Reservoir was completed and made available to the historians of the National Park Service, the compilation of a report for publication seemed undesirable pending more definitive results from excavation and documentary research.

Assistance was provided in the preparation of the report on the extensive excavations in the Medicine Creek Reservoir in 1948. Primary responsibility for the report on investigations accomplished under his supervision had been assumed by Marvin F. Kivett, who left the employ of the River Basin Surveys in 1949 and has since served as director of the Nebraska State Historical Society Museum. With the assistance of George Metcalf of the project staff, he made material progress on the report, although only a small proportion of his time was available for that activity.

Members of the staff participated in the meetings of the Eighth Plains Conference for Archeology, held in Lincoln in November 1950, and in the sessions of the Nebraska Academy of Sciences in 1950 and 1951. In addition, they made several appearances before interested groups to explain the work of the River Basin Surveys. Also in the field of interpretation of the program, occasional exhibits were developed and installed in the project headquarters or in such places as the observation building at the Oahe Dam. An exposition of the salvage program in the Medicine Creek Reservoir, utilizing an automatic slide projector, was developed jointly by the project and the University of Nebraska State Museum and installed in the latter institution.

The laboratory cooperated throughout 1950 and 1951 with the various State agencies participating in the salvage program by providing maps, photographs, and site records, as needed, as well as by making collections available on a loan basis.

FIELDWORK AND EXPLORATIONS

During each of the years 1950 and 1951, the field activities of the Missouri Basin Project included archeological reconnaissance, intensive excavation of selected sites, and paleontological exploration. The primary emphasis was on excavation, but throughout each sum-

mer a survey team ranged widely over the Missouri Basin inspecting previously unvisited reservoir areas and occasionally returning to selected areas for more intensive investigations. Figure 1 shows the locations of all reservoirs investigated as of December 31, 1951. In 1950, Robert L. Shalkop, accompanied most of the summer by Gordon F. McKenzie and for a brief time by Willy Stahl, was in the field from July 3 to November 22 reconnoitering reservoir sites in the western Plains. He made the initial reconnaissance of Nilan, Wilson, Landon, Apex, Kelley, Clark Canyon, and Brenner Reservoirs in Montana; Narrows Reservoir in Colorado; and Middle Fork and South Fork Reservoirs in Wyoming. Additional reconnaissance was accomplished at Keyhole Reservoir, Wyoming, previously surveyed in 1948; at Yellowtail Reservoir, Montana and Wyoming, where the most accessible areas were spot-checked in 1946; and at Moorhead Reservoir, Montana and Wyoming, inspected in 1949. The reconnaissance party in 1951 was led by Franklin Fenenga, who was assisted at various times by Homer Aschman, Frederick Hadleigh-West, J. M. Shippee, and W. Raymond Wood. This party visited Lovewell Reservoir in Kansas; Alzada, Badwater, Buffalo Bill, Bull Creek, Red Gulch, Smith, Triangle Park, and Willow Park Reservoirs in Montana; and Gavins Point Reservoir in Nebraska and South Dakota. It also extended previous surveys in Yellowtail Reservoir, Montana and Wyoming, and Sheyenne Reservoir, North Dakota. Additional survey was also accomplished each year in the reservoirs in which excavation parties were operating. In the autumn of 1950 Richard P. Wheeler and J. M. Shippee surveyed 10 reservoirs in the Niobrara Basin, Nebraska, and Robert B. Cumming, Jr., and Shippee extended the survey of the Lower Platte Basin, Nebraska.

Excavation units in 1950 were as follows: At Rock Village (32ME15), Garrison Reservoir, under the supervision of G. Ellis Burcaw, assisted by George Metcalf, who also led a survey team during part of the field season; at the Dodd (39ST30) and Philip Ranch (39ST14) sites, Oahe Reservoir, under the supervision of Donald J. Lehmer, assisted by Donald D. Hartle; at various historic sites in the Fort Randall Reservoir area, under the supervision of Thomas R. Garth, assisted by Harold McAllister; at various sites in the Angostura and Boysen Reservoirs, under the supervision of Richard P. Wheeler, assisted by J. M. Shippee and briefly by George Metcalf; and at various sites in the Tiber Reservoir, under the supervision of Walter D. Enger, Jr.

In 1951, excavation units operated as follows: Fort Stevenson (32ML1), Garrison Reservoir, Archeologist G. Hubert Smith, as-

sisted by Byron Houseknecht; Rock Village (32ME15) and Star Village (32ME16), Garrison Reservoir, Archeologist Donald D. Hartle, assisted by Lynd Esch; Philip Ranch site (39ST14), Oahe Reservoir, Archeologist Donald J. Lehmer, assisted by Thomas Cummings; Cheyenne River site (39ST1), Oahe Reservoir, Archeologist Waldo R. Wedel, assisted by William Bullard and Edward Moorman, who led a survey team in the Oahe Reservoir area; Oldham (39CH7) and Hitchell (39CH45) sites, Fort Randall Reservoir, Archeologist Robert B. Cumming, Jr., assisted by Harry Meyers; Fort Lookout (39LM57), Fort Randall Reservoir, Archeologist Carl F. Miller; and various sites in the Keyhole Reservoir, Archeologist Richard P. Wheeler, assisted by J. M. Shippee. During this summer, George Metcalf carried on reconnaissance in the Garrison Reservoir area and also assisted Hartle and Smith on occasion.

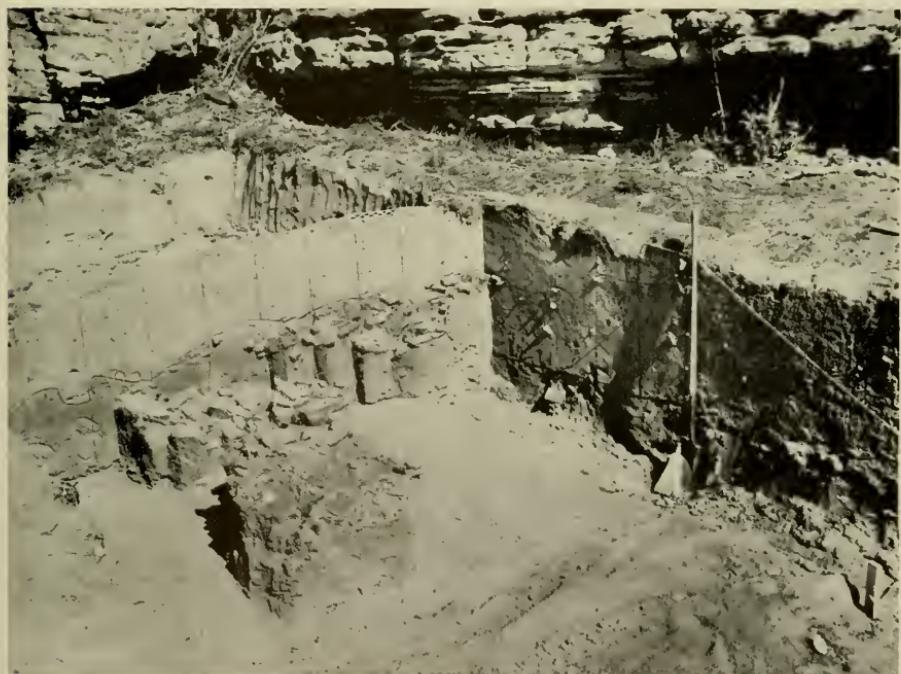
In 1950, Paleontologist Theodore E. White, assisted during most of the season by Prentiss Shepherd and William Harrup, investigated the paleontological situation in Bonny Reservoir, Colorado; Angostura, Fort Randall, and Oahe Reservoirs, South Dakota; Garrison Reservoir, North Dakota; Canyon Ferry Reservoir, Montana; and Boysen and Anchor Reservoirs, Wyoming. He also made a trip to Ainsworth, Nebr., to obtain information relative to the paleontological resources of suggested reservoir sites in the Niobrara Basin, Nebraska. In 1951, accompanied by William Harrup and William Easton, he revisited Canyon Ferry, Garrison, Oahe, and Fort Randall Reservoirs, and also spent some time in the Tiber Reservoir, on the Marias River in Montana.

COLORADO

Narrows Reservoir site.—Archeological investigations in Colorado by the River Basin Surveys were restricted to a reconnaissance of about two weeks in November 1950 of the area to be affected by the proposed Narrows Reservoir, in Morgan County. The dam site is on the South Platte River 7 miles west of Fort Morgan, and the reservoir will extend about 12 miles above this point. In this area the river flows in a broad, shallow valley flanked by a gently rolling plain covered by sagebrush and sparse short grasses. Only four sites, three of which are above the maximum pool level, were found in the course of an exhaustive search. Since all of them appear to be represented by superficial, scanty deposits, it appears that the reservoir will have no adverse effect on archeological resources of any consequence.



a. Excavations in a shallow camp site, 48FR23, Boysen Reservoir.



b. View of excavations in stratified site, 48CK204, Keyhole Reservoir, showing numerous stone hearths.



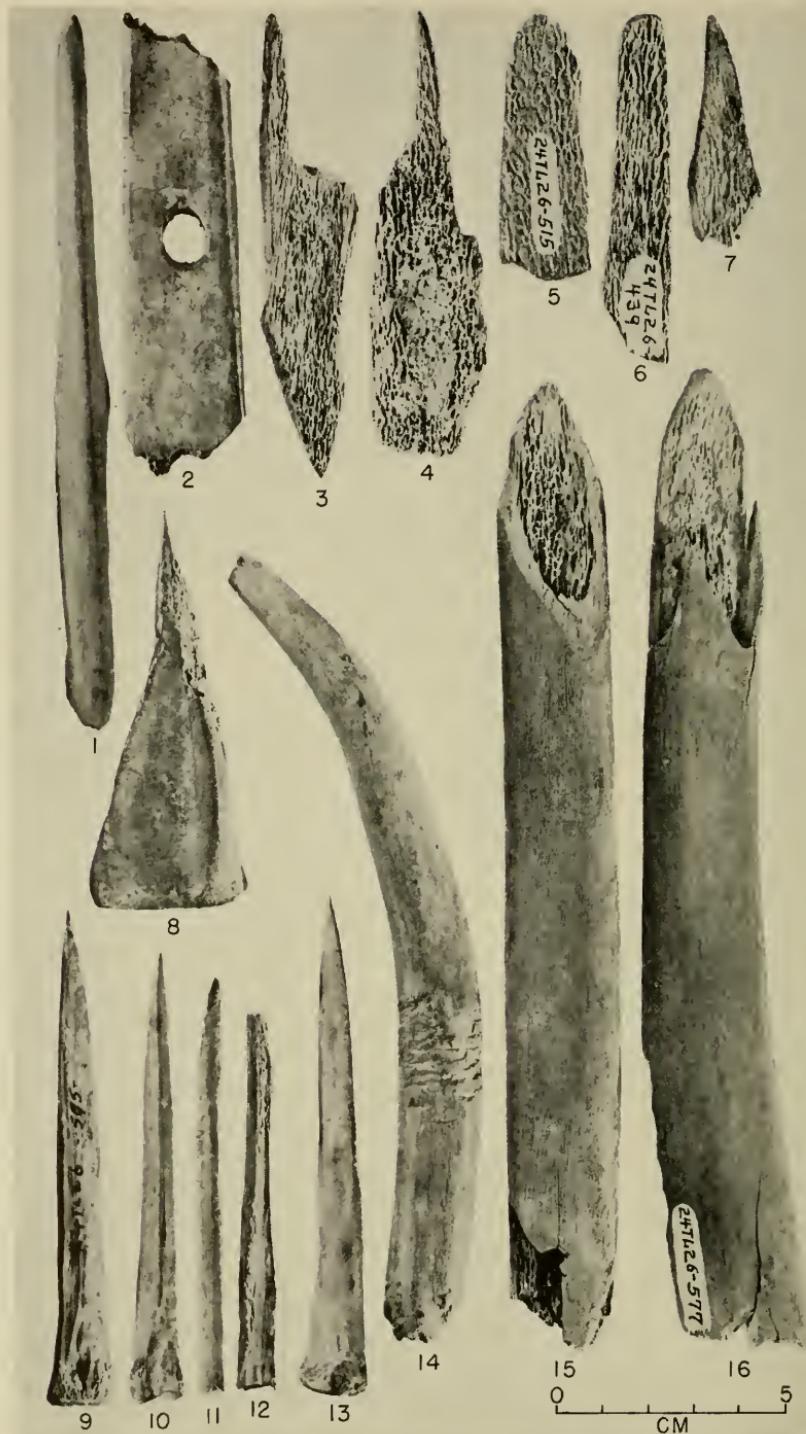
a. View across Marias River toward a buried pottery-bearing site, 24TL26, Tiber Reservoir, Mont. Two excavation units are near center of photograph.



b. Excavation in lower, pottery-bearing occupational level at site 24TL26, Tiber Reservoir, Mont. Marias River at right.



Chipped-stone artifacts from site 24TL26, Tiber Reservoir.



Bone and antler artifacts from site 24TL26, Tiber Reservoir.

KANSAS

Archeological work in Kansas by the River Basin Surveys during this 2-year period was confined to reconnaissance of the site of the proposed Lovewell Reservoir, one of the few proposed or potential water-control projects in that State that had not been previously investigated, at least briefly.

Lovewell Reservoir site.—The Lovewell Reservoir, a Bureau of Reclamation project, will extend approximately 6 miles upstream from an earth-fill dam which will span White Rock Creek some 15 miles above the point at which this intermittent stream enters the Republican River. The valley here is fairly broad and is flanked on the north by gentle slopes to the upland and on the south by an escarpment from which steep slopes descend to the valley floor. Dense stands of deciduous trees line the banks of the creek and its tributaries, and some timber grows on the south slopes.

Two trips were made to the area during the summer of 1951—one of five days in June, the other of four days in September—during which all the terrain to be affected by the reservoir was examined. Seven sites attributable to aboriginal activity were observed within and near the limits of the future pool. Two of these (14JW204 and 207) are mounds; the remainder are occupational sites. With one exception (14JW202), where a few flint objects were found among the debris of a modern homestead and may owe their presence to the activities of a collector, the occupational sites (14JW1, 2, 201, and 205) yielded pottery fragments, seemingly representative of a single complex. In one instance, however, concentration of sherds at one end of the site and of stone artifacts at the other end suggests the possibility that two components are present. Minor excavations were undertaken in one of the sites (14JW1) by the Nebraska State Historical Society in 1937, but the main results of that extremely limited work consist of pointing up the importance of the site rather than of solving the problems to which it is relevant. Wedel has called attention to the fact that the pottery resembles that from sites attributed to the Oneota aspect (Hill and Wedel, 1936, pp. 40, 67; Wedel, 1935, pp. 227, 229; 1940, p. 337), and little can be added to his observation until this or a closely related site has been more intensively investigated. Judging from the relatively small collection from the Lovewell Reservoir area, there are appreciable differences between the ceramics there and those from the Leary site, the geographically closest site attributed to the Oneota aspect which has been described in print (Hill and Wedel, 1936). These include the predominant inclusion of

grit as tempering; the presence of simple stamping on the bodies; and, in the matter of decoration, a greater frequency of impressions on the inner rim surface and a lesser frequency of modification of the lip proper at 14JW1. Despite these differences in detail, however, the general character of the ceramics and the presence of certain other traits in the limited collection from this site seem to support Wedel's suggestion (1940, p. 337) of a fairly close relationship to manifestations elsewhere which are identifiable as Oneota. The clustering of sites apparently referable to this significant but undefined complex presents the opportunity for its comprehensive characterization and the determination of its relationship to identified Oneota sites. The presence near one of the mounds of sherds resembling those found on the occupational sites inspires the hope that the burial complex of this cultural entity may also be ascertained, although these structures may relate to some other manifestation.

MONTANA AND WYOMING

Archeological investigations were carried on by the River Basin Surveys in 23 reservoir areas in Montana and Wyoming during 1950 and 1951. Nine of these reservoirs are in Montana, 12 are in Wyoming, and two straddle the Montana-Wyoming State line. In 1950 one excavation party was in the Tiber Reservoir on the Marias River, Mont., throughout the summer, while another spent the period July 20-September 24 in Boysen Reservoir on the Bighorn River, in Wyoming. A 2-man survey party reconnoitered seven reservoir sites (Apex, Brenner, Clark Canyon, Kelley, Landon, Nilan, and Wilson) in Montana, three reservoir sites (Keyhole, Middle Fork, and South Fork) in Wyoming, and two reservoir sites (Yellowtail and Moorhead) on the line between these two States. In 1951 the only excavation project in this region was at Keyhole Reservoir, on the Belle Fourche River, northeastern Wyoming, where the party devoted the full field season to the investigation of several sites. A 2-man survey party inspected the Little Bighorn Reservoir area in Montana and the Alzada, Badwater, Buffalo Bill, Bull Creek, Red Gulch, Smith, Triangle Park, and Willow Park Reservoirs in Wyoming; this party also completed the reconnaissance, mainly by boat, of the Yellowtail Reservoir on the Montana-Wyoming line.

Alzada Reservoir site.—The site of the proposed Alzada Dam is on the Little Missouri River, in Crook County, Wyo., approximately 6 miles south of the Montana-Wyoming line. The dam, an earth-fill structure, will create a 2-armed reservoir; the valley of the Little

Missouri River proper will have slack water for a distance of 6 miles, while another arm will extend up the North Fork of the Little Missouri to a point about 5 miles above the dam site. Both the Little Missouri River and the North Fork flow here through broad, alluvial valleys, but recent stream cutting is indicated by deeply incised stream beds. The region is relatively dry, and the vegetation on the shale-derived soils is sparse.

The reconnaissance of about 1½ weeks in August 1951 covered the entire reservoir area and resulted in the location of 12 archeological sites, 9 or possibly 10 of which will be destroyed by the reservoir. Most of the sites appear to be relatively unpromising, but three of those which will be flooded yield rather abundant cultural materials in deposits of some depth and warrant more intensive investigation. At two of these sites (48CK229 and 231) numerous hearths were observed, while at the third (48CK227), a deep camp site, materials were found which suggest several occupations over a considerable period of time. Among the artifacts collected from this last site is the base of a point of Angostura type, found elsewhere in contexts known to have an age of several millennia. It was with stemmed and notched points characteristic of much more recent complexes. Another site (48CK221), so situated that it may not be destroyed, yielded sherds of a pottery vessel, simple-stamped and with a thickened rim decorated with diagonal cord impressions, which appears to be related to wares found on the Missouri River to the east.

The results of the survey indicate that three of the sites to be lost in the Alzada Reservoir can be expected to yield significant data for filling in the cultural picture of this little-known area.

Apex Reservoir site.—The proposed dam site is on Birch Creek, a tributary of the Big Hole River, in Beaverhead County, Mont. The 1-day survey in July 1950 revealed no archeological sites in the narrow valley, almost 6,000 feet above sea level, which will be occupied by the small reservoir. The presence of heavy silt deposits on the floor of the valley, reportedly the result primarily of flooding in the last decade of the nineteenth century, suggests the possibility that construction activities will uncover remains of archeological significance.

Badwater Reservoir site.—The Badwater Dam is proposed for construction on Snyder Draw, an intermittent stream in Fremont County, Wyo. The reservoir site lies in an arid badland region with scanty vegetation at the southern edge of the Bighorn Mountains. The immediate area is unknown archeologically, and the survey accomplished little to alleviate this situation, for no concentrations of

cultural material were found that appear to require further attention. The fact that the few scrapers and other stone artifacts found were scattered thinly over the reservoir site suggests that camp sites or other sites of intensive cultural activity are absent. The single report received by the survey party of archeological remains in the vicinity was of an aboriginal steatite quarry in the mountains a few miles north of the reservoir location.

Boysen Reservoir site.—Boysen Dam, one of the earlier projects begun under the Missouri Basin water resources development program, will create a reservoir about 20 miles long in the Shoshone Basin just above the point at which the Bighorn River enters the Wind River Canyon to make its way between the Owl Creek and Bridger Mountains. The dam was closed and water storage began in October 1951. Timber in the area is restricted to the slopes of the mountains and to the banks of the streams. The region supports sagebrush and greasewood rather than grass as its predominant vegetation, in which respect it resembles the Great Basin to the west rather than the Plains to the east. Physiographically it is continuous with the Great Plains and is separated from the Great Basin by an unusually low divide. Sand-dune areas are common in the river valley, and many of the occupational sites are found among these surface features. Brief reconnaissance in 1946 and additional survey of three weeks in 1947 had resulted in the recording of 75 sites in and near the reservoir area. These consist of camp sites, often marked by clusters of fire-blackened stones, "tipi-ring" sites, petroglyphs, burials, and rock shelters. During the latter part of the 1947 season a stratified deposit in a cave, 48FR54 (Birdshead Cave), near the base of the Owl Creek Mountains was excavated. Although the artifact sample recovered is small, cultural materials were found in all levels and seem to reflect changes through time. It was hoped that through additional investigation in the reservoir area the correlation of more prolific single-component sites with individual strata in the cave would become possible, thus establishing a sequence of more or less exhaustively defined complexes for the region.

In 1950 parties from both the Missouri Basin Project and the University of Wyoming investigated numerous sites in the reservoir area, the former during only the later part of the summer. The activities of the River Basin Surveys included search for new sites, surface reexamination of previously recorded sites, small-scale test trenching of some sites and more extensive excavation of a few, and recording of numerous petroglyphs. Eleven camp sites, one rock shelter, one workshop, four petroglyph sites, and a burial, all previ-

ously unrecorded, were found. Test trenches were excavated in four open camps, in a rock shelter, and at the bases of the exposures at three petroglyph sites. At one petroglyph site (48FR12) charcoal, burned areas, and animal bones were found to a depth of 3 feet, but no artifacts were recovered; no indubitable evidence of occupation was found in the tests of the other two petroglyph sites.

A month was devoted to rather extensive excavation of a large, newly discovered camp site, 48FR84, the Wise site. A large stone-paved hearth, 5 feet in diameter, and many small unprepared and stone hearths were exposed in the site, which proved to be a shallow one. The fairly large artifact sample recovered included rather numerous projectile points, predominantly triangular and side-notched with concave or notched bases; miscellaneous chipped-stone artifacts; full-grooved mauls; and pottery sherds, many of which belonged to a single restorable vessel. Manos and metates appear to be largely if not entirely lacking in the site. The sherds are mostly gray and are fairly heavily tempered with angular stone fragments. The restored vessel has a subconoidal base and is constricted only moderately above the rounded shoulder. There is a very slight outward curve just below the rounded lip. Both surfaces are unevenly smoothed and there is no decoration.

At site 48FR23 (pl. 1, *a*), on the right side of Tuff Creek, an eastern tributary of the Bighorn River, artifacts were abundant on the surface and in the trenches excavated by the party. Numerous hearths—areas of burned earth, clusters of fire-cracked rocks, and basins lined and filled with rocks—were uncovered but, as at 48FR84, no evidence of structures was observed. The artifact complex is distinct from that of 48FR84 and suggests a markedly different economy and probably an appreciable difference in time. Perhaps the most obvious difference is the presence in great abundance of manos and metate fragments, which were sometimes found in hearths with other, unworked stones. Among the chipped-stone artifacts projectile points, predominantly corner-notched, are rather numerous, as are scrapers of various kinds except end scrapers, which are rare. Also of rather common occurrence are choppers, averaging about fist size and usually made by minimum percussion flaking of fragments of quartzite cobbles.

The results of the work at 48FR23 and 48FR84, together with materials from other sites in the reservoir area, suggest that at least two complexes, characterized by different economies and probably temporally separated, are represented. Judged from the evidence of Birdshead Cave and other evidence pertaining to the sequence of

artifact types in the western Plains, the complex—or predominant complex if the site has been occupied more than once—at 48FR23 is probably the earlier. The abundance of manos and metates suggests a heavy reliance on gathering, perhaps in contrast to a primarily hunting orientation on the part of the inhabitants of 48FR84. Laboratory analysis of the collections from these two sites and from others in the area may permit the definition of still other complexes and go a long way toward outlining the history of the exploitation of this little-known area over what will undoubtedly prove to be many centuries of occupation.

Brenner Reservoir site.—This reservoir, to be created by an earth-fill dam on Horse Prairie Creek in Beaverhead County, Mont., will flood approximately 750 acres. Five small surface camp sites, yielding scattered flint artifacts, were found in the area during the 2-day reconnaissance in July 1950. The yield of artifacts from all the sites was very scanty, and the evidence indicates that in every case the cultural deposits are thin and do not require further attention.

Buffalo Bill Reservoir site.—This project, on the Shoshone River in Park County, Wyo., consists of an enlargement of an existing reservoir. It was visited by the reconnaissance party during a single day in June 1951. Examination of the terrain that will be flooded by the increased water storage failed to reveal any evidence of aboriginal occupation.

Bull Creek Reservoir site.—The site of the dam that will create this reservoir lies about 5 miles southwest of Buffalo, Wyo., on Bull Creek, an intermittent tributary of Clear Creek in the Powder River drainage. It lies in the eastern foothills of the Bighorn Mountains, and vegetationally it is characterized by sparse short grasses and a lack of trees. Five sites of archeological interest were observed by the reconnaissance party during two inspections of the few-hundred-acre area in June 1951. Two of these consist of numerous stone circles—approximately 25 circles in one site (48JO201), approximately 100 in the other (48JO204)—and yielded chipped-stone artifacts, and another is a series of small stone cairns which may cover burials. The two remaining sites are a single isolated stone circle and a small camp. In view of our lack of knowledge relative to the prehistory of this vicinity and of “tipi-ring” sites in general, some further investigation of at least two of these sites would be desirable.

Clark Canyon Reservoir site.—The dam site is on the Beaverhead River just below the junction of Red Rock and Horse Prairie Creeks, in Beaverhead County, Mont., approximately 18 miles southwest of the town of Dillon. The reservoir will cover an area of approxi-

mately 5,000 acres, much of which is a relatively wide, flat valley bordered by rugged, sagebrush-covered hills. Four camp sites, marked by a thin scattering of stone artifacts and chips on the surface, appear to be the result of brief occupations. None of them is believed to contain deposits of any depth. Several sites, apparently of similar nature, are known to exist along the Beaverhead River below the dam site. Among the artifacts and flakes from these sites, as from some of the sites in the reservoir area, obsidian occurs frequently.

Kelley Reservoir site.—The proposed reservoir will be on Rattlesnake Creek, a tributary of the Beaverhead River, in Beaverhead County, Mont. The flat valley floor is bordered by steep, pine-clad slopes, and locations suitable for occupational sites are few. No locations of archeological interest were found during the 1-day reconnaissance in July 1950, and local residents reported having found no aboriginal materials in the immediate vicinity.

Keyhole Reservoir site.—Keyhole Dam, under construction in 1951, is on the Belle Fourche River, in Crook County, Wyo. The reservoir will occupy the main valley for an airline distance of approximately 11 miles and will drown the lower reaches of six intermittent tributaries. Two markedly different types of terrain are found along this stretch of the river. The upper part of the reservoir is flanked by extensively eroded buttes and hills which support short grasses and sagebrush, while the topography adjoining the river nearer the dam is characterized by rugged hills and ridges covered by pines and junipers.

Twenty-nine sites were recorded during a 5-day examination of the more accessible and promising parts of the area in September 1948. During the period October 7–November 1, 1950, a 2-man reconnaissance party led by Robert L. Shalkop re-examined previously recorded sites and discovered 17 additional ones in the course of a rather comprehensive coverage of the area. A party under the supervision of Richard P. Wheeler was in the Keyhole Reservoir area from June 25 to September 25, 1951, primarily for the purpose of excavating the most significant sites. During this season 13 new sites were found. Most of the 59 recorded sites are open camps, but two stratified rock shelters, three workshops, and a quarry site are among the total. Six sites were more or less extensively excavated by the Wheeler party; these included the two known rock shelters and four open camp sites.

At 48CK47 (Miller Creek site), an extensive camp on a low terrace in the upper part of the reservoir, an unprepared hearth and a stone hearth were uncovered in a shallow occupational deposit. The

artifacts recovered include side-notched and corner-notched points, a milling slab, a perforated silver concha, and a small sample of smooth and simple-stamped sherds. Among the last are rims which resemble some from site 39FA83, in the Angostura Reservoir area, in having a slightly S-shaped profile and bearing horizontal incised lines on their exterior surfaces; these specimens differ, however, in having oblique incised lines on the lip. The presence of corner-notched points, on the one hand, and of side-notched points and simple-stamped pottery, on the other, suggests more than one occupation, each of which was evidently brief.

Site 48CK46, an open camp site on a pine-covered ridge bordering Deer Creek, proved to contain numerous stone hearths, basin- or bowl-shaped, and stone-filled roasting pits sometimes more than 2 feet deep. The artifact collection includes corner-notched projectile points and lacks pottery.

Site 48CK13 appears on typological grounds to have been occupied two or three times, although no stratigraphic separation was observable. Hearths uncovered include both unprepared and rock-lined, basin-shaped types. The projectile points are of three distinct kinds—lanceolate with basal notches, side-notched and basally notched, and corner-notched. The lanceolate points from the site are like those recovered in the two rock shelters excavated by Wheeler, and discussed below, and by a University of Wyoming party in the lower level of a very productive open camp site, 48CK7, on the right side of the Belle Fourche River below the mouth of Wind Creek. These points have been described as a type under the name "McKean Lanceolate" by Wheeler, 1952).

Rather small-scale excavations were undertaken at site 48FR209, on a high terrace south of the Belle Fourche River and east of Wind Creek. In the vicinity of a single unprepared hearth and a nearby post hole were found several stone artifacts, including corner-notched, concave-based points, large pointed oval blades, and scrapers, and two antler fragments which may have been flakers. A very small camp site seems to be indicated by the evidence.

Perhaps the most significant excavations by the River Basin Surveys party were in two rock shelters, 48CK4 (Belle Rockshelter) and 48CK204 (Mule Creek site), both within about a mile of the dam site. Intensive excavation revealed that points of the McKean type were present in the lower levels of both and that later forms characterized the overlying deposits. In both sites the stratigraphic situation was rather obscure throughout most of the relatively shallow deposits, but in each instance evidence was found to establish the pri-

ority of the McKean point. At 48CK204 (pl. 1, b), for example, three of these points and a stemmed and basally notched point were found with a stone hearth just above bedrock, while above an overlying rock fall, upon which lay several later stone hearths, was a side-notched triangular point. At 48CK4, too, triangular points were recovered from the deposits which overlay those containing points of lanceolate form. An additional element was present in the later deposits of 48CK204. A number of cord-marked sherds were recovered. They include a fragment of rim with one of what was probably a series of somewhat vertically elongated punctations creating nodes on the interior of the vessel a short distance below the lip. This pottery is probably assignable to some Woodland variant with relationships primarily to the east. Charcoal was collected from the various levels of these two sites, and samples from hearths in the lower levels of both were submitted for radiocarbon dating. They yielded a date of 2790 ± 350 years ago for the lower level of 48CK204 and an average date of 1646 ± 200 for the corresponding horizon in 48CK4. It would appear that these dates must be regarded with some skepticism. Since the association of the charcoal with an apparently identical complex at the two sites seems certain, the time difference of more than a thousand years is not archeologically acceptable. Furthermore, either figure seems somewhat low in the light of the stratigraphic positions of specimens resembling the McKean point found elsewhere, as at Signal Butte, western Nebraska, and Pictograph Cave, near Billings, Mont.

Landon Reservoir site.—The Landon Dam site is on Blacktail Deer Creek, about 15 miles southeast of Dillon, in Beaverhead County, Mont. The site of the reservoir, which will be approximately 2 miles long, includes an extensive, fairly level terrace which would seem to be well adapted to aboriginal occupation, but only four small, thinly occupied camp sites were discovered. Only one or two artifacts were collected from each of the sites. More numerous and apparently more prolific sites are found along the creek just below the reservoir area, and collections of artifacts from nearby sites are in the possession of local residents.

Little Bighorn Reservoir site.—This reservoir will flood approximately three miles of the Little Bighorn River in Big Horn County, Mont., at a point about 40 miles northwest of Sheridan, Wyo. It will be located in a region of low, rolling hills just below the canyon of the Bighorn Mountains through which the river flows. The hills are scantily covered with short grasses, while the valley floor supports a heavy growth of small trees, and the general area is one which

would be favorable for peoples with a hunting and gathering economy. Bad weather limited the July 1951 reconnaissance to less than two days, and it seems certain that further search of the terrain will reveal additional archeological remains. Of the three sites found during the incomplete survey, two appear to be of exceptional importance; the third is a small, briefly inhabited camp site. Both of the more significant sites are large, contain hearths, and yield cultural materials in quantities which betoken occupation of some intensity and duration. The basal portion of a Plainview point and two end scrapers like some which have been found elsewhere in old contexts were collected from the surface of one (24BH202). The point fragments found at the second site (24BH201) suggest a later complex.

*Middle Fork Reservoir site.*¹—The proposed dam, on the Middle Fork of the Powder River approximately 12 miles southwest of Kaycee in Johnson County, Wyo., will form a reservoir about 6 miles long. The valley to be flooded is in general broad and flat-floored and is bordered by sheer sandstone cliffs or steep-sided bluffs. A 9-day reconnaissance in August and September 1950 covered the entire reservoir area, and since the vegetation cover was not heavy it is believed that all exposed sites were found. Sixteen locations of archeological interest were recorded; 11 are camp sites, 1 is a "tipi ring," 2 are groups of petroglyphs, 1 is a rock shelter which contains evidence of occupation, and 1 is a camp site with adjacent petroglyphs. Several of the camp sites yielded rather abundant surface collections of stonework, and some will probably prove to have deposits of some depth. Projectile points are exceedingly rare among the materials recovered by the reconnaissance party, but a local collection, reported to be exclusively from Johnson County, contains large numbers of points of several types characteristic of different complexes and time levels. Among these are specimens which appear to be representative of the Plainview and other early types and, at the other end of the time scale, specimens of iron and copper. Seven sites in this reservoir have been recommended for further investigation. Four (48JO2, 11, 12, and 15) are camp sites, two (48JO4 and 6) are petroglyphs, and one (48JO3) is an occupied rock shelter with petroglyphs.

Moorhead Reservoir site.—The Moorhead Reservoir, to be created by a dam situated near Moorhead, Mont., will flood approximately 32 miles of the Powder River in Powder River County, Mont., and Campbell and Sheridan Counties, Wyo. In 1949, five days were spent

¹ In 1952 the name of this project was changed to Hole-in-the-Wall Reservoir.

in careful examination of the lower end of the reservoir area and in spot checks along the right side of the river (Wedel, 1953b, pp. 84-85). In 1950 the reconnaissance of the area to be inundated was completed during a period of approximately a month which was punctuated by bad weather. In all, 18 locations of archeological significance were recorded within or at the border of the future pool. Three of these are sites composed of from one to three "tipi rings," and the remainder are camp sites varying in size and in the abundance of cultural materials found on the surface. All the sites appear to be nonceramic. Cultural debris was lacking on the surface of the "tipi-ring" sites, while the other sites yielded lithic remains including scrapers, knives, flakes, cores, and—rarely—fragmentary projectile points, mainly stemmed and of medium size. A few fragments of obsidian occur in the collections. Locally owned collections, reputedly from the vicinity of the reservoir area, include projectile points which appear to relate to various time levels, from fairly early to the historic period. Several bison kills are reported from the region and artifacts from some of them are in the local collections. Most of the objects seem to refer to other than very ancient horizons, but collections reportedly made from the surface include occasional specimens which suggest early contexts.

Two of the camp sites in the reservoir, 24PR8 and 48CA6, appear to have deposits of some depth and have been recommended for excavation.

Nilan Reservoir site.—As proposed, this reservoir will be an enlargement of a small existing natural body of water, Beale Lake. It is in a rolling section of the high plains within view of the continental divide, a few miles to the west. Only two locations of archeological interest, a rock cairn and a "tipi ring," were found during the reconnaissance in July 1950, and they were both above the full pool line. No artifacts were recovered from either.

Red Gulch Reservoir site.—The dam, as proposed, will be on Red Gulch, an intermittent tributary of Shell Creek, a stream which enters the Bighorn River just below Greybull, Wyo. The very small lake, less than 450 acres in extent at flood level, will be entirely within a badland area and over a valley floor which now supports exceedingly scanty vegetation. The brief but comprehensive reconnaissance in June 1951 revealed that the surface of the entire reservoir area bears the litter of flint-working activities and possibly of camping. In addition, cultural deposits were observed in cut banks at depths of as much as 3 feet beneath the surface. Few artifacts were found by

the reconnaissance party, but it is presumed that the previous activities of collectors is largely responsible for this fact.

Smith Reservoir site.—An attempt was made in June 1951 to survey the proposed reservoir area, but unfavorable weather prevented extensive examination of the surface. No sites were found and it seems unlikely that this small reservoir, at an elevation of over 8,000 feet above sea level on the North Fork of the Powder River, Wyo., will destroy archeological remains of consequence.

South Fork Reservoir site.—As proposed, the South Fork Dam will form a lake less than 2 miles long on the South Fork of the Tongue River in Sheridan County, Wyo. Situated on a high plateau in the Bighorn Mountains, at an elevation in excess of 7,500 feet, the area to be inundated consists largely of rather steep, densely wooded slopes. No locations of archeological interest were observed, and no information was obtained to suggest that archeological materials had ever been found in the immediate vicinity.

*Sun Butte Reservoir site.*²—The site of the proposed Sun Butte Dam is just above the existing Gibson Reservoir on the North Fork of the North Fork of the Sun River approximately 24 miles northwest of Augusta, Mont. The terrain in which the 5- or 6-mile-long lake will lie consists of pine-clad slopes on the right side of the stream and grassy terraces flanked by forested hills on the left side. Only two sites reflecting aboriginal activity were recorded during the brief but comprehensive reconnaissance in July 1950. Neither of the sites—one a small camp site yielding a small triangular point of obsidian, charcoal, and bones, the other a petroglyph locality—will be flooded.

Tiber Reservoir site.—The Tiber Dam, situated about 45 miles above the mouth of the Marias River, a major tributary of the Missouri in northern Montana, will form a reservoir about 26 miles long. The area in question, although unsuitable for native agriculture, once possessed considerable food resources for the aboriginal population, as shown by Meriwether Lewis's observation of abundant game during his exploration of the Marias River in 1806. The Blackfoot and Gros Ventres hunted the territory in historic times.

The comprehensive reconnaissance of the reservoir area in 1946 and 1947 (Wedel, 1948, pp. 34-36) revealed 53 locations of archeological significance, including sites of "tipi rings" and of hearths, both surface and buried. In 1950 a party under the supervision of Walter D. Enger, Jr., spent the period from June 9 to September 20

² Formerly Wilson Reservoir.

in more or less intensive excavation of five sites, all lying in the lower half of the reservoir area and so situated that they will be destroyed soon after the beginning of impoundment. In most instances the yield of artifacts was lamentably scanty, but one site of particular interest, insufficiently investigated late in the field season because of earlier high water in the Marias River, appears to be unusually rich and is worthy of additional excavation.

Site 24LT₂ was first observed in 1946, when hearths were found exposed for a distance of about 200 yards along the left bank of the Marias River. In 1950, six trenches, 10 to 40 feet long and of various widths, were excavated at intervals along the cut bank where exposures suggested concentrations of cultural materials. Hearths, usually simple open fireplaces, were found in five of these trenches at depths of approximately 1 to 4 feet in banded alluvial deposits. One stone-lined hearth, partially destroyed by stream cutting, lay at a depth of 1 foot beneath the surface. With one exception, the cultural material was found in a single stratum about 6 inches thick overlain by 6 inches to 1 foot of sterile earth. In one trench, however, a hearth was uncovered at a depth of about 4 feet, and small quantities of bone were found above this feature to a point 1½ feet beneath the surface. Part of a small end scraper with chipping only on the working end comprises the entire artifact yield from the excavations. The balance of the specimens consists of a few flakes of chalcedony and jasper, fragments of water-worn stone, two small fragments of ocher, and bones of bison, cottontail, deer, and sharp-tailed grouse.

Site 24LT₃, revealed by the presence of hearths and charcoal layers in the river bank, lies about one-third mile upstream from 24LT₂, at the foot of a steep-sided hill. Two trenches, 10 feet and 35 feet long, respectively, were excavated to uncover the exposed cultural strata. The smaller excavation revealed three dark zones of varying thicknesses containing charcoal at approximate depths of 2 feet, 4½ feet, and 7½ feet. Indubitable evidence of human occupation was confined to the lowest level, which contained a stone-lined hearth, small quantities of bison bones and stone, and rare chalcedony flakes. It seems probable that the considerable depth of this deposit is largely the result of slope wash from the contiguous hill, and that the higher charcoal-bearing lenses may be secondary deposits. The significant features in the larger trench consisted of shallow, basin-shaped pits surrounded by relatively thin deposits of burned earth and charcoal of limited extent. These features, lying beneath overburden of 3 or 3½ feet, contained bone and stone refuse, but no artifacts.

A brief period was devoted to the testing of site 24TL₃, where

four shallow hearths were uncovered. The excavations yielded only a few chips of chalcedony, chert, and quartzite; a fair quantity of concretions, apparently from the local shales, and of other stones; and a small number of bone fragments, some of which show the effects of fire. None of these materials shows convincing evidence of intentional modification or of use as tools, although a minute smooth-surfaced, grit-tempered sherd, a small side-notched triangular point of jasper, and a fragment of a chert blade were collected from the surface.

At site 24TL6, consisting of "tipi rings" and mounds of stone suspected of covering burials, trenches carried through two of the latter features uncovered a layer of charcoal nearly a foot beneath one of them but no evidence of disturbance beneath the other. The significance of this charcoal lens is in doubt, since no other evidence of human activity was observed. The only artifact from the site is a fragment of a chipped implement, probably a drill, collected from the surface by a reconnaissance party in 1946.

By far the most illuminating site investigated in the Tiber Reservoir was unavailable for excavation until late in the summer because of the earlier high level of the Marias River. Approximately a month, partly with a considerably reduced crew, was spent on this extensive occupational area, site 24TL26 (pl. 2). Exposed for a distance of more than a thousand feet in a terrace just below the point at which the river bends sharply away from the high valley wall, a rich cultural deposit lies beneath alluvial overburden varying from 7 to 12 feet in thickness. The differences in depth appear to be the result of varying distances of the exposures from the bluffs which border the terrace in which the site occurs, since the overburden is greatest adjacent to the uplands and becomes progressively less downstream. Two excavation units were laid out in the shallower part of the site to encompass hearth areas which were visible in the cut bank. Both had an average width of approximately 10 feet and were 25 to 30 feet long, respectively. Excavation was carried to depths of 8 feet in one and 8½ feet in the other. Near the bottom of both excavations there was a continuous stratum half a foot thick containing hearths, both simple and stone-lined; charcoal; ashes; bones; and pottery and other artifacts. Above this stratum, especially at depths of approximately 4 to 6 feet, were discontinuous lenses containing evidences of human occupation. These lenses in most instances apparently represented hearth areas and there was one group of six holes, perhaps post molds, in a roughly circular arrangement around an area with diameters of approximately 12 to 14 feet. Cultural materials were

scanty in the upper levels. They consisted of fragments of bone, mostly of bison but occasionally of deer; obsidian and chalcedony chips and other stone fragments; and an exceedingly small number of artifacts. Much of the bone was in small fragments and some of it was scorched. Stone artifacts in the upper levels include the basal fragment of a small side-notched triangular point of chalcedony with concave base. The width at the base is 14 mm. and the length of the complete point was probably about 27 mm. Another fragment, of chert, is presumably from a fairly small, straight-based point, but the dimensions and form are not further determinable. The only other stone object showing indubitable evidence of human workmanship is a small chalcedony flake with fine retouching on one edge. Other objects which have been modified further than simply by breaking are a fragment of scapula with two straight parallel lines lightly incised on one surface and an antler tine 180 mm. long with a battered and somewhat polished tip suggesting use in chipping (pl. 4, 14). A series of transverse cuts encircling the latter specimen at 58 to 77 mm. from the base suggests that a beginning was made toward shortening the implement. A minor amount of abrasion on the tip of another, short, antler fragment may be the result of use.

The lower cultural deposit appears to represent an occupation of considerable intensity, judging by the results of the limited excavation and by its uninterrupted exposure for hundreds of feet along the terrace edge. Averaging approximately a half foot in thickness, it contains quantities of unworked stone, much of it fractured probably by heat, and bone; flint chips; relatively abundant artifacts of stone and bone; and pottery sherds. The bone is predominantly bison, but dog remains are fairly numerous and one to three bones each of deer, elk, antelope, and jack rabbit were found in the excavations. Hearths, only one of which was lined with stones, were uncovered in both trenches.

Fourteen pottery sherds, some of which have been combined to make a final total of eight fragments, were recovered in the lower cultural zone. In every instance the paste is rather compact and is dark gray to black, but the exterior surfaces of five fragments are light gray or tan. Tempering material, which is only moderately abundant, appears to be preponderantly crushed granite, though an occasional grain of sand is visible on the broken edges. Deposits of carbonized material are present on both exterior and interior surfaces, but more commonly on the latter. The deposit on the inside of one vessel is 4 mm. thick. Surface hardness is between 3.5 and 4 (i.e., surfaces can be scratched by the mineral fluorite but not by

the mineral celestite). The sherds range in thickness from 3.5 to 11 mm., with the mode at about 6 mm. Interior surfaces are rather smooth to the touch, but are frequently uneven, as though the fingers or small objects of some sort had been used to support the vessel walls on the inside during the manufacture.

Three fragments, one a rim sherd, have smooth exterior surfaces. The body sherds are too small to yield information as to vessel shape, but the rim is apparently from a heavy-walled, open bowl (pl. 5, *a*, 1), the rim of which is thickened both inwardly and outwardly to give the perfectly flat lip a width of 15 mm. in contrast to the 10-mm. thickness of the vessel body. This specimen is very similar to a rim sherd in our collections from a late level in Birdshead Cave, in the Owl Creek Mountains of western Wyoming (Bliss, 1950, p. 193), except that the surfaces of the latter have a gritty feel lacking in the present collection. The exterior surfaces of the remainder of the sherds were impressed with fibrous material of some sort, apparently never twisted (pl. 5, *a*, 2-5). The impressions are invariably shallow and in three instances they are relatively fine and lie parallel as though the individual elements of the impressing object were wrapped about a paddle. On another specimen, parallel grooves about 2.5 mm. wide and spaced about 1 mm. apart lie across, and perpendicular to, shallow elongated depressions, about 75 mm. wide, which alternate with low ridges (pl. 5, *a*, 3); a similar effect was created in the laboratory by impressing modeling clay with coiled basketry. Still another sherd (pl. 5, *a*, 4) may have been treated in the same fashion, but the evidence is less clear. All but one of the sherds with roughened surfaces bear traces of decoration, which in every instance appears to consist of a shallow, crudely trailed line following a zigzag path about the vessel (pl. 5, *a*, 2-5). The one specimen in which the lip is present is a rim which appears to slope somewhat inwardly (pl. 5, *a*, 2). The flat lip bears a series of slightly elliptical impressions, the creation of which, perhaps with the fingers, has thickened this feature toward both surfaces of the vessel. The upper points of the trailed zigzag line reach nearly to the lip. Another specimen consists of what appears to be a segment of an angularly S-shaped rim and of the constricted neck of a jar (pl. 5, *a*, 5). A series of nearly circular impressions, probably made with the finger tips, encircles the rim at its maximum circumference and the trailed decoration is on the shoulder area. One other sherd, probably from a different pot, also indicates the presence of a constricted neck (pl. 5, *a*, 4). Except for the features noted above, the sherds in the small collection yield no information relative to the shape of the complete

vessels, but both open bowls and pots with constricted necks are suggested.

The relationships of this pottery are not readily apparent. Except for the rim sherd from Birdshead Cave, mentioned above, I have not seen sherds or descriptions of sherds which resemble it closely. Collections described by Wedel (1951) from sites geographically close to the Tiber Reservoir area, notably a site near Ethridge in Toole County, Mont., seem to differ significantly in surface treatment and decorative technique. One similarity, for whatever it may be worth, is the presence of a series of notches on a carinate portion of the vessel. In the case of the Ethridge specimens, however, this feature apparently is found on the body of the pot, whereas I am of the opinion the Tiber specimen in question is a rim (pl. 5, *a*, 5). Furthermore, the technique of producing the notches appears to be different in the two instances. Rims of somewhat reminiscent form and decorative treatment occur rarely in the collections from the Oldham site, and from other sites on the Missouri River in South Dakota, but otherwise, except for general resemblances in paste and tempering, these sherds do not seem to correspond closely with known ceramics from the central and northern Plains.

Other artifacts from this occupational zone include objects of stone and bone. Chipped artifacts, which are of limited variety, and chipping debris consist of jasper, chalcedony, chert, flint, quartzite, and obsidian. Of the 20 projectile points (pl. 3, 1-12, 14) and fragments identifiable as parts of points, 8 are of chert, 6 of obsidian, 2 of flint, 2 of jasper, and 2 of chalcedony. End scrapers, on the other hand, are predominantly of jasper. Of the implements of this class or fragments believed to be parts of them, 14 are made of that material, while 3 are of chert, 2 are of flint, 1 is of chalcedony, and 1 is of fine-grained quartzite. Points are both side-notched and plain. Of the complete specimens or fragments on which this feature can be determined, 10 are notched and 8 are plain. In general, the former have straight or very slightly concave bases and straight or slightly convex sides. The unnotched points have straight, concave, or convex bases and convex sides. Most of the points are rather skillfully chipped over all, but a few, notably those of obsidian (pl. 3, 7, 8, 14), are exceedingly crude and most often chipped only at the edges. One of the obsidian points appears to have been reworked (pl. 3, 8). Complete points range in length from 12 to 36 mm. and in width from 9 to 18 mm. There are no fragments that indicate points appreciably larger than the largest of these.

Most of the complete or nearly complete end scrapers are triangu-

loid in outline and planoconvex in cross section (pl. 3, 15-23). The ventral surface invariably consists of the unmodified flake surface, while the dorsal surface is ordinarily chipped to the extent necessary to achieve the desired triangular shape. The steep, carefully chipped working edge is always convex. The specimens vary in length from 18 to 30 mm. and in width from 19 to 26 mm. A planoconvex object perhaps related to these implements is an oval with the two opposite edges chipped to resemble the working edge of an end scraper (pl. 3, 24).

Other chipped objects in addition to retouched flakes are an asymmetrical, unifacially worked point of flint (pl. 3, 13), a small bifacially worked blade of quartzite (pl. 3, 26), and a flake with two notches chipped into two of its three edges (pl. 3, 25).

Awls are the most numerous of the bone artifacts. Of the complete specimens, three are made from the split proximal ends of deer or antelope metapodials (pl. 4, 9, 10, 13), one is from part of the axillary border and adjacent portion of a scapula, possibly of deer (pl. 4, 8), and one is from a rough fragment of the lateral surface of a bison rib with the cancellous bone unmodified (pl. 4, 4). All but the last of these have sharp, slender points. Of the two fragmentary specimens, one is a segment, squarish in cross section, of a long bone (pl. 4, 11), and the other is from a split rib with the cancellous bone partially removed (pl. 4, 7). Three blunt-pointed objects are splinters of long bones which have been worked only at and near the tips (pl. 4, 1, 3, 12). The single shaft straightener in the collection is a section of rib bearing a complete perforation and the remains of another at each of the broken ends (pl. 4, 2). Each edge of the rib bears two groups of 5 to 7 narrow, shallow, transverse notches. Two incomplete specimens made from split ribs have rounded ends and smoothed edges (pl. 4, 5, 6). In both instances, the cancellous bone has been partially removed. On two fragments of rib, probably of bison, the mesial surface was broken away near one end and the remaining lateral surface was worked to a blunt point (pl. 4, 15, 16). The remaining artifact of this material is a small, highly polished tubular bead of bird bone.

Of exotic material, there is a single specimen from the lower level of this site, a shell, *Olivella (Callianax) biplicata* Sowerby, with provenience on the Pacific coast, which has been altered by a large break through the wall away from the natural opening. The borders of the break are well polished, as is the exterior surface of the shell in general, and so there is no question that the specimen was used subsequent to the breakage (pl. 5, a, 7).

On typological grounds, the lower occupation of 24TL26 appears to be relatively late and thus attests to the recency of the considerable deposits above it. A study of the site by a geologist would be desirable.

Triangle Park Reservoir site.—This will be a very small reservoir on the South Fork of Rock Creek, high in the Bighorn Mountains in Johnson County, Wyo. No archeological sites were found during the reconnaissance, in June 1951, of this area, which lies at an altitude of approximately 8,800 feet above sea level.

Willow Park Reservoir site.—Within a few miles of the Triangle Park Reservoir area is the site of the proposed Willow Park Reservoir, on the South Fork of Piney Creek, in Johnson County, Wyo., in the Bighorn Mountains. It is more than 8,500 feet above sea level. The reconnaissance, accomplished in June 1951, revealed no evidence of aboriginal occupation.

Yellowtail Reservoir site.—The site of the Yellowtail Dam is on the Bighorn River in Big Horn County, Mont., approximately 40 miles southeast of Billings. The water to be impounded by the 500-foot-high concrete structure will flood the full length of the spectacular Bighorn Canyon and will back up to a point some miles above Kane, Wyo. The river here is flanked by the Bighorn Mountains on the east and the Pryor Mountains on the west. These ranges are forested, in contrast to the sparsely sagebrush-covered lower surfaces bordering the river valley. In the upper end of the reservoir area the valley is broad and shallow, with cottonwoods and smaller growth on the flood plain and sagebrush on the terraces. About 8 miles below the mouth of the Shoshone River, the only major tributary in the reservoir area, the Bighorn River enters the Bighorn Canyon, through which it flows to a point below the dam site. In its course through the predominantly narrow, sheer-walled canyon, the river is frequently characterized by impressive rapids.

The reservoir area has been the object of attention by archeologists of the Missouri Basin Project at three different times, in 1946, 1950, and 1951. A 4-day reconnaissance in 1946 amounted to little more than a spot check of the most accessible places, but during a 3-week period in 1950 the entire area outside the canyon was examined. Finally, in July 1951, an 11-day boat trip through the canyon was accomplished with the aid of local guides and boatmen, and all terrain suitable for aboriginal occupation within the canyon was inspected. Forty-nine sites of various kinds have been recorded, but only about half of them are likely to be destroyed. "Tipi-ring" sites and other open camp sites account for more than two-thirds of the locations of archeological interest, which include also rock shelters, petroglyphs,

bison kills, a group of rock cairns, a workshop area, an Indian trail, and a recent Indian hunting lodge. Several of the camp sites are of considerable size, and some appear to have deposits of appreciable depth. Cultural materials, although absent or scanty on the surfaces of some sites, are rather abundant on others. One interesting site, 48BH₇ (pl. 5, b), consisting of 23 stone circles, yielded numerous sherds of pottery characterized by coarse, abundant grit tempering; surfaces which probably were treated with a grooved or thong-wrapped paddle; and, at least sometimes, a constricted neck and a flat lip thickened to the interior. In addition, a number of artifacts of stone were collected from the surface.

Despite the relative inaccessibility of the canyon, much of the favorable terrain within its confines was found to bear evidence of aboriginal occupation, usually camp sites with or without "tipi rings." Aside from the circles of stones, the occupational evidence observable on the surface consisted primarily of hearths, stone artifacts, and chipping debris.

The evidence accumulated by the surveys in the Yellowtail area demonstrates that the banks of the Bighorn River, lying within the historic habitat of the Crow Indians, have been inhabited during a relatively long period of time, most of which undoubtedly antedates the arrival of that group in the area.

NEBRASKA

Field work in Nebraska by the River Basin Surveys was restricted during this period to the Niobrara River Basin, where 10 potential reservoir sites were reconnoitered by Richard P. Wheeler and J. M. Shippee in October, 1950, and to the Lower Platte River Basin, where Robert B. Cumming, Jr., and Shippee carried out limited investigations in November of the same year.

Lower Platte River Basin

A number of potential reservoirs in the Lower Platte Basin had been previously surveyed by the River Basin Surveys and by a party from the Laboratory of Anthropology of the University of Nebraska. A brief reconnaissance was undertaken in November 1950 by Robert B. Cumming, Jr., and J. M. Shippee to supplement the earlier surveys and to investigate burials reported by the Bureau of Reclamation to have been encountered by its survey crews. Both reported burials were excavated and the sites of several possible water-development structures were examined. One of the burials, 25HW201, was near the Cushing Dam site, in Howard County. Although badly disturbed

before excavation by the survey party, the evidence indicates it consisted of two adults, at least one of which was tightly flexed. Only a few fragments of the other remained. A grit-tempered, cord-marked pottery sherd was found in the earth which had been recently disturbed. The other burial, 25NC201, was on a ridge bordering the valley of Cedar River, in Nance County. The incomplete remains of four individuals, representing secondary burials, were found generally scattered in an oval pit covered with stones. Among the bones present was one small fragment, probably from a tibia, which had been artificially perforated. In the pit fill were a number of grit-tempered, cord-marked sherds which appear to be attributable to one of the early Woodland variants in the area. Long bones with perforations similar to the one mentioned here were found in secondary burials in a submound pit in a site, 39CH4, excavated in 1947 by the River Basin Surveys in the Fort Randall Reservoir, South Dakota (Cooper, 1949, p. 309).

The area that would be occupied by the Sherman Reservoir and the routes to be followed by the Sherman Feeder Canal and the Sargent and Woods Park Canals, if these various features are constructed, were surveyed. Only one site pertaining to archeology was found, and that was a small area yielding a sherd, two scrapers, and a little White material, which does not warrant further investigation. This site and a site where fossil bones of elephant and possibly bison were found weathering out of a loess deposit are near the course of the potential Sherman Feeder Canal. The paleontological site probably deserves investigation.

Niobrara River Basin

The survey of the Niobrara River Basin, together with the more intensive investigations that should follow it, exemplifies in miniature one of the notable ways in which the salvage program is contributing to our knowledge of the prehistory of the Missouri Basin, namely by the sampling of archeological manifestations over extensive areas of locally diverse environments. The Niobrara River, heading in eastern Wyoming, flows east across northern Nebraska through parts of the Nebraska-Wyoming Upland, the Nebraska Sand Hills, and the Loess Plains, all subdivisions of the High Plains, and through the southern part of the Missouri Plateau to its confluence with the Missouri River (Fenneman, 1931, pp. 17-22, 61-72). In its upper reaches, it has a narrow, sparsely tree-fringed channel meandering in a valley bordered by high, slightly undulating plains covered with short grass, but to the east, augmented by a number of spring-fed tributaries, it

becomes a sizable stream with a relatively uniform flow in a valley which supports rather heavy stands of timber. There is a corresponding variation in the climate of the basin. For example, average annual precipitation ranges from less than 15 inches near the headwaters to about 23 inches in the lower part of the valley. The Niobrara drainage basin comprises a narrow strip of land, never in excess of approximately 60 miles in width, across the northern edge of Nebraska with extensions west into Wyoming and north into South Dakota. It may be anticipated that cultural remains will reflect the climatic and ecological variations along the east-west profile provided by this basin.

The 10 reservoir sites reconnoitered, in most instances incompletely, in 1950 are all in Nebraska. They are Colwell, in Sheridan and Dawes Counties about 70 miles east of the Wyoming line; Crookston, Eli, Kilgore, Long Pine, Meadville, Merritt, Sparks, and Thacher in the central section of the basin; and Ponca Creek on the stream of the same name, actually outside the Niobrara drainage but immediately adjacent to its lower reaches.

Other projects in the basin are the existing Box Butte Reservoir, briefly visited by a River Basin Surveys party in 1946, and two potential reservoirs—Keya Paha and Verdel—not investigated in 1950 because their locations were not known at that time.

Colwell Reservoir site.—The Colwell Dam, if constructed, will create a reservoir approximately $4\frac{1}{2}$ miles long in the Niobrara River Valley proper and extending some distance up Sand Canyon and Pepper Creek, northern tributaries of the river. The river here is a small stream in a valley of low, flat terraces cut into high rolling plains covered with short grass. Other vegetation consists of scanty trees and brush along the water courses. Part of the reservoir area was examined during a 2-day visit, during which three camp sites and a workshop were found. In each instance, materials were relatively scanty on the surface but this is, at least in some cases, undoubtedly owing to the existence of sterile overburden. The collections made from the sites are preponderantly stone objects, but a sherd or two were found on two of the sites. These pottery fragments are small and nondiagnostic, although one appears to be simple-stamped and accordingly suggests a relatively late date. The three sites which will be destroyed by the reservoir (25SH201, 203, and 204) are believed to warrant test-trenching, and additional survey will be required to complete coverage of the area to be flooded.

Crookston Reservoir site.—The potential Crookston Reservoir will be a lake approximately $12\frac{1}{2}$ miles long if current plans for a dam on the Niobrara River about 10 miles southwest of Valentine are carried

through. The lower end of the Snake River will also be flooded. Both the Niobrara and Snake Rivers flow here in narrow valleys bordered by high wooded bluffs, and the region would seem to be suitable for aboriginal occupation, but during the reconnaissance of approximately two days no archeological sites were discovered.

Eli Reservoir site.—According to present plans, the Niobrara will be dammed at a point about 17 miles southwest of Cody to create a reservoir approximately $12\frac{1}{2}$ miles long. The valley to be flooded varies from deep and narrow to flat and wide and its bottom supports cottonwood groves. Other deciduous species and juniper grow sparsely on the slopes. A partial reconnaissance during two days revealed two archeological sites, one producing pottery and the other only lithic materials. It is reasonable to suppose that complete reconnaissance would produce a number of additional sites. The ceramic site appears to have been occupied two or more times, since heavy sherds of Woodland type and other cord-marked and plain sherds similar to pottery from Upper Republican or Nebraska aspect sites were collected. The lithic site apparently is the remains of a workshop.

Kilgore Reservoir site.—Current plans are for the construction of a dam on the Niobrara River 10 miles south of the town of Kilgore to impound a pool approximately $12\frac{1}{2}$ miles long. The valley here is narrow and wooded both on the bottomland and the slopes. The partial reconnaissance of less than two days resulted in the discovery of three sites which yielded pottery, though in small quantities probably because of the heavy vegetation cover. The sherds collected from one of the sites are plain and those from another are simple-stamped, while the surface treatment of those from the third is indeterminable. Two of the sites (25CE214 and 215) are considered worthy of some excavation and those portions of the reservoir area not visited should be examined for additional sites.

Long Pine Reservoir site.—The site of the potential Long Pine Dam is on Long Pine Creek, about half a mile above its confluence with the Niobrara River. The reservoir would directly affect about 10 miles of the valley of Long Pine Creek and the lower 2 or 3 miles of two tributaries, Short Pine and Bone Creeks. All these streams are contained in narrow wooded valleys bordered by loess-mantled bluffs. During a brief inspection of part of the reservoir area, the reconnaissance party recorded seven occupational sites, all of which yielded pottery. Three of the sites had been discovered by previous parties, one by personnel of the Nebraska State Historical Society, and two by a group representing the University of Nebraska Laboratory of

Anthropology. The latter party also recorded two sites in the reservoir area which were not observed in 1950. The reconnaissance produced no evidence of structures in any of the sites, some of which are extensive while others appear to be the locations of small camps. The collections, although in no case large and often rather scanty, suggest that, except for a suspected lithic component at one site, all the occupations represented are referable to a single complex or to rather closely related ones. The pottery in the larger collections has simple-stamped surfaces; trailed or incised and punctated shoulders; rims which are undecorated or have incised decorations, usually a series of horizontal lines, on the exterior surface; and lips which usually bear incised or impressed lines. Most of the sherds from the smaller collections have characteristics which are compatible with the ceramic complex represented by the larger collections. The pottery is like that reported from northeastern Wyoming by Wedel (1947a) and closely resembles ceramics found in excavations at the Minaric sites near the mouth of Ponca Creek by the University of Nebraska Laboratory of Anthropology. Similar pottery has been collected from numerous sites in northern Nebraska and on the Missouri River as far north as the North Dakota-South Dakota line. It has been suggested, on the basis of the presumably relatively late date of the complex and its presence in an area dominated by the Ponca tribe when first recorded by Europeans, that this ethnic group was responsible for the culture revealed, but not yet reported, by the excavations in northeastern Nebraska.

Meadville Reservoir site.—The Meadville project, if carried through, would include a reservoir approximately 21 miles long in the valley of the Niobrara River, with an arm extending about 8 miles up the valley of Plum Creek. Both of these streams flow perennially in valleys with wooded bottom lands and slopes. Less than half the reservoir area was covered by the reconnaissance in October 1950, but six sites of aboriginal occupation were found. Few artifacts were recovered, and they were generally not diagnostic. Three of the sites (25BW202, 203, and 204), all apparently nonceramic, may be of some age and are considered worthy of further investigation. Additional survey will probably produce further evidence of Indian activity.

Merritt Reservoir site.—Current plans call for a dam on the Snake River, in Cherry County, about 3 miles below the mouth of Boardmans Creek and a similar distance above the Snake River Falls. The impounded water will extend about 12 miles up the Snake River and about 4 miles up Boardmans Creek, the principal tributary in the reservoir area. The vegetation in this sandhill region is limited to

grasses on the uplands away from the streams, clumps of cottonwoods along the channels, and sporadic junipers on the valley slopes. A minor proportion of the area to be affected by the reservoir was examined during the brief 1950 reconnaissance, but three archeological sites were recorded. The only one of these which produced pottery (25CE210) is apparently the site visited by Wedel in 1931 and reported in a paper (1947a) devoted primarily to a description of sherds from northeastern Wyoming. Wedel's impression, based on his memory of the materials observed in 1931, was that they closely resembled the Wyoming specimens. The present collection is too small to permit any appreciable contribution in this regard; the few small body sherds recorded are either plain or are decorated with narrow incised lines and seem to be compatible with Wedel's description of the Wyoming pottery. The other two sites, apparently the locations of camps, produced small numbers of stone objects.

Ponca Creek Reservoir site.—Potential Ponca Creek Reservoir, although for administrative reasons included by the Bureau of Reclamation in the Niobrara River Basin, is on a stream which lies outside the drainage of this river. Ponca Creek rises in Tripp County, S. Dak., and enters the Missouri River only a few miles above the mouth of the Niobrara. The reservoir is planned for a location near Butte, in Boyd County, Nebr., where it will flood approximately 9 miles of a valley which is bordered by high, loess-mantled terraces. Deciduous trees line the banks of the streams, and there is some timber on the slopes to the uplands. The reconnaissance of 1950, which constituted merely a spot check of part of the area, resulted in the recording of seven archeological sites, all occupational areas. Two of these (25BD201 and 25BD207) are extensive villages, in one of which evidences of three house structures were observed in the edge of an abandoned gravel pit, which had destroyed part of the site. The collections of pottery from these two villages appear to belong to closely related, though perhaps not identical, complexes. Both collections contain pottery with smooth or cord-marked surfaces, rims which are usually flaring and predominantly undecorated except for impressions or incisions on the lip panel or border, and punctated and incised or trailed shoulders. Collared rims are rare, as are rims whose exterior surfaces have been decorated by incising or trailing. The exterior surface of this part of the vessel is frequently cord-marked. There are differences in the samples from the two sites which may or may not accurately reflect differences in the total pottery complexes. These include the presence of handles and a greater frequency of shoulder decoration in the materials from 25BD201 and, on the other hand,

a number of simple-stamped body sherds and a fabric-marked sherd in the 25BD207 collection. On the basis of the relatively scanty evidence available, it appears that these two sites are closely related to the Lynch site (25BD1), partially excavated in 1936 by the University of Nebraska Laboratory of Anthropology but not yet comprehensively reported in print. Of the remaining sites, all of which yielded few specimens, two, and perhaps three, are probably related to sites 25BD201 and 25BD207. Another has pottery which resembles at least in a general way certain of the ceramics from the Loseke Creek sites, in Platte County, Nebr., excavated by the Nebraska State Historical Society (Kivett, 1952, pp. 52-55); from the Eagle Creek site, in Holt County, Nebr., excavated by the University of Nebraska (Hill and Kivett, 1940, p. 240); and from the Scalp Creek site in Gregory County, S. Dak. (Hurt, 1952, pp. 25-27, and Appendix VIII). The pottery in question has rims that are decorated on their outer surfaces with series of horizontal lines either incised or impressed with a single cord. The sherds are too few and too small to permit assigning them to a pottery complex with any confidence. Only stone specimens were found on the remaining site and these were few and nondiagnostic of specific cultural entities.

Sparks Reservoir site.—The potential Sparks Reservoir site is on the Niobrara River near the eastern boundary of Cherry County. It is in an area characterized by fairly heavy tree growth on the bottom lands and more scattered timber on the slopes. Only the most accessible parts of the reservoir area were covered by the reconnaissance, which resulted in the recording of seven archeological locations, all probably camp sites. A few minute sherds, simple-stamped and incised and apparently related to the pottery from a site in the Merritt Reservoir area, discussed above, were found on one of the sites; the collections of artifacts from the other sites suggest lithic complexes. Most of the 12-mile stretch of the valley to be affected by the reservoir remains to be examined.

Thacher Reservoir site.—The potential Thacher Reservoir, near Valentine, Nebr., will flood approximately 11 miles of the Niobrara River valley and the lower 4 miles of Minnechaduza Creek. Both the valley floor and the slopes in this area support stands of timber. Two sites were recorded during the brief and incomplete reconnaissance. Both are lithic camp sites but one includes, in addition, evidence of an early White settlement. The specimens recovered from these sites are too few and nondescript to permit any suggestion as to their cultural affinities.

NORTH DAKOTA

Field work in North Dakota included excavation in three sites, two of Indian and one of White provenience, and additional reconnaissance in the Garrison Reservoir and in the Sheyenne Reservoir area, briefly visited by the Surveys in 1946. The Jamestown Reservoir was also on the reconnaissance schedule, but protracted bad weather prevented examination of any appreciable part of the area; no sites were found, but this may be largely owing to the unsatisfactory conditions for survey, since significant sites were recorded during the earlier investigation.

Garrison Reservoir site.—Archeological excavation by the River Basin Surveys in North Dakota was confined in both 1950 and 1951 to the Garrison Reservoir, one of the largest water-control projects in the Missouri Basin. The lake to be created by the huge earthen dam, under construction since 1946 and now closed, will occupy the immediate valley of the Missouri River and the lower reaches of its tributaries from the dam in McLean and Mercer Counties to a point above Williston, a distance of almost 200 miles. Previous investigations by this organization had consisted of inspection of the dam site in 1946 and a reconnaissance of parts of the reservoir area during a period of approximately two months in 1947. Despite the shortage of time available for the achievement of an adequate sampling of this little-known area, limited resources and imminent destruction dates elsewhere in the Missouri Basin prevented further work in 1948 and 1949. While the reservoir lies outside the region intensively occupied by the Mandan, Hidatsa, and Arikara before the beginning of the breakdown of their aboriginal cultures, it contains the remains of the latest earth-lodge villages of those three tribes and thus a large part of the archeological record of the impact of industrial culture on the village tribes of the northern Plains. Such village remains range from a few in which the objects of material culture are predominantly of native manufacture, but include moderate quantities of White trade materials, to others in which the artifacts are almost exclusively of White origin. Earlier sites in the area appear to represent less intensive occupation. Some of them are apparently temporary camps of the Mandan or Hidatsa during the time their main villages were situated farther downstream, or of closely related groups, while others represent quite distinct cultural traditions. Among the latter are a number that yield heavy, cord-marked pottery of Woodland affiliations. Pottery of this sort occasionally is found stratigraphically beneath materials attributable to groups of the Mandan-Hidatsa tradition. Still other sites yield only nonceramic artifacts, usually in

relatively small numbers. Some of them may be of fair age, but none has yielded convincing evidence of any considerable antiquity. Many of these sites are moderately deeply buried beneath sterile deposits.

Despite its evident importance, this area had seen no excavation prior to 1950, when the River Basin Surveys and the State Historical Society of North Dakota initiated programs of intensive investigation in significant sites to be destroyed by the reservoir. What previous excavations had been accomplished on the Missouri River in North Dakota were in earlier and more spectacular sites downstream, well outside the Garrison Reservoir (e.g., the Burgois, or Double Ditch, site on the east side above Bismarck, and the Slant, or Fort Abraham Lincoln, village on the west side below Mandan).

During both years under consideration, small survey teams were detached from the excavation parties in the Garrison area to extend the previous reconnaissance and to re-examine sites recorded in 1947. This work was in every instance headed by George Metcalf, who was assisted at various times by one or two other men. In 1950, a 2-man party spent a period of approximately two months primarily in an examination of the area comprised in the Fort Berthold Reservation, which had been untouched in 1947. During rather brief and intermittent surveys in 1951, the emphasis was again on the land within the confines of the reservation but, as in the previous year, some attention was given to other parts of the area to be flooded which had received at least partial coverage in 1947. The list of 70 sites recorded in 1947 has now been expanded to include approximately 130 Indian sites, plus about 15 additional sites of trading posts, Indian agencies, abandoned nineteenth-century towns, historic trails, and other features more or less intimately related to the White occupation of the region. Two of the latter are of especial significance as far as the Indian history of the region is concerned. They are site 32MN1, believed to be the remains of Kipp's trading post built about 1825, and the site of two trading posts, Fort Berthold and Fort Atkinson, at Like-a-Fishhook Village, the last home of the Mandan, Hidatsa, and Arikara before they scattered to individual allotments on the reservation (the village and associated posts are included in the project's records under a single number, 32ML2).

Sites relating to the Indian occupancy of the area now on record include winter villages on the river bottoms, earth-lodge villages on terraces or butte tops, small camp sites with and without pottery, stone circles, depressions which are probably the remains of eagle traps, rock cairns, burial mounds, other burial sites, and such recent phenomena as the ruin of a late hunting lodge and the remains of the last

Arikara earth lodge, which was used as a community and ceremonial center from 1907 to 1918. Especially deserving of salvage are two mound sites, which lie outside the pool but may be jeopardized by road relocations, and a number of earth-lodge sites, some late but others relating to a time when the culture was still basically aboriginal, Site 32ME57 is a single mound approximately 60 feet in diameter and 6 feet high, from which a local resident has obtained many human bones by minor pitting, while site 32ME63 is a group of seven mounds which range in size from 25 feet in diameter and 2 feet in height to almost 70 feet in diameter and 6 feet in height. Mounds along this segment of the Missouri River appear to be exceedingly rare, so that the relationships of the sites in question will have to be sought at considerable distances. Apparently the nearest reported occurrences of mounds are to the east on the Sheyenne and James Rivers, where the cultural affiliations are as yet undefined, and to the north in southwestern Manitoba, where the manifestations have been ascribed to the Headwaters Lakes aspect and an Assiniboin authorship has been suggested (Vickers, 1949, p. 33).

Among the earth-lodge sites which seem on present evidence to be especially noteworthy are the Rock Village (32ME15), a fortified site yielding primarily materials of native manufacture; Like-a-Fishhook (32ML2), the last earth-lodge village of the Three Affiliated Tribes; two butte-top earth-lodge villages (32ML39 and 32DU18); a large fortified late Arikara site, the Star Village (32ME16); a well-preserved late winter village (32ML38); and an earth-lodge site (32ME59) associated by tradition with one of the Mandan-Hidatsa supernaturals and known as Grandmother's Lodge.

The intensive excavation program in Garrison Reservoir was carried out by a single party in 1950 and by two parties in 1951. During these two summers, excavations were undertaken in two earth-lodge villages, the Rock Village (32ME15) and the Star Village (32ME16), and in a frontier military post, Fort Stevenson (32ML1). The field season of 1950 was spent entirely in the Rock Village, where a party under the supervision of G. Ellis Burcaw excavated from mid-June until the end of October. In 1951 a party headed by Donald D. Hartle continued the investigation of this site from early June until late August, after which the party, considerably reduced in numbers, worked in the Star Village for the remainder of the season, which terminated there about November 1.

Rock Village, so named because of its proximity to a conspicuous expanse of sandstone which outcrops along the bank of the Missouri River, is situated on a level uncultivated terrace approximately 15

feet above the river (pl. 6, *b*). A narrow strip of timbered bottom land intervenes between the stream and the present edge of the site, which has been scarped by erosion. An indeterminate portion of the site has disappeared, for lodges and other features are now partially destroyed at the terrace border. Shallow depressions and other surface irregularities suggest the presence of 35 to 40 closely spaced earth lodges within the confines of the occupied area, which is bounded by the steep bank along the edge of the terrace and by the remains of an artificial ditch. Expansion of the village is attested by evidence that the course of the ditch had been altered during the occupation to enclose probably 10 lodges in addition to those within the original fortified area. Although little cultural material is visible on the sodded surface, examination of the cut bank and test pits dug by the survey party in 1947 had revealed the presence of abundant refuse within the village level. The work in 1950 and 1951 resulted in the excavation of 13 earth lodges and 60 cache pits, as well as a number of such features as borrow pits, sweat lodges, and structures of uncertain function, and included numerous test trenches in additional lodges, across the defensive works, and in the general village area. Among the test trenches was one, 282 feet long by 5 feet wide, extending entirely across the site; in addition, the face of the eroded terrace was trimmed and examined. The tests revealed that, except where the occupants had altered the surface by excavation, refuse attributable to the village was confined to a zone just beneath the surface to a depth of approximately a foot. At a depth of about 5 feet, however, evidences of an earlier, much less intensive occupation were consistently found in the deepest trenches. No extensive excavation of this deeper horizon was undertaken after its detection in 1951, but the limited evidence indicated a nonceramic occupation.

The houses, apparently always constructed on the surface, were circular and averaged slightly more than 40 feet in diameter (pl. 6, *b*). All had 4 center posts and 9 to 16 outer support posts, and frequently there was evidence of leaner posts at the peripheries of the structures. The central fireplaces were always basin-shaped depressions in the lodge floors, but in six instances sandstone slabs were associated with them. Four of the pits had either the sides alone or the sides and bottom lined with slabs (pl. 7, *a*), while in two cases slabs were laid upon the lodge floor surrounding the hearth. The entrances, which lacked any consistent orientation, were characterized by walls consisting of puncheons set in trenches (pl. 6, *b*), a feature described by Wilson (1934, p. 369) for Hidatsa earth lodges. Features found within the houses included sweat lodges, fire-screen trenches, and

cache pits, as well as numerous posts which probably were associated with beds and other miscellaneous minor structures. There was abundant evidence that several of the lodges had burned, but in many instances unburned post remnants testified to destruction by less sudden means. Cache pits were found both inside and outside of the lodges, the locations of the outside ones frequently being marked by depressions on the surface. There was a marked absence of stylization as far as size and shape are concerned. A considerable number were cylindrical, while the walls of others expanded to varying extents. The large, deep, cistern-shaped pits so characteristic of the later villages of the central Plains were lacking or exceedingly rare in Rock Village.

As indicated previously, there was evidence for expansion of the village at some time during its occupation. A segment of the original ditch was abandoned and a new segment was excavated to enclose a larger area. The sequential relationship of the two segments is established by the fact that the inner one is overlain by one or more lodges and by the refuse with which it is filled. Perhaps at a still later time the ditch was extended to enclose a single house at the northeast end of the site. Test trenches across the ditches revealed considerable variation in width and depth but they were nowhere very wide or deep; widths of $2\frac{1}{2}$ to $4\frac{1}{2}$ feet and depths of 2 to $2\frac{1}{2}$ feet seem indicated. Post molds in alignment outside the abandoned portion of the ditch suggest a palisade, and there was clear evidence of such a feature situated at distances of 2 to 3 feet outside the outer, and later, segment. The latter consisted of posts set close together in a trench approximately half a foot wide and a foot deep.

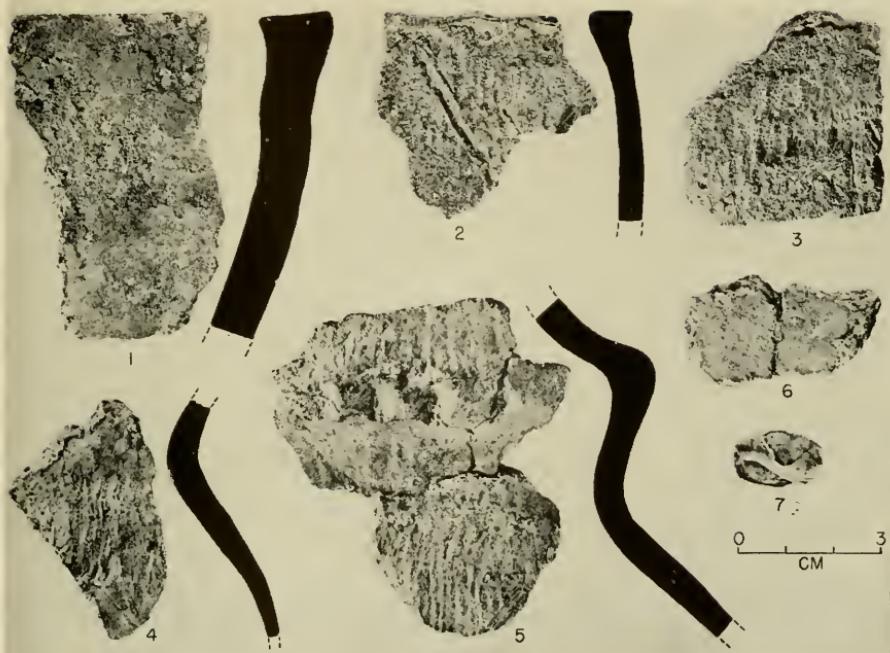
Refuse was relatively abundant in cache pits, borrow pits, the abandoned ditch, and on the village surface. While materials of White provenience occurred in considerable quantities, the main reliance of the inhabitants was still on artifacts of native manufacture. Few of the metal objects were tools, although there is evidence of the use of heavy metal implements, probably axes, for shaping many of the bone artifacts and for cutting timbers. No metal axes or hoes were found, but there are a few knives or knife parts in the collection. Most of the metal objects were projectile points, tinklers, and scraps of brass and iron, objects which are of little aid in the problem of dating. Other materials of White origin include rather numerous glass beads and some clay pipes of European manufacture. On the basis of an examination of all the trade materials, Glenn Black has "guess-dated" the site as 1800 to 1850 plus. This statement and the presence of two percussion caps of a type which Carlyle S. Smith, of the University

of Kansas, informs us was invented in England in 1819 are consistent with Hartle's opinion, based on the archeology and on statements obtained by Libby (1908, p. 465; 1920, pp. 200-201; and notes in files of State Historical Society of North Dakota) from Hidatsa informants early in the twentieth century, that the Rock Village was occupied during part of the 1830's and perhaps as early as the mid-1820's.

Artifacts of Indian manufacture from local materials were numerous; over 4,500 pottery sherds were collected, for example. The pottery appears to be very similar to the River Basin Survey's collections from the Hidatsa sites at the mouth of the Knife River, although it is perhaps somewhat less homogeneous and carefully made. It certainly resembles this material more closely than it does the ceramics described and illustrated from the earlier, presumably Mandan, Double Ditch and Slant village sites near Bismarck. So-called Knife River flint, a chalcedony available in abundance in quarries not more than 35 miles distant, was overwhelmingly favored for chipped-stone implements. Other materials, mainly schist and quartzite, were utilized primarily for large choppers. Among ground-stone objects are grooved mauls, abrading stones, shaft smoothers, pipes of catlinite and other stones, a small vessel and a number of sherd of steatite, and small double-pointed sandstone hammers perforated for hafting. Bone artifacts include hoes and knives of scapula, toothed metapodial fleshers, shaft wrenches, paint applicators, hide-tanning tools, knife handles, whistles, bone tubes and awls. Antler was used for scraper and knife handles and other items including what are apparently saddle bows. Artifacts of shell and wood were recovered in small numbers. Notable among the latter is an object apparently intended as a small-scale replica of a boat with pointed bow and square stern.

Animal and vegetal remains indicate that agriculture, hunting, and gathering all contributed to the solution of the subsistence problem. There is a wide range of mammalian forms, but bison bones predominate. Horse bones are surprisingly rare, but dogs, some very large, are rather well represented. Other animal forms are several species of birds, two species of fish, and a number of molluscan species. Cultivated plants indicated by the specimens recovered are corn (related to the flint corns of northeastern United States, according to a letter of October 29, 1952, from Norton H. Nickerson), squash, beans, melons, and gourds, while edible wild plants include plums, chokecherries, grapes, wild black cherry, and blueberry or whortleberry.

Evidence suggesting trade with tribes to the west consists in the presence in the site of a shell of a Pacific coast olivella and of a quan-



a, Pottery sherds and shell bead from site 24TL26, Tiber Reservoir.



b, Part of site 48BH7, group of 23 tipi rings, Yellowtail Reservoir. Pottery was collected from the surface of this site.



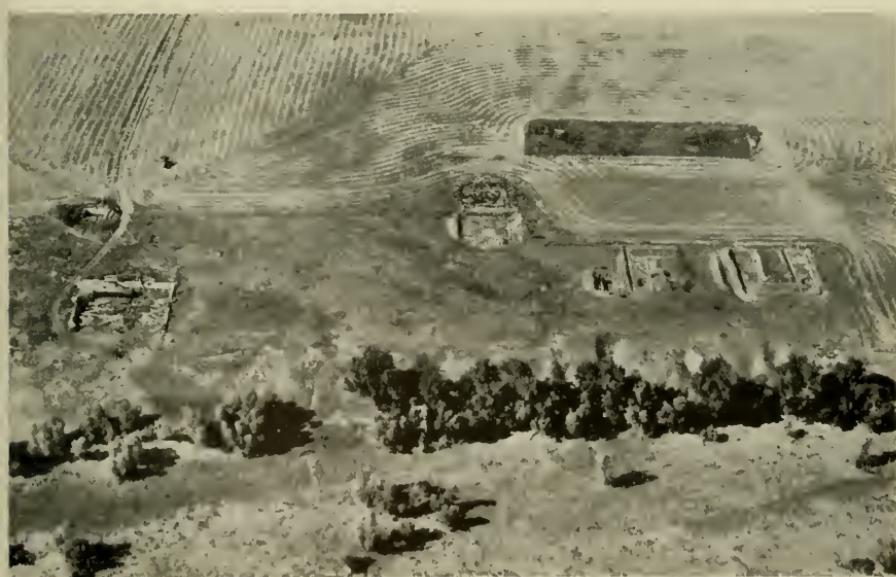
a. River Basin Surveys camp at Rock Village, 32ME15, Garrison Reservoir, in October 1950. Missouri River in background.



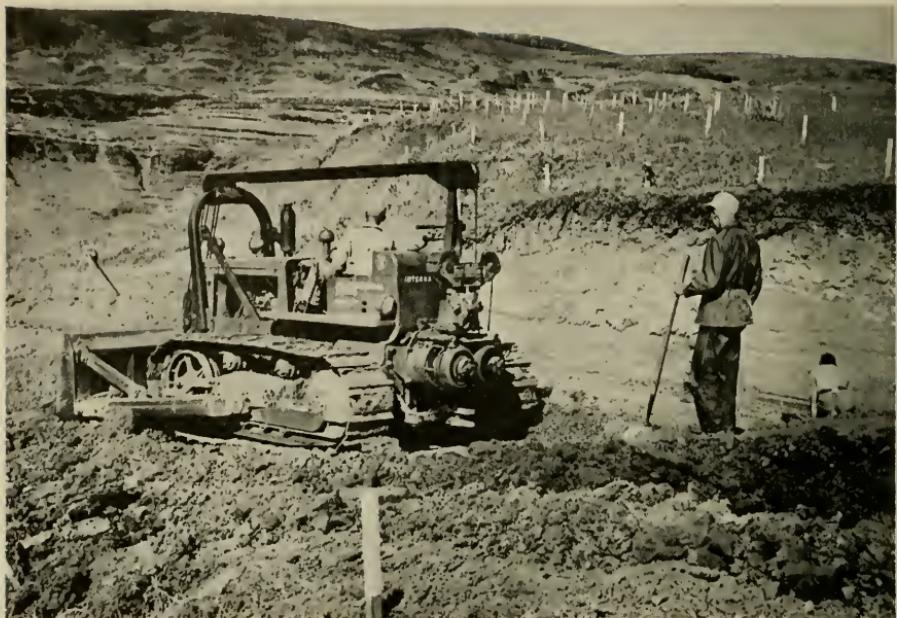
b. Excavated floor of circular house in Rock Village, 32ME15, Garrison Reservoir. Structure has central fireplace, 4 center posts, and trenches at sides of entrance passage. Note timber fragments on floor.



a. Cross-section view of slab-lined central fireplace in house, Rock Village, 32ME15, Garrison Reservoir. Line drawn on vertical face marks base of burned earth.



b. Aerial view of site 32ML1, Fort Stevenson, Garrison Reservoir, a year after excavation by River Basin Surveys. Excavations, all in right half of photograph, are, left to right, in officers' quarters, commissary warehouse, south barracks, and hospital. Photograph is looking north.



a, Bulldozer removing overburden in Trench 1 of Area B, Long site, 39FA65,
Angostura Reservoir.



b, Excavation in Area A, Long site, 39FA65, Angostura Reservoir, after removal of
overburden with bulldozer.

tity of steatite specimens. A steatite vessel in the collections of the River Basin Surveys somewhat resembling in form and technique of manufacture the vessel from Rock Village came from the vicinity of the Wind River, western Wyoming, according to the donor.

After the termination of work at Rock Village, the party headed by Hartle undertook excavations in the Star Village (32ME16), identified as the last home of the Arikara before they moved across the river to join the Mandan and Hidatsa at Like-a-Fishhook Village. The village was briefly described and its abandonment mentioned in a report of 1862 from the Agent for the Upper Missouri (Commissioner of Indian Affairs, 1863, p. 194) and was referred to by several of Libby's Arikara informants (Libby, 1920, pp. 187, 195, 204). It is a large site of approximately 90 conspicuous house rings enclosed within a well-defined ditch. The excavations uncovered five earth-lodge floors, three other post-mold patterns, a gateway through the ditch, and sections of the ditch itself. One of the lodges, all of which were circular, was of particular interest. Situated in the center of the village and of unusual size, it was presumably a ceremonial structure. Averaging approximately 70 feet in diameter, it was supported by 4 center posts and 20 outer posts the molds of which had average diameters and depths of nearly 1½ feet. As in the case of the houses at Rock Village, the walls of the entrance of this structure rose from narrow trenches and, in addition, the butts of the leaners stood in a rather irregular trench which ran continuously around the house except where it was interrupted by the entryway. At least in the places where it was trenched, the defensive ditch was a rather unimpressive structure. Its depth beneath the general surface was 2 feet and less and the walls in general were rather gently sloping; its effectiveness as a protective feature was enhanced, however, by piling the excavated dirt along the outside of the trench. As at Rock Village, evidence of such specialized features as bastions was lacking.

As was to be expected in view of the late date (1862) and the brief occupancy (about 3 months) of the village, artifacts were not abundant in the excavations and objects of native manufacture were especially scanty. There were a few stone artifacts, including a well-chipped triangular point with straight base and a pair of side notches, an ovate scraper, retouched flakes, and a whetstone. Most of the chipped objects are of "Knife River flint," and the whetstone is of fine-grained sandstone. Two or three bone fragments were modified in a minor fashion, but there are no indubitable implements of that material. Also, about the same number of shell fragments bear evidence of cutting or perforating. Approximately 300 pottery sherds,

most of them small, were recovered. While the number and size are so small that virtually nothing can be said about them in reference to form, decorative treatment, etc. (except that they have simple-stamped bodies), the ware represented is of surprisingly good quality, suggesting a much earlier date than that of the village for its fabrication.

Objects of White origin, recovered in rather small quantities, include glass beads; nails, files, and knives of iron; tinklers; tin cans and cups; sheet iron; and fragments of glass, mostly from bottles.

During the period June to October 1951, a party under the supervision of G. Hubert Smith accomplished the first excavation of a site of White provenience in the Garrison Reservoir area. The site was that of Fort Stevenson, a frontier military post from June 1867 until August 1883 and thereafter utilized as an Indian school until 1894. The post was established primarily for the protection of the Three Affiliated Tribes, who were living at Like-a-Fishhook Village a few miles above on the same side of the Missouri River, and of emigrants from the east en route to the gold mines of Montana. The availability of detailed official records of the post in the National Archives (utilized in a comprehensive historical account by Mattison, 1951) and of a contemporary account of life there by the commanding officer during part of its existence (de Trobriand, 1951) provides an opportunity for correlating archeological and historical data. It was of course impossible to uncover the entire post area, or even the major part of it. But during the time available sufficient excavation was accomplished to check on the accuracy of contemporary records, to supplement them in matters of architecture, for example, and to recover a large collection of artifacts of the period during which the site was occupied. In general, the archeological results confirmed the contemporary records, although certain discrepancies, notably in the relative positions of certain structures, were revealed. Excavation was concentrated on features to the south and southwest of the parade ground, near the edge of the terrace on which the post was located and in an area that has been less affected by cultivation than have other parts of the site (pl. 7, b).

A plan of the post made in 1879 was available during the investigations and was very useful in the laying out of excavation units and in the study of the site generally. Examination of the plan and of the existing surface permitted the selection of areas for excavation which promised to yield the most information for the effort expended. On the basis of these two sources of information, the hospital, the west half of the south barracks, the south officers' quarters, the com-

missary storehouse, and the commanding officer's quarters were selected for more or less complete stripping. In addition, two latrines, one of the military period and one of the Indian school period, were excavated.

Excavation revealed that the walls of all the buildings had been erected upon footings of masonry composed of field stone, either unaltered or very roughly dressed, laid in rather shallow trenches. Often, owing to subsequent activities—intentional leveling or the removal of stones for other purposes—these footings did not extend to their full original height. The walls of the larger buildings were constructed mainly of adobe bricks made from local materials, with some timber framework, while the officers' quarters apparently were primarily of timber, with adobe-brick packing. Chimneys were made of fired brick, probably all shipped in from St. Louis, if we may judge by their similarity to specimens that bear inscriptions of the maker. Occasionally, the remnants of sills were found lying upon the footings, and additional wooden elements were found in the area of the commanding officers' quarters, but details of the timber construction of the buildings were usually absent. A few cellars were found. Usually they were simple excavations, but that in the commissary storehouse was walled and floored with fired brick. The two latrine sites differed. One was marked by a simple pit, while the other was characterized by a pit that had been shored with planks set on end. The contents indicated that the former was in use primarily, or exclusively, during the time the site was used as a school, the other during the military period and apparently for the most part by personnel and patients in the hospital.

The objects recovered in the excavations are of great variety and represent most of the activities that took place on the site, even the recent agricultural activity. While many of the objects—e.g., military buttons and parts of school desks—can be attributed rather surely to the period of the post or to that of the Indian school, many others, such as tablewares of various kinds, may derive from any phase of the occupation of the site. This is true especially because of the fact that a number of the buildings were utilized during both periods and the commanding officer's house, furthermore, was used still later as a farmhouse. Since little new was added to our knowledge of the site from the architectural point of view, the major contribution of the archeological investigation here is the light it casts on the everyday activities at the fort, revealed by the objects recovered. This information supplements the formal history of the establishment recorded in the official archives.

Smith's party completed its work of the 1951 season by making small-scale test excavations in a site believed to be that of Kipp's fur trading post (32MN1), near the mouth of White Earth River. Traces of a stockade were uncovered, as well as evidence that the post had been burned. The few specimens recovered are consistent with the fairly early date, about 1825, of that establishment. This would appear to be one of the most important sites of the fur-trade period in the Garrison Reservoir, and it should be adequately investigated before its destruction.

Sheyenne Reservoir site.—The Sheyenne River, in the area of the proposed reservoir, flows in a narrow, rather steep-sided valley. Previous reconnaissance, in 1946, had revealed the presence of small camp sites on the valley floor and of village and mound sites on the bordering uplands. The reconnaissance of six days in 1951 added three sites—two camp sites and a mound—to the list of those known. It appears that the sites actually below the pool level are not of great importance and that significant archeological resources will be affected adversely only by construction activities or other developments outside the reservoir proper.

SOUTH DAKOTA

Most of the field work in South Dakota during this period consisted of an intensive program of investigation of selected sites. Excavations were continued in the Angostura Reservoir during the first half of the 1950 season, and excavation parties were in the Fort Randall and Oahe Reservoirs both years. Additional reconnaissance was accomplished in both these latter areas, and the Gavins Point Reservoir, scheduled for early activation, was surveyed.

Angostura Reservoir site.—The Angostura Reservoir is a lake approximately 10 miles long on the Cheyenne River where this stream skirts the southern edge of the Black Hills. Rather extensive investigations, involving numerous sites, had been accomplished during the summers of 1948 and 1949, but some additional work was deemed urgently needed before complete filling of the reservoir, which had already begun by the spring of 1950. By April 20 of that year a number of sites just above the dam, including one, 39FA68, which had been strongly recommended for further excavation, were covered by water. Of especial urgency was more intensive examination of site 39FA65 (the Ray Long site) on Horsehead Creek. There deeply buried evidences of occupation had been exposed only at limited points, owing to the thickness and toughness of the overburden, in the side of a ravine. Previous excavations had revealed

the presence of small fireplaces which had not been dug beneath the living surface and were unaccompanied by stones. The predominant projectile point recovered there is lanceolate with sides contracting to a straight or slightly concave base and exhibiting exceedingly fine oblique ribbon flaking; the basal edges have been ground. Many of these points are made of a fine-grained quartzite, available in quarries within a few miles of the site. This point, originally referred to as the "Long point," from the name of the owner of the land on which site 39FA65 was located (Hughes, 1949, p. 270), is now commonly known as the "Angostura point" (Wheeler, 1954). Other artifacts recovered include small end scrapers, knives of plate chalcedony, percussion-flaked blades, drills, side scrapers, flake scrapers, and manos but, unfortunately, many of these specimens were collected from the ravine slopes. It seems reasonable to suppose that most if not all of them have been derived, through erosion, from occupational deposits equivalent to those uncovered by excavation, but unhappily the association is not certain.

In the early summer of 1950, during a period of $5\frac{1}{2}$ weeks, more extensive areas of the Long site were uncovered by the combined use of machinery and hand labor. A bulldozer was used to remove the overburden at two fairly widely separated locations (Areas A and B) in the site (pl. 8, *a*). Two large trenches (50 by 40 feet and 70 by 40 feet) in Area B were excavated by this means to maximum depths of 7 feet and 10 feet respectively, leaving $\frac{1}{2}$ to over 4 feet of earth above the occupational zone. At Area A, where most of the previously excavated artifacts had been recovered, a space 85 feet long and 50 feet wide was stripped to an average depth of approximately $3\frac{1}{2}$ feet. Excavations were then carried out by hand below the floors of the bulldozer trenches (pl. 8, *b*). Two smaller exploratory trenches, one west of Area A and the other east of Area B, were also dug with the bulldozer.

In Area B evidences of two occupations, represented by small, simple hearths, were found. There were only a few flakes in the lower level, but the upper level produced fragments of rough lanceolate blades, a metate, a mano fragment, and many flakes of quartzite and chalcedony. In Area A four fragments of Angostura points and numerous chalcedony and quartzite flakes were found with four hearths representing a single occupation. Charcoal was collected from both areas. Two samples, one collected in 1949, the other in 1950, have been tested by the radiocarbon method and have been assigned ages of 7073 ± 300 and 7715 ± 740 years. Unfortunately, both samples were from Area B, where diagnostic points have not been

found in place; it is probable, however, that adequate samples for testing from Area A are on hand. There seems to be little reason to doubt that the occupations at Areas A and B are substantially contemporaneous. Fragments of Angostura points have been found on the surface of the eroded edge of Area B, and the deposits in both areas have yielded an abundance of very thin flakes of fine-grained quartzite which are apparently the byproducts of the manufacture of these points.

During a period of approximately three weeks, tests made previously in two pottery sites in the reservoir were extended. Several days were spent at 39FA23, rather extensively trenched in 1948 and 1949. This site, situated on Horsehead Creek, not far from 39FA65, had produced evidence of a series of brief, intermittent occupations, possibly by hunting parties of agricultural people from settled communities to the east or south. No evidences of structures had been found, but there were numerous unprepared hearths scattered through the area of occupation. The investigations in 1950 uncovered seven new hearths and added materially to the artifact collection. The site has yielded pottery in relatively abundant quantities. Vessels appear to be globular with rounded shoulders and have simple flaring rims, which are undecorated or are decorated only on the lip or at the lip-outer rim juncture. Lip decorations are incised; in the few instances where the rim has been modified adjacent to the lip that was done by impressing. Body sherds are plain or, more often, stamped with a paddle wrapped with a fibrous material which sometimes, but probably not invariably, was loosely twisted. Frequently the stamping extends to the full height of the rim. There are perhaps a few simple-stamped sherds in the collection. Other artifacts include stemmed and triangular points, the latter both side-notched and plain; plano-convex end scrapers; drills; large blades; and rare bone artifacts. Materials utilized for the chipped-stone objects include chalcedony, chert, jasper, and fine-grained quartzite. There is a suggestion, in pottery and point differences at least, that more than one cultural entity was involved in the repeated occupations of this site. The predominant pottery does not appear to be identical to that of any complex defined to date, but its general character is certainly not incongruous with an assignment to the middle ceramic horizon of the Plains and, more specifically, is suggestive of certain of the pottery associated with the Upper Republican complex to the south.

Site 39FA83 is a camp site on a low terrace on the left side of Horsehead Creek, where some trenching had been done in 1949. During two weeks in the spring of 1950 the earlier excavations were con-

siderably expanded to uncover 27 unprepared hearths and an area about 7 feet in diameter paved with fragmented concretions which may be the floor of a sweat lodge. The evidence suggests a seasonal hunting camp occupied by one or more groups of agricultural people whose main settlements were outside the immediate area. The pottery, of which there is only a fair sample, is a rather heterogeneous lot as to paste, tempering, and surface finish. Both coarse, heavily grit-tempered, and compact, sparsely tempered pastes are represented. Surfaces are cord-marked or smooth, and two smooth sherds, containing as tempering material thin plates of what appears to be shell, have polished outer surfaces. One of these bears the remnant of a rather elaborate incised design. The few rims are simple flaring or recurve slightly toward the mouth to create a slightly S-shaped profile. They may be undecorated or the space between the lip and neck may be filled with a series of rather crudely incised horizontal lines; incising of the lip is rare. Other artifacts include small triangular side-notched and plain points of chert, chalcedony, jasper, quartzite, and obsidian; drills; and a number of fairly large blades, some stemmed, most often made of quartzite. Diagnostic bone artifacts are rare.

The 1950 work at Angostura, terminated July 18 when the Wheeler party moved to Boysen Reservoir for the remainder of the season, did not materially change the general cultural picture as it was delineated by the two earlier seasons' work and was described by Wedel (1953b, pp. 74-80). It did, however, considerably expand our knowledge of three sites, one occupied by an early hunting and gathering people, the others by late prehistoric groups whose main settlements were probably elsewhere, and did nothing to invalidate the characterization of the region as one which had been occupied on a temporary basis by people of various cultures for many millennia. The evidence points, not to intensive and prolonged occupation, but to brief, and probably seasonal, incursions from various directions—probably from considerable distances—by small groups attracted by the varied resources available here. As Wedel has pointed out, this situation presents an unusual potentiality for determining temporal and cultural sequences involving groups ordinarily so separated spatially as to make correlation difficult or impossible.

Fort Randall Reservoir site.—Reconnaissance in 1947, together with information from South Dakota institutions and the documentary research of National Park historians, had revealed that sites of Indian and frontier White provenience were numerous in this reservoir, but, except for some test-trenching in 1947 and a salvage excavation in the area of the spillway at the dam site in 1949, no excavation was

possible until 1950. This was despite the steady progress on construction of the dam since 1946 and the rapidly diminishing time available for the salvage of history and prehistory along a segment of the Missouri River completely lacking in published archeological excavations. In 1950 a single party, headed by Thomas R. Garth, searched selected portions of the reservoir for previously unlocated sites, especially those of White origin, reinvestigated a number of previously recorded locations, and carried out a program of excavation primarily in historic sites but incidentally also in one prehistoric Indian village. This party was in operation from July 17 to November 4. In 1951, a small party under the supervision of Carl F. Miller spent a rather brief period continuing the excavation of a post of the fur-trade period which had been only briefly tested the previous summer. Miller left Lincoln for the field July 24 and returned September 18. Also during this summer a start was made on a program of intensive excavations in aboriginal sites by a unit led by Robert B. Cumming, Jr. This unit was in the field from June 5 to November 6.

The main purpose of the Garth and Miller parties was the investigation of sites related to the White history of the region whose existence and significance had been established or suggested by the research activities of historians of the National Park Service. That agency has assumed the responsibility for outlining the broad program of historic-sites archeology and for the selection of specific sites to be investigated. The archeology, both in the field and in the laboratory, is done by the Smithsonian River Basin Surveys, and the archeologists charged with these duties maintain close liaison with the Park Service historians in the Omaha regional office.

The Garth party began the 1950 season with an intensive search of an area in which construction for the dam was imminent and where it was suspected, on the basis of certain historical records, the original Fort Randall had stood. This important military establishment was founded in 1856 and originally consisted largely of crude log buildings. During the period 1870-1872 a new post was built after the earlier buildings were for the most part torn down, and was occupied until 1892. The ruins of the permanent post, lying downstream from the dam, are still clearly visible. The examination of the area some hundreds of yards above these surface remains, where it was believed the earlier quadrangle might have been situated, produced no affirmative evidence and it appears probable that the new construction was on the site of the earlier unit. This site, including the picturesque ruins of the Fort Randall church, will not be adversely affected by the dam, but a limited area containing brick and other

debris, apparently associated with the military post, found on a lower terrace to the southeast will probably be covered by a proposed chalk blanket.

Other sites which were revisited and in which minor test pits were dug include Whetstone Agency, established in 1868 for Brule and Ogallala Sioux and occupied until 1872; the Lower Brule Agency at the mouth of American Crow Creek, which was in existence from 1868 to 1892, at which time the Agency was moved to its present location near the Big Bend of the Missouri River; and Fort Hale, the military post attached to the Lower Brule Agency, but located several miles above it. At each of these sites there was abundant evidence, in the form of surface irregularities and debris, of the former existence of the establishments in question, although most of Fort Hale had been destroyed by a shift in the course of the Missouri River. A search was made for the site of the Brule Agency, a very temporary predecessor of Whetstone Agency presumably situated just below the mouth of the White River. No evidence of the site was observed, perhaps because there was little construction during its brief existence in 1867.

Owing to its importance in the history of White penetration of the region, notably its connection with the Leavenworth expedition of 1823 to chastise the Arikara, the site of Fort Recovery, possibly identifiable with the Cedar Fort referred to in earlier sources as in the same vicinity, was made the object of a protracted and intensive search, but without success. Mattes (1949, pp. 522-528) has made a convincing case for its location within a rather restricted area on the right side of the Missouri near Oacoma, but repeated examinations of the present surface and numerous test pits failed to produce indications of its presence. It may be that the post was on a lower terrace and has been covered by flood deposits, since there is reason to believe it was occupied long enough to have left ample traces of its existence.

The most intensive excavations of the 1950 season in the Fort Randall Reservoir were at a site (39LM53) superficially marked by low mounds and depressions and by fragments of burned earth. The site lies along the border of a flat, uncultivated terrace immediately adjacent to the timbered bottoms on the west side of the Missouri River about 3 miles above Chamberlain. Horizontal stripping of two of the mounds uncovered two structural units, each consisting of two rooms separated by a roofed space. Fortunately the structures were burned so that there were observable certain details of construction which are usually obscure in the sites of destroyed wooden buildings. Thus it seems certain that only the northern room of the more southerly unit had

been floored with wood. The other rooms and the "breezeways" simply had earth floors. Concentrations of burned chinking in general revealed the positions of the walls, and impressions in this material indicated that these walls were composed of logs of eastern red cedar and probably cottonwood.

The floored room of the southern unit contained a fireplace built of chalkstone, between which and the wall behind it was a clay filling presumably installed to safeguard the wall from fire. Separated from this room by a space 7 feet wide was another room of approximately the same size which, judging from its furnishings and other contents, was a blacksmith shop. Near the north wall was a chalkstone platform about 4 by 5 feet in horizontal dimensions and 8 inches high which it is suspected served as the base of a forge. Three feet south of this stood a 9-inch oak post which may have supported an anvil, and on the floor perhaps 4½ feet still farther south were the remains (2 iron hoops and a small amount of charred wood) of a large barrel, perhaps to contain water. In addition, the room contained a large quantity of iron stock and a number of fragments of tools and other iron objects. The space between the two rooms was not only roofed but it was also enclosed at the ends by vertical planks whose lower ends were set about 2 inches into narrow trenches. A break in the east wall was probably a doorway. The other double unit was rather less well defined, but it too consisted of two rooms, one of which contained a fireplace, separated by a space which had probably been roofed. Here, however, the rooms were separated by approximately 19 feet.

Near this latter structure were the remains of a well marked by a surface depression approximately 10 feet across and 2½ feet deep. It may originally have been somewhat deeper than the 18 feet at which the Garth party was forced to terminate its excavation because of the movement of sand and water into the hole. Below a point 12 feet from the surface, the well was cribbed with split oak logs, notched at the ends. It was from here that many of the better-preserved artifacts were recovered. These included 58 ice gliders and a number of shoes. The one other feature excavated in the site was a cellar, the architectural details of which were rather obscure and from which few artifacts were recovered.

The site yielded artifacts only in moderate quantities. Items that appear to be specifically of military origin are a few .50-.70 caliber, center-fire cartridges of the type used by the United States Army in the 1860's and 1870's and a fragment of a hat insigne of brass. Other objects of White manufacture include sections of an octagonal rifle

barrel, a toothed flesher of iron similar in design to the fleshers made from bison or elk metapodials which occur commonly in relatively late Plains Indian sites, a stoneware crock marked "Dakota City, N.T." probably made by the Dakota City Pottery (in operation as early as 1859), a number of metal wagon parts, and miscellaneous items such as chain links, buttons, etc. The ice gliders, made from the ribs of large mammals, are undoubtedly of Indian manufacture. The complete specimens are pointed at one end, while the square bases are hollowed to receive the feathered sticks which were originally part of these objects. Thirteen of the specimens are decorated with incised designs of various kinds which include series of diamonds, series of triangles, dots forming a triangle, and straight lines. Among the few realistic representations are one of a bird and one of an actual ice glider, complete with feathers. Their presence in the well suggests that it may have served as a target in the game with which these objects were associated.

There is apparently no historical record which will permit the identification of this site on the basis of its location alone. The presence of military items, the dates indicated by some of the specimens, and the location of the site within a few miles of the Lower Brule Agency at the mouth of American Crow Creek strongly suggest, however, that it is the site of the original Fort Lower Brule, the military post established for the protection of the Agency in 1870, but moved to Fort Hale in the same year. Both the earthenware crock, which cannot be earlier than 1859, and the cartridges in use during the 1860's and 1870's are consistent with this identification.

During the excavations at site 39LM53, tests made in a depression a few hundred feet distant and on a higher terrace revealed the presence of a prehistoric occupation. Extensions of the test trenches uncovered a rectangular house and yielded a moderate quantity of pottery and other artifactual materials, which appear to be similar to materials from the Thomas Riggs site (Meleen, 1949). Further excavations should be undertaken at that site, 39LM55, to permit a more comprehensive definition of the complex represented.

Late in the season the party accomplished small-scale testing in two sites on the west side of the river near the southern boundary of the Lower Brule Indian Reservation. At one of them, the site of a military post, Fort Lookout (39LM63), occupied for only a year in 1856 and 1857, evidence was found of the former presence of structures. About 300 yards to the southeast stripping also uncovered evidences of occupation. Limitations of time and personnel prevented more

than the briefest examination of this site (39LM57), and intensive investigation was postponed until the field season of 1951.

Primarily during the late weeks of the season, after the party had been drastically reduced by the return of personnel to school, additional reconnaissance of parts of the reservoir area, mostly on the west side of the river, was accomplished. A number of previously recorded sites were reexamined and 30 new sites were found, bringing the total number of known archeological locations in the Fort Randall Reservoir to 123.

The Miller party devoted its entire time in 1951 to further investigation of site 39LM57, found and briefly tested by Garth the previous year. Four levels of occupation were reported, the upper two referable to establishments of White construction, the lower two of prehistoric age. The upper level yielded briquettes, ashes, and burned timbers outlining an area, presumably the site of a building, 70 feet long and 20 feet wide. Except for what appeared to be a fireplace footing of chalkstone, details of construction were virtually lacking. It was not possible, for example, to find evidence relative to the partitioning of the structure into rooms. It is believed, however, that the floor was of earth. At a depth of about 0.2 foot beneath this level were indications of another structure. Here again structural details were absent except that short sections of horizontal molds indicated a log building.

The somewhat scanty materials recovered from the historic levels included china and crockery fragments, glass beads, fragments of trade pipes and bottles, buttons, cartridges cases, and miscellaneous hardware. Much of this material is of little diagnostic value as far as age and source are concerned—or insufficient studies have been made to demonstrate such value—but a few items provide some light on the time factor. Thus, percussion caps recovered are stated to be of a type used possibly during the period 1822-1850 and some beads are of a variety with a terminal date of 1825 at other sites. Both hand-made and machine-cut nails, the latter dating from not earlier than the late 1830's, are in the collection.

On the basis of documentary materials it has been suggested by Merrill Mattes, National Park Service Regional Historian, that 39LM57 may well be the site of a "French" Fur Company trading post, called Fort Lookout, which was in existence in 1833. This site appears to have been abandoned at some unknown date after 1833, and then to have been reoccupied in 1840 by an independent trader named La Barge and finally abandoned in 1851. The available archeological evidence seems consistent with this identification, especially if recon-

struction was necessary at the time of reoccupation. Such reconstruction would account for the presence of the superimposed structures and of machine-cut nails. There appears to be nothing among the artifact materials which would be incompatible with this hypothesis. Unfortunately, neither the contemporary accounts of Fort Lookout trading post nor the archeological remains materially illuminate the problem from the architectural point of view.

The associations of the remains of a well-defined structure (pl. 9, *a*) are uncertain. Vertical posts, set close together in a trench on two sides and one end and more widely spaced in individual holes on the other end, enclosed a rectangular area 35 feet long and 27 feet wide. Three interior post molds suggest roof supports. There was no well-defined fireplace, but there was a fairly large, circular burned area near the center of the enclosure. A gap near a corner on one long side may represent an entrance. Many butts of posts, mostly cottonwood, remained in place and all had flat bases as though they had been sawed. It is reported to have underlain the other historic features, and it was partially superimposed upon a circle of post molds associated with a deeper cultural deposit.

Separated by 6 inches of sterile earth from the base of the deposit attributed to the trading post was evidence of a prehistoric Indian occupation with which were associated irregular shallow pits and numerous post holes. In two instances post holes were arranged in such fashion as to suggest the former presence of small circular structures, 18 feet and 19 feet in diameter, respectively. A fireplace was found near the center of one of the circles and there were traces of burned earth in the central portion of the other. In neither case was there evidence for interior support posts. Other post molds on the same level possibly show the location of racks to hold supplies or for drying hides. Beneath this horizon and separated from it by a sterile deposit 4 inches thick, were traces of an earlier occupation consisting of a compacted surface suggesting a house floor, a number of pits, and a quantity of refuse material.

Since the artifacts and illustrations of them are not available, the brief discussion here of the materials recovered from the two prehistoric horizons is based entirely on the descriptions in a manuscript on site 39LM57 prepared by Miller. Both occupations are attributed to a single cultural complex, which Miller believes is closely related to the Upper Republican aspect of the central Plains. Stone artifacts include notched and unnotched triangular points, end scrapers, miscellaneous knives and scrapers, gravers, and drills of quartzite, chalcedony, jasper, chert, and flint, as well as a number of ground-stone

forms. The latter include grooved mauls, sandstone shaft smoothers, pumice rubbing and sharpening stones, hammerstones, and pipes and miscellaneous objects of catlinite. Among the bone artifacts are awls, spatulate objects, scrapers or knives of scapula fragments, bird-bone tubes, and flakers. Two fragments of antler are rather elaborately decorated. The pottery is described as representing predominantly globular vessels with either plain or cord-marked surfaces. Handles are apparently rare. Decoration is confined to the rim, which may be simple or collared and is predominantly incised, although there is some pinching of the outer lip margin. Incised designs, found only on the rim exterior, include series of horizontal, vertical, or diagonal lines, pendant triangles, hachures, and combinations of these. One distinctive decorative treatment consists of a series of horizontal lines across which a single line meanders angularly around the rim. Also found were a few plain sherds of conoidal vessels, from the lowest levels of the site, and thick, heavily tempered sherds with exterior nodes.

The second field unit in the Fort Randall Reservoir area in 1951 spent the five-month season in the investigation of aboriginal sites near the mouth of Platte Creek, some 30 miles by river above the dam. Most of the work consisted of excavation in the stratified Oldham site (39CH7), which lies on a rather extensive terrace bordering what is now a narrow river bottom. Since the site has been under cultivation for many years, surface features are lacking except for the portions of a defensive ditch which lie along the edge of the terrace and the bank of a ravine which bounds the site on the northwest. Test excavations there in the fall of 1947 had produced evidence of two occupations separated by a sterile silty deposit. The upper zone, which had been substantially destroyed by the plow except for features (such as houses and cache pits) excavated beneath the general village surface, produced, among other rather abundant remains, simple-stamped pottery, while the lower yielded a very small quantity of cord-marked pottery sherds and other debris. Two circular earth lodges attributable to the later occupation were uncovered at that time.

The excavations in 1951 produced information primarily relating to the later of the two previously observed occupations. Test trenches across the ditch, both in places where it was still visible on the surface and where it had been filled by cultivation, showed it to be 3 to 4 feet deep and about 5 feet wide, with sloping sides. An additional element in the fortification complex was a stockade of vertical posts, spaced an average of 1 to 2 feet apart, a few feet inside the ditch. Two bastions were found in the 450 feet of stockade uncovered.

Seven earth lodges resembling more or less closely the two previously investigated and another, deviant, structure were excavated in the area enclosed within the ditch (Area A). The lodges (pl. 9, *b*), circular in ground plan, were outlined with posts and, with one exception, had four inner roof support posts. The exception, an unusually large house, boasted six center posts. Other invariable features were basin-like central fireplaces and vestibule entrances. The atypical structure had a central fireplace and four center posts in a compacted floor area, but there was no outer row of posts nor was there evidence to indicate the nature of the entrance. Cache pits within the houses were rare, and the few that did occur were ordinarily small, but the numerous test trenches excavated throughout Area A uncovered a number of large cache pits, as well as some 20 other refuse-filled pits, probably originally borrow pits.

The excavations in Area A failed to uncover any considerable concentrations of material in the lower occupational level, but tests made late in the season to the southeast and outside the ditch-enclosed village demonstrated that the terrace had been rather intensively occupied during the earlier period. In this location (designated Area B), a buried zone apparently corresponding to the lower level in Area A was found to contain cultural debris, including cord-marked pottery, in quantity. Above this zone, the soil that had been disturbed by cultivation contained material like that in the late occupation of the fortified part of the site. One earth lodge, falling within the range of those lying inside the ditch, was excavated, as were several pits, some assignable to the upper level and others to the lower one.

Pending laboratory analysis, it is not possible to say much about the artifact complexes of the two occupations. As previously indicated, the earlier pottery is characterized by predominantly cord-marked bodies, the later by simple-stamped bodies. The pottery of the later component appears to resemble rather closely that of the Oacoma sites (39LM26 and 39LM27), excavated by the Nebraska State Historical Society, and of the Fort Thompson focus component at the Talking Crow site, investigated by the University of Kansas. The ceramics from these sites, and probably the remainder of the artifact complex as well, seem related, not at all remotely, to the Lower Loup sites in Nebraska. Roughly equivalent dates for the various sites are suggested by the presence of relatively minor amounts of White trade materials, although there are undoubtedly some time differences. The late component of the Oldham site, for example, is probably somewhat earlier than the Oacoma sites, judged by the relative quantities of trade goods.

The pottery of the earlier component appears to comprise a new complex at least for the immediate vicinity of the Missouri River. Much of it is characterized by straight, outsloping rims which often meet the body of the vessel at a sharp angle. The juncture of rim and body on the interior is often an especially abrupt angle. Handles appear to be absent. Some of the vessels represented by sherds of this sort are undecorated or, in a few instances, have short incised or impressed lines at the outer edge of the lip, but an apparently large proportion bear incised decorations on the exterior of the rim. On most if not all of these decorated vessels there is a series of short diagonal or vertical lines incised or impressed on the rim immediately adjacent to the lip. The rim beneath the narrow band formed by these lines is characteristically filled simply by a series of horizontal lines extending continuously around the vessel or by a similar series crossed by single or paired diagonal lines which are either continuous rectilinear meanders or are separated by varying distances where they approach the lip and neck. Variations include the omission of the horizontal lines beneath the diagonals and the occasional filling of the upper triangles with oblique lines. Where the space below the diagonals is left plain, the meander extends only part of the way up the rim and is topped by a series of continuous horizontal lines. At least many of these sherds appear to be indistinguishable from Great Oasis ceramics as described by Wilford (1945).

Also found in Area B was a fair quantity of pottery at least some of which closely resembles in form and design that just described except that the decoration is applied by impressing with single cords rather than by incising. It is as yet uncertain whether a time difference within the site suggested by the superposition of certain features can be correlated with these pottery differences. Also of interest in this connection is the presence of a minor quantity of cord-marked pottery with collared, incised rims.

The Hitchell site (39CH45), also near the mouth of Platte Creek, was briefly investigated during the latter part of the 1951 season. Depressions were visible in that part of the site still in native grass, and occupational debris was present on the surface of the cultivated portion. Excavation was carried out in three of the depressions and three trenches were dug in the cultivated area. Fireplaces and post molds were found beneath the depressions, but a well-defined patterning of posts was not apparent. The posts appeared to be unusually small, and no evidence of the conventional earth-lodge entrance was found. Some sort of a light structure without an earth covering seems indicated. Artifacts associated with these structures suggest a



a. Workers clearing site of rectangular structure in 39LM57, site of Fort Lookout trading post and prehistoric Indian village, Fort Randall Reservoir, S. Dak. Lines of holes mark locations of vertical posts.



b. View of circular house, after excavation, and general site surface in Area A of the Oldham site, 39CH7, Fort Randall Reservoir. Missouri River in background.



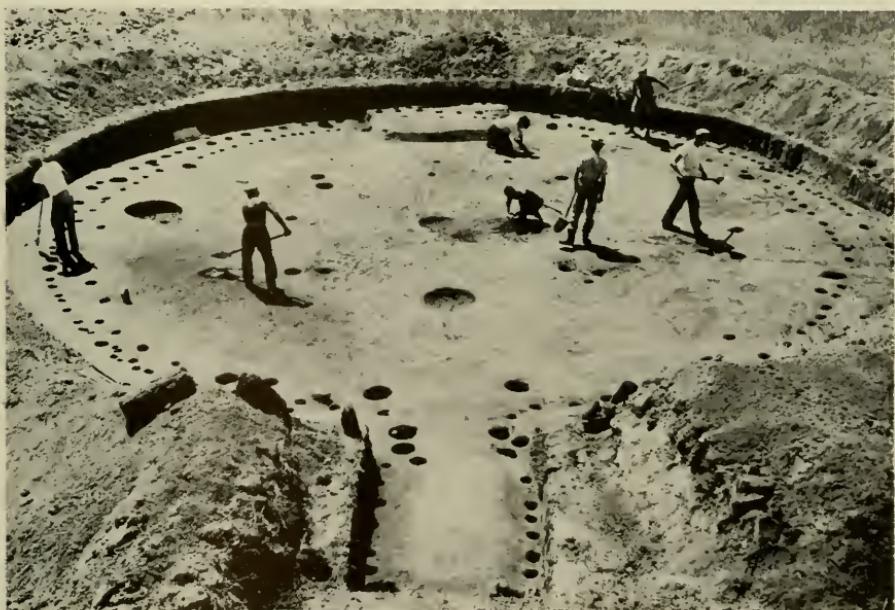
a, House floors at the Dodd site, 39ST30, Oahe Reservoir, after excavation of the earlier, rectangular house had removed part of the later, circular house. Note double row of inner roof supports and ramp into house from vestibule entrance.



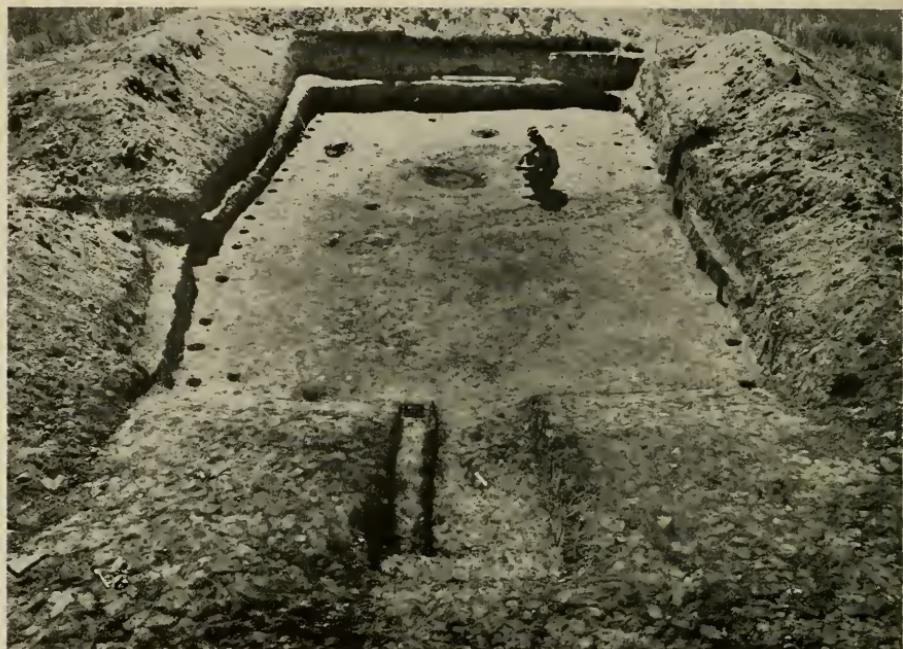
b, Rectangular house underlying later, circular house at Dodd site, 39ST30, Oahe Reservoir.



a. Aerial view of Philip Ranch site, 39ST14, Oahe Reservoir, a year after final excavation by River Basin Surveys in 1951.



b. Excavation of house floor in Philip Ranch site, 39ST14, Oahe Reservoir. The size of the house, its central location in the village, and the presence of the earthen platform opposite the entrance suggest it was probably a ceremonial lodge.



a, Rectangular house in early component of Cheyenne River site, 39ST1, Oahe Reservoir.



b, Circular house in historic component of Cheyenne River site, 39ST1, Oahe Reservoir. Unburned cedar timbers on house floor at left of vestibule entrance.

rather close relationship to the later component at the Oldham site, previously discussed. Evidence was also found of an earlier occupation which appears to be similar to that of the earlier Oldham component. This evidence was mainly from a number of pits. It is evident that additional investigation of this site, as well as of the area of the concentrated earlier occupation at Oldham, is urgently needed.

In addition to the excavations accomplished, the Fort Randall Indian sites party undertook some additional reconnaissance. A number of sites, mostly within a few miles of Platte Creek, were reexamined and two new sites were found. Test trenches were excavated in a number of the sites in order to determine whether intensive excavation is needed.

Gavins Point Reservoir site.—The Gavins Point Reservoir, to be created by a dam across the Missouri River approximately 3 miles above Yankton, S. Dak., will be confined to the channel and flood plain of the river and will accordingly not destroy archeological resources unless construction activities affect sites on higher terrain. Three sites previously known and of considerable archeological importance lie on the uplands bordering the reservoir, while the two sites discovered during a 4-day reconnaissance in September 1951 will not be flooded and are, furthermore, apparently of minor importance.

Oahe Reservoir site.—The Oahe Dam, the largest structure in the Missouri Basin water-development program, will create a reservoir more than 260 miles long. Water will be backed up by the dam near Pierre, S. Dak., to a point near Bismarck, N. Dak. The nature of the reservoir area and the salvage problem posed by the proposed inundation of this archeologically rich segment of the Missouri River Valley have been fully described by Wedel (1953a) and need not be detailed again here. Suffice it to say that our various sources of information—our own surveys, the reports of other scientific institutions and of interested individuals, and such records as systematic aerial photographic surveys—make it clear that literally hundreds of sites, many of them exceedingly large and impressive, will be destroyed when the waters rise behind the Oahe Dam. Some of these sites are apparently attributable to the Arikara, Mandan, and Cheyenne, all known or believed to have been residents in the area for varying lengths of time, but many others were undoubtedly occupied by various unidentified groups. Collections of artifacts resulting from the limited excavations to date and from surface surveys suggest that several traditions are represented in the area.

Although a number of institutions have given the area to be affected

by the Oahe Dam some attention, the amount of work accomplished to date is only a microscopic proportion of the investigation that is essential for even a bare sampling of the most important sites. Excavations prior to 1950 of which there are published accounts have been accomplished by the Bureau of American Ethnology in burials in the Mobridge, S. Dak., vicinity in 1923 and in village sites in the same vicinity in 1932 (Stirling, 1924; Strong, 1940); by Columbia University and the State Historical Society of North Dakota at Slant Village near Mandan, N. Dak., in 1938 (Strong, 1940; Will and Hecker, 1944); by Columbia University at the Buffalo Pasture site near Pierre, S. Dak., in 1939 (Strong, 1940); by the University of South Dakota at the Thomas Riggs site, also near Pierre, in 1940 and by the South Dakota Archaeological Commission at the same site in 1947 (Meleen, 1949); by the University of North Dakota and the State Historical Society of North Dakota near Fort Yates, N. Dak., in 1947 (Hewes, 1949a, b); and by the South Dakota Archaeological Commission at the Robinson and Myers sites, in the lower part of the reservoir area, in 1948 and 1949 (George, 1949; Hoard, 1949). Much of this work was on a small scale and in some instances constituted little more than testing.

Except for very minor test trenching in two or three sites in 1948, the year 1950 saw the first excavation by the River Basin Surveys in the Oahe Reservoir area. The reconnaissance of 1948 had indicated that at least three sites would be in jeopardy immediately upon or soon after the initiation of construction on the dam. One of these, the Dodd site (39ST30), lay on the course of the approach channel, scheduled for early excavation. The others are the Philip Ranch site (39ST14) in the work area just below the dam on the same (right) bank of the river, and site 39HU22, which will be covered by the dam on the left bank. These three sites were accordingly scheduled for investigation in 1950 by a party supervised by Donald J. Lehmer. Original plans were for relatively small-scale excavations in the Dodd site, the first on the schedule because of the imminence of its destruction. Early in the investigation, however, it became apparent that this site was so complex and of such significance that nearly all the resources of a comparatively large unit (13 to 19 workers) were devoted to it until late October, when work was begun on the Philip Ranch site. This unit remained in the field until the end of November. During the summer, minor excavations were undertaken in nearby sites, and a 2-man team spent some time in reconnaissance of the east side of the river between the dam site and the mouth of the Cheyenne River.

In 1951 two excavation units were in operation in the Oahe Reservoir area. A party composed mainly of local workers, under Lehmer's supervision, returned to the Philip Ranch site, while another party, led by Waldo R. Wedel and composed of student workers, established camp at the mouth of the Cheyenne River to undertake the investigation of the Cheyenne River site (39ST1). Previous reconnaissance and minor testing had indicated that the latter had been occupied more than once and it was thought excavation would cast additional light on the tradition represented by the later components of the sites under investigation in the Oahe Dam area and demonstrate its temporal relation to a new, as yet undefined complex. A survey team detached from this unit reconnoitered parts of the Missouri River banks, mainly on the east side, above the Cheyenne River.

The Dodd site was situated on the right bank of the Missouri River on two sides of a ravine the bottom of which has been severely gullied in relatively recent times. Both parts of the site were in sod and had apparently never been cultivated. Depressions of varying size and prominence characterized the surface and marked the locations of some of the original houses and cache pits, but excavations revealed that there were many such features for which there was no surface evidence. In the time which was available before the contractor moved his machinery onto the site to begin excavation for the approach channel, 21 houses were completely uncovered, and numerous features outside the houses were excavated in test trenches. An additional eight houses were test-trenched. Houses of three different kinds were found, in several instances in definite stratigraphic relationship (pl. 10, *a*, *b*). Thus it is clear that nine circular houses and one octagonal structure (containing an altar and presumably having a ceremonial function) belong to the latest occupation of the site, while two earlier components are both characterized by rectangular houses, which exhibit some differences. The rather shallow circular houses had a central fireplace, a square central roof-support complex with single or multiple posts at the corners, upright posts around the edge of the pit, and a covered entrance passage. The entrances were oriented generally toward the river. The rectangular structures were alike in being oblong, having the fireplace situated between the center and the entrance, having a step within the house at the doorway, and in having the floor deeper than those of the round houses. An antechamber was at least often a part of the entrance complex. In each instance, the doorway was to the southwest, away from the river. The earlier structures of this type, however, differed in that post holes were distributed more or less evenly along all walls of the pit in con-

trast to the situation in the later houses, where the posts were concentrated along the two long sides. A roof construction differing from that of the circular houses is suggested by the fact that single or double rows of posts commonly lay on or parallel to the long axis of the structure.

Cache pits were not abundant within the houses, and those which were found there were usually relatively small. Outside cache pits were usually larger and were ordinarily bell-shaped.

Differences in artifacts inventories were associated with the different classes of houses. The pottery has been described by Lehmer (1951). With the latest houses, those of circular form, was associated simple-stamped pottery with rounded shoulders and rather high, slightly curved rims which were usually thickened by the application of a fillet on the portion adjoining the lip. The area above the rim-body juncture was commonly brushed, and decoration is usually confined to the fillet, where it consists either of cord impressions or of incisions or impressions made with tools of various kinds. One common rim treatment is a pinching which has produced a sinuous appearance when the vessel is viewed from above. Lehmer has distinguished four types in this late-component pottery, all of which he has assigned to a larger group which he has named Stanley ware. This pottery resembles closely that which is found in numerous sites scattered along the Missouri River from the vicinity of Pierre at least as far upstream as the vicinity of Mobridge. Some of these sites have been more or less surely identified with the Arikara of the late eighteenth and early nineteenth centuries. Thus, the Leavenworth site (39CO9), a few miles above the Grand River, is without doubt the double Arikara village visited by Lewis and Clark and other travelers in the first quarter of the nineteenth century, while it seems probable the Tolton site (39ST25), approximately three miles below the mouth of the Cheyenne River, is one of the Arikara villages visited by Truteau in 1795.

The earlier pottery of the Dodd site is plain or cord-marked and characterized by simple, collared, or S-shaped rims. To a large extent, the types defined by Lehmer occur in both of the earlier components but there are changes in popularity and in the later Anderson focus component cord-impressed decoration largely replaces the incised decoration of the earlier Monroe focus component.

There are differences in the inventories of other artifacts which correlate with the differences in architecture and pottery. These cannot be detailed here, but examples are the presence only in the late Stanley focus component of toothed metapodial fleshers, elk-antler

scraper handles, and objects of metal. Scapula hoes, present in all components, are characterized in the Stanley component by the removal of the glenoid portion of the bone, whereas there is no such alteration in the case of the earlier specimens.

All evidence indicated that the site was fortified only during the second occupation. A ditch, 3.5 to 4 feet deep and about 3 feet wide, extended across the ridge on which lay the northwestern part of the site, to which the two earlier occupations were confined. This, together with the two shallow ravines that it connected, and the terrace slope, apparently constituted the sole defensive feature, for no evidence of a palisade was found in the test trenches.

Despite the extensive excavations within the occupational area and rather intensive search, by test trenching, of the ridge behind the northwestern part of the site and a prominent hill adjoining the southeastern occupational area, no burials were found except for a single hematite-stained cranium in the fill of one of the rectangular houses.

During the excavation of the Dodd site, three other sites were briefly investigated. One of these, site 39ST53, was a burial on the edge of the uplands in the dam area. Excavation revealed that a boulder cairn, visible on the surface, covered two burials, the lower one of which consisted of an articulated skeleton, complete only from the pelvis up. This burial was accompanied by three strands of shell disk beads, which lay on and near the skull. The upper grave, which intruded into the lower one, contained only a number of disarticulated bones, some of which had been burned, of at least two individuals. Another site (39ST33) was near the city of Fort Pierre in an area which had been utilized as a borrow pit during the relocation of U. S. Highway 14 and was scheduled to be again so used for the access railroad to the dam. Test trenches indicated that the site was almost if not completely destroyed by the earlier activity. Tests at 39HU22, which will lie beneath the dam on the east side of the river, indicated that the nature of the soil was such that extensive excavation would not be feasible. The collection from this site suggests a relationship to the late occupation at the Dodd site, but there are significant differences, at least in the pottery.

Also, during several weeks in August and September, a small reconnaissance team worked on the left bank of the Missouri from the dam site to the Little Bend, opposite the mouth of the Cheyenne River. Many previously recorded sites were reexamined and 27 new sites were found. Most of these are earth-lodge settlements, but a few are mounds or cairns which probably mark the locations of burials. The Little Bend proved to be especially prolific in sites. Almost every

habitable surface there shows evidence of occupation in the form of depressions numbering from two or three to several dozen. A considerable time range for the occupations is suggested by the collections recovered.

During the latter part of October and through the month of November 1950, and again in the summer of 1951, Lehmer excavated a portion of the Philip Ranch site (39ST14) in the work area below the dam and about a mile downstream from the Dodd site. This is a very well-preserved village with a ditch entirely enclosing an oval area approximately 400 feet long and 250 feet wide situated at the edge of the first terrace above the river bottom (pl. 11 *a*). Well-defined depressions indicated the presence of 23 lodge sites and a few smaller depressions probably mark the locations of cache pits. Oddly enough, in view of its conspicuous character and accessibility, the site appeared to have suffered from none of the haphazard but often extensive pitting which has been the fate of so many in the area. This is probably explainable in terms of the tight sod cover which has prevented the outcropping of cultural debris. Several examinations of the surface prior to 1950 had resulted in the collection of less than 50 sherds, generally small and unimpressive.

Fairly extensive excavations in the area of the ditch revealed that the bottom of this feature was about 6 feet beneath the present surface and was U-shaped. Evidence was uncovered of an uncompleted stockade on the village side of the ditch. Ten houses, 107 cache pits, and 8 borrow pits, in addition to a number of such features as hearths, were excavated. All evidence indicates that a single occupation is represented here. The houses, none of which were superimposed, were circular and generally similar to those of the late component at the Dodd site, although there were some differences in details. Cache pits beneath the floors of the houses were numerous and were often large. One unusually large house, with a double row of outer posts, had an earthen platform against the wall opposite the entrance, presumably indicating a specialized function for the lodge (pl. 11, *b*). Many of the outside cache pits and borrow pits were found in an area of the site of about 175 square yards which was completely stripped to reveal the relationships of features outside the houses.

No burials were found within the village or in test trenches excavated in the vicinity, but occasional scattered human bones were found within the occupational deposits.

The material culture manifested at the Philip Ranch site is closely related to that of the latest occupation of the Dodd site. There are some differences, however, in pottery and other traits (e.g., fortifica-

tion structures and greater quantities of trade materials) which have led Lehmer to suggest that it should be considered a component of a different focus (Snake Butte focus). A somewhat later date for this site seems to be indicated.

During the 1951 season, burials were exposed at the Indian Creek site (39ST15) by machinery involved in construction of the access railway. Lehmer's party was able to remove two of these. The burials were encountered some distance west of the occupational area, which may represent more than one component. In both instances the interments were in pits and the skeletons were articulated except that there was evidence the legs may have been detached from the body before burial. A small vessel of Stanley ware accompanied one of the individuals, while the other grave contained sherds of simple-stamped pottery and two tubular beads of sheet copper.

Site 39ST1 (Cheyenne River site) is situated on a point between two ravines, and partially subdivided by a very short third ravine, just below the mouth of the Cheyenne River. It has been occupied more than once. On the upstream side of the short ravine is a small area, partially enclosed by a well-defined ditch, within which are several circular depressions. This area has been and is still subjected to conditions—presumably saturation of the underlying Pierre shale—which bring about severe slumping. The presence of abundant cultural objects in the slumped materials far from the edge of the intact surface testifies to an extensive occupied area prior to the drastic alteration of the terrain. There is evidence that this alteration, at least insofar as it has affected the archeological site, is of fairly recent origin. At the beginning of the twentieth century the ditch entirely enclosed an oval area, according to a contemporary observer. Outside this fortification ditch are a considerable number of depressions, at least some of which are markedly oblong. The presence of another ditch is suggested by a linear depression across the point on which the entire site lies where this point narrows because of the headward convergence of the two ravines which bound it. Collections previously made from the surface and in minor test trenches had suggested that the area within the ditch at the terrace edge represented at least predominantly an occupation in the Arikara tradition and that the area to the southeast had been occupied by people with a culture related to that of the Myers site (39ST10), a nearby earth-lodge village which had been partially excavated and reported by the South Dakota Archaeological Commission (Hoard, 1949).

The Missouri Basin Project was able to assign a party to this site for a relatively brief period (late June to early September) in 1951,

when Waldo R. Wedel became available to undertake the investigations. The time spent on the excavations was inadequate for more than a beginning on this large and complex site and it seems essential that extensive additional work be accomplished to establish the relationships of the many and varied features. In the limited time in 1951, however, numerous test trenches were excavated to cross-section the ditch associated with the late component and to determine the stratigraphic situation. Also, a number of exterior cache pits were dug, and five houses were completely or partially uncovered. Two circular houses within the small fortified area were completely excavated (pl. 12, *b*). Each had a central fireplace, four center posts, and closely spaced posts about the periphery of the pit which had been excavated below the surface. The entrance passages of both extended toward the river, in a northerly direction. Neither had been burned, and fragments of unburned timbers were found in the fill of both. Some instances of superposition were found in this area, but these do not necessarily indicate considerable time differences since metal was found in some of the underlying features as well as in the upper ones. It appears, however, that at least one earlier occupation lies beneath the level associated with the circular houses.

In the southeastern part of the site, excavations were in three cache pits and in three large depressions. All the latter marked the locations of oblong rectangular structures. One, 45 feet long by 34 feet wide, had wall posts more widely spaced than in the round houses and had a large, partially stone-lined fireplace on the long axis offset toward the south wall (pl. 12, *a*). The position of the entrance is uncertain. In the second house, 47 feet long by 30 feet wide, the floor was difficult to define and no fireplace or entrance was found. The excavation of the remaining house was not completed but presumably will be when it is possible to return to the site. Overlying this structure was a rich midden deposit containing pottery of the kind characteristic of the Myers site, in which the only house excavated was circular. The presence of material of this sort overlying rectangular houses seems to indicate that 39ST1 is a 3-component site and suggests that round houses may be present as the dwellings associated with the second component.

No extensive burial areas were found, although some search was made for them.

Since the artifacts from the site are not available for examination, no detailed or even general statement can be made relative to them, except that the late component, a compact fortified village yielding a moderate quantity of trade goods, appears to be in the Arikara tra-

dition and that a component with pottery like that of the Myers site (vessels with predominantly simple flaring rims and incised decoration on both body and rim; rim decoration most often a series of horizontal lines) is present.

A 2-man survey team detached from this unit spent several days in examination primarily of the east bank of the Missouri River between the Little Bend and Cheyenne Agency. Some sites were revisited and four new archeological locations were recorded in this area, which seems to have a considerably smaller number of sites than most comparable stretches of the river in the Oahe Reservoir area. During one day, two sites in Armstrong County, on the west side of the river, were visited for the first time.

FIELDWORK IN PALEONTOLOGY

After an interruption of a year, in 1949, paleontological field investigations were resumed in 1950 and continued in 1951, under the supervision of Dr. Theodore E. White. With two assistants in 1950 and one in 1951, White revisited six reservoir areas that had previously been examined more or less intensively, initiated work in the three large reservoirs under construction on the Missouri River in the Dakotas, and collected information, through consultation with other paleontologists, relative to the situation in a number of potential reservoirs in the Niobrara Basin of northern Nebraska. The 1950 schedule included visits to Angostura, Boysen, Anchor, Canyon Ferry, Garrison, Oahe, Fort Randall, and Bonny Reservoirs, in addition to a conference relative to the Niobrara Basin. In 1951, the party returned to the Canyon Ferry, Garrison, Oahe, and Fort Randall Reservoirs and added Tiber Reservoir to its itinerary.

Two days were spent in the Angostura Reservoir area, during which time a deposit of bones of Pleistocene age reported by the archeologists was examined. No evidence of cultural association was observed and the deposit did not appear to be very productive. At Boysen Reservoir, where in 1948 important collections had been made from the Lower Eocene formations, survey of approximately a week revealed that insufficient weathering had taken place to expose additional materials of significance. It was possible, however, to photograph the major structural features of the area. Results were almost wholly negative at Anchor Reservoir, where no vertebrate fossils were found in the exposures of the Permian Embar and the Triassic Dinwoody and Chugwater formations inspected during a stay of four days. A single fragment of sandstone bearing impressions of fish scales found in the bed of an arroyo was the sole specimen observed.

These three reservoirs will require no further investigation, either because of imminent flooding or lack of productive exposures, unless construction activities or other unusual circumstances unexpectedly uncover significant remains.

Several weeks were spent in both 1950 and 1951 in the Canyon Ferry area, which had been found to be unusually productive of small mammals of Oligocene and Miocene ages. The investigations were highly successful in that numerous individuals of forms only scantily represented heretofore and a number of forms previously unknown for the area were collected. During both years previously known localities provided additional collections and in 1950 two new Miocene fossil localities were discovered. A large number of jaws of a small rodent of the genus *Eumys* were recovered. New or very rare forms, for the area, include *Peratherium*, an opossumlike marsupial of Oligocene age; *Cylindrodon*, from the Lower Oligocene; and a shrewlike insectivore of the Middle Oligocene. The excellent results obtained at Canyon Ferry—in the expansion of the faunal assemblage of the Oligocene and Miocene deposits and in the collection of large samples of small mammals which will permit comparisons, from the standpoint of environmental adaptation, with equivalent forms of the same age in the Big Badlands of South Dakota—indicate the desirability of exploiting this productive area as long as it is available.

During approximately six weeks in 1950 and 1951, exposures of the Paleocene Fort Union formation were explored in the Garrison Reservoir area. In the lower part of the reservoir the remains of vertebrates were found to be extremely rare, but it was possible to make a number of collections of invertebrate forms. Farther upstream, vertebrates were more plentiful and the collections included mammals, turtles, alligators, and fish. Several stratigraphic sections were made and sediment samples for micropaleontological studies were taken from various parts of the reservoir area.

Only a rapid reconnaissance in the Oahe Reservoir area was made in 1950, but during the next summer the Mobridge, S. Dak., vicinity was inspected for four days and the lower end of the reservoir received somewhat more protracted study. Satisfactory exposures were not found near Mobridge, but in the Pierre area a nearly complete skeleton of a pygmy mosasaur (*Clidates pumilis*) and a number of shark teeth were obtained from the Upper Cretaceous Pierre formation. Several weeks of work in 1950 and 1951 in the Upper Cretaceous Pierre sediments in the Fort Randall Reservoir area yielded the skull of a large plesiosaur, a marine turtle, and a fish, all from the Oacoma Clay member of the formation.

Both the littoral and marine phases of the Upper Cretaceous Colorado group in the Tiber Reservoir were explored during a period of approximately two weeks, but only materials too fragmentary to be of paleontological value were observed. This fact, and certain characteristics of the sediments which would make recovery of suitable materials difficult or impossible, led the paleontologist to recommend that no further effort be expended there. A survey of a few days in the Bonny Reservoir likewise yielded nothing but fragmentary material from the exposures of the Middle Pliocene Yuma formation, but periodic inspection of the shore line of the new lake to recover fossils that might be exposed by wave action was recommended.

Information relative to the paleontological potentialities of ten sites suggested for possible reservoir construction in the Niobrara Basin was secured by White from Morris F. Skinner of the Frick Laboratory, American Museum of Natural History, who has carried on paleontological research in that area for many years. Two of the reservoirs—Thacher and Crookston—will, if constructed, inundate three productive Pliocene localities, and it is believed, on the basis of the nature of the formations and the recovery in the past of isolated specimens, that construction activities and/or wave action are likely to reveal significant fossils in the other reservoirs (namely, Colwell, Eli, Kilgore, Long Pine, Meadville, Merritt, Ponca Creek, and Sparks).

FIELDWORK BY OTHER AGENCIES

As in previous years, a significant part of the salvage task was assumed by State-supported agencies in the Missouri Basin. This was especially fortunate because of the imminent flooding dates for a number of reservoirs. Participation by these agencies was facilitated and rendered more effective by the implementing of a new policy, that of establishing a Federal-State partnership through allocation of Federal funds by the National Park Service to defray a portion of the cost of excavating sites threatened by Federal water-control projects. Under memoranda of agreement, the State agencies undertook to investigate specified sites and to provide periodic progress reports and final technical reports of their investigations, in consideration of which funds were made available by the National Park Service for labor and other costs. One of the most satisfying results of this policy was the willingness of archeologists to postpone work on their major research interests in their own States to assist in more urgent salvage operations in other areas. During both 1950 and 1951, Montana State University, the University of Wyoming, the State His-

torical Society of North Dakota, the University of South Dakota and the South Dakota Archaeological Commission, the University of Kansas, and three Nebraska agencies—the Nebraska State Historical Society, the University of Nebraska State Museum, and the Laboratory of Anthropology of the University of Nebraska—all participated in the salvage program under memoranda of agreement. The University of Kansas in 1950 and 1951 and the Nebraska State Historical Society in 1951 undertook the salvage of sites in the Fort Randall Reservoir, South Dakota, and Montana State University agreed to excavate sites in the Garrison Reservoir, North Dakota, in 1951. In addition, the University of Denver investigated a site in the Bonny Reservoir area, Colorado, in 1950, with its own resources.

For the summaries that follow I have utilized periodic progress reports and more detailed reports, published or unpublished, when available. It should be pointed out that many of these reports are not the final statements of the archeologists and that undoubtedly in some instances their interpretations will be altered before their final published reports appear.

COLORADO

During a brief survey of the Bonny Reservoir area, Yuma County, in the spring of 1947, a River Basin Surveys party recorded a site from which points variously described as reminiscent of Plainview or of Yuma forms had reportedly been recovered. The site, 5YM7, consists of a "mound" on the side of a small northern tributary of the South Fork Republican River. Only a few flakes and quantities of bison bone, some burned, were observed by the survey party at the site, but points reported to have been found there by a resident of Burlington, Colo., were examined. The site had been called to the attention of Arnold M. Withers, Department of Anthropology, University of Denver, and in May 1951, assisted, among others, by Herbert Dick and Robert Lister of the University of Colorado, he devoted a weekend to trenching it. The "mound" (which was a natural feature) proved to have been largely destroyed by previous digging, but portions of the thin occupational deposit which were apparently undisturbed were still available for examination. The only inclusions found were innumerable bones and fragments of bone, burned and unburned, some of which occurred in the top few inches of the underlying basal remnant of an old soil. The bones, some of which are mineralized, are probably of bison. Not even a stone chip was found, and it appears that the limited artifact content of the site had been previously removed.

MISSOURI

As in previous years, salvage work in Missouri Basin reservoirs within this State was not undertaken by the River Basin Surveys, but the University of Missouri carried out reconnaissance and testing in reservoirs both within and outside the basin. During 1950, the University's Summer Field Session in Archaeology spent approximately two weeks in the Pomme de Terre Reservoir and some time in the Kasinger Bluff Reservoir. At the former, situated on the Pomme de Terre River, a tributary of the Osage River, approximately 50 new sites were found, and test trenches were excavated in two sites. Approximately 25 sites were recorded in the Kasinger Bluff Reservoir, on the Osage River, and two of these were tested. These activities were in addition to investigation in the Bull Shoals Reservoir, on the White River, outside the Missouri Basin.

MONTANA

In Montana, the Canyon Ferry Reservoir area, previously surveyed briefly by small parties from the River Basin Surveys in 1946 and 1947 and from Montana State University in 1949, was again in 1950 the scene of archeological investigations, this time by a minimum party of five from the latter institution. The work, supervised by Carling Malouf, was done under a memorandum of agreement with the National Park Service. At the end of this summer a total of 84 sites had been recorded in the district including the reservoir; 59 of these would be flooded upon impoundment of water behind the completed dam. The 1950 operations consisted of search for new sites, intensive examination of those newly discovered and previously recorded, the excavation of test trenches in more promising locations, and an extensive mapping program. The resulting picture does not differ materially from that revealed by previous less intensive investigations and described by Wedel in the 1947 and 1949 summary reports (Wedel, 1948; 1953b). Most of the sites are marked by the presence of stone hearths, boulder circles, chipping debris, or combinations of these features. Diagnostic artifacts were scanty both on the surface and in the excavations, and even such undistinctive objects as modified flakes appear not to have been abundant. As in previous years, no pottery was observed anywhere in the area. Both stemmed and side-notched projectile points are reported, but these apparently were found in such small numbers and so rarely in significant contexts that little light was shed on the problems of their associations with other cultural items or their temporal relationships. Artifacts

were rarely encountered in association with those hearths and stone circles that were excavated. Stone hearths excavated were either simply clusters of stones on the former habitational surface or rock-filled, bowl-shaped pits. The excavations in stone circles, most of which occurred in groups on higher terrain, revealed no hearths or post holes.

The final investigations in Canyon Ferry Reservoir seem to confirm unequivocally Wedel's earlier observation that only sporadic and brief occupations by small groups engaged in hunting and gathering activities are represented here. It would appear that most of the sites investigated might be accounted for by an occupation of not more than a few days by a few individuals. Despite the extremely limited character of the conclusions that can now be drawn from the data collected, the investigations have been worthwhile in that they reveal the nature of aboriginal exploitation of a small area with a particular ecological setting. The significance of this contribution to knowledge will increase, too, as it becomes possible at some future time, through the construction of a cultural and temporal framework from investigations in more intensively occupied surrounding areas, to assign the products of human activity here to their respective places in the overall historical picture of the larger region.

NEBRASKA

As in previous years, three Nebraska organizations—the Nebraska State Historical Society, the University of Nebraska State Museum, and the Laboratory of Anthropology, University of Nebraska—applied a major part of their resources available for archeological research to the study of areas that had become critical as a result of the Federal water-development program. In 1951 the Historical Society accepted the responsibility for the investigation of certain sites in the Fort Randall Reservoir, in South Dakota, but otherwise the studies were in threatened areas in Nebraska. During both years, the Laboratory of Anthropology continued its investigations in the Harlan County Reservoir, and the State Museum carried on researches previously begun in the Medicine Creek Reservoir. In 1950 the Historical Society surveyed and carried out salvage excavations in the Trenton Reservoir.

Harlan County Reservoir site.—In the Harlan County Reservoir area, where previous work had revealed the existence of remains attributable to four periods, investigations were continued on an extensive basis by the Laboratory of Anthropology party. During the two field seasons excavations were in seven sites, among which were

representatives of all the known complexes. Some of the sites were investigated in only one of the years, but four received some attention each summer. Work continued at site 25HN37, the White Cat Village, in 1950 and 1951 to expand the information obtained by the excavations of 1948 and 1949. At this Dismal River village, for which a dendrochronological date of 1723 has been given, the main excavations in 1951 were confined to a productive midden deposit lying along Prairie Dog Creek below the occupied terrace. In 1950, however, a 300-foot trench was carried across the eastern end of the village proper to determine its lateral extent, and two houses intersected by this trench were excavated. This brings the number of dwelling structures uncovered in the site to eight. As previously described (Champe, 1949), these structures are characterized by a central fireplace, around which is a series of five or six posts presumably serving as central roof supports. Other evidences of posts are lacking except that there is sometimes a pair of smaller molds outside the ring which may be associated with an entrance. Thus the work at White Cat Village during the two years in question had resulted mainly in confirming the results of past study and in expanding the artifact collection.

Several sites attributable to the Upper Republican aspect were investigated on a more or less intensive scale. At 25HN11, partially excavated in 1949, two earth lodges, one overlapping the other, were opened. A few other earth lodges are probably present in this small site, which lies on the first terrace on the left side of Prairie Dog Creek. An excellent collection of artifacts includes abundant pottery which is reported to resemble closely that described from Lost Creek by Strong (1935, pp. 82-85). Approximately 30 test pits were dug in 1950 at site 25HN34, where a collection of artifacts was recovered but no evidences of structures were observed. The site was re-examined briefly in 1951. A road crew, borrowing earth for repair work, was found in 1950 to be destroying site 25HN36 and an emergency investigation was initiated there. The profile in the road cut was exposed and photographed and minor testing was accomplished at once, and in 1951 a new profile was cut. The site was threatened both by construction work and by the activities of individuals attracted by the unusually accessible and rather abundant artifacts. At 25HN44, on the first terrace north of the Republican River, 70 test pits in 1950 revealed a buried occupational horizon containing cultural detritus and two lodge floors, one of which was partially exposed. In 1952 both of these structures were completely uncovered. One of them was unusual in being oblong—the length was 10 feet greater than the

width—and in having six rather than four center posts. The various Upper Republican sites investigated here, in addition to their cultural similarities, have a common characteristic of more than passing interest. This is an overlying deposit of a foot or more of sterile material which appears to be of aeolian origin and indicative of a period of unusual dryness, probably of some duration. The potential significance of this phenomenon for climatic studies and for correlating cultural history with climatic episodes has been pointed out repeatedly, especially by Wedel.

An early ceramic horizon is apparently represented at 25HN9, a site which has been drastically affected by road and other construction and where a series of small test pits and a trench 10 feet wide and 190 feet long were excavated in 1950. A fairly sizable sample of artifacts, including cord-marked, calcite-tempered sherds identifiable as Harlan Cord Roughened, and predominantly stemmed points, was recovered. Concentrations of ashes may have been fireplaces, but no evidences of structures were observed. The site is apparently referable to the Keith focus, as defined by Kivett (1953, pp. 135, 136).

The remaining site, 25HN39, belongs to a fourth complex, probably falling in time between the Upper Republican and Dismal River occupations of the area. Here in 1950 extensive test trenching between the corn rows yielded moderate quantities of specimens which lay immediately beneath the plow line, usually in large, shallow, refuse-filled pits. The form and decorative treatment of the pottery vessels represented by the sherds recovered is strongly suggestive of Oneota ceramics, but the paste is apparently always grit-tempered and cord markings are at least sometimes present on the surfaces. The manifestation at this site apparently is rather closely related to the complex represented at the Glen Elder and White Rock sites in Kansas, which have been only briefly investigated. That complex, as has been pointed out (Hill and Wedel, 1936, pp. 40, 67), in turn bears resemblances to that of the Oneota Leary site in southeastern Nebraska. It is to be hoped that within the near future a sufficient inventory from similar sites in this region can be developed to permit a determination of their relationships to each other, to the Oneota aspect, and to other complexes.

Medicine Creek Reservoir site.—As in several previous years, the University of Nebraska State Museum concentrated most of its archeological efforts on early preceramic sites to be affected by the Medicine Creek Reservoir. In 1950 and 1951 the archeological investigations were directed by E. Mott Davis, who continued excavations initiated earlier in sites 25FT41 and 25FT42, both on the left side

of Lime Creek some miles above its confluence with Medicine Creek. A maximum party of eight spent approximately six weeks in the excavation of the two sites in 1950, and in 1951 ten weeks were devoted primarily to 25FT42, most of the time with 12 workers.

In the spring of 1950 it was apparent that 25FT41, the Lime Creek site, would be inundated by the rising waters of the reservoir before autumn, so an effort was made to recover all possible further information as quickly as possible. The fill, near the base of which the occupational deposits occur, has been correlated by the paleontologists concerned with the studies here with Republican River Terrace 2, which they believe to be referable to the Mankato stage of the Wisconsin glaciation. Previous archeological work had demonstrated the existence of three cultural zones—C (the lowest), K, and R (the highest)—and each of these was further investigated in 1950. Work in Zone C, which lay upon the surface of a compact blue clay deposit, in 1947 yielded points not unlike the Scottsbluff type, as well as other artifacts. Unfortunately, except for one specimen, the points were not *in situ*. The additional work in 1949 and 1950 did not produce points nor did it materially expand the inventory otherwise. Zone K, about 3 feet higher, has produced only two artifacts, both during the limited digging of 1950. Neither of these is a point. Finally, the excavations of 1950 produced no identifiable artifacts in Zone R, where two Plainview points were found in 1949. This horizon lies approximately 8 feet above Zone C. Charcoal suitable for radiocarbon dating was not recovered from any of the occupational zones, but a series of logs collected in 1949 from the blue clay lying beneath the lowest zone has yielded a date of 9524 ± 450 years.

Early in the summer of 1950, tests in a buried site, 25FT101, which had been observed in a cliff on Medicine Creek about 6 miles above the dam, produced flakes and bone, some burned, and evidence that a more concentrated deposit might lie nearby. The site was revisited in September to explore the possibility of further excavation, but by that time the reservoir was almost full and wave action had destroyed the area that it was believed might repay investigation.

The remainder of the field season of 1950 and most of the season of 1951 were devoted to 25FT42, the Red Smoke site, about half a mile up Lime Creek from 25FT41. Since the discovery of the site in 1947, limited investigations had revealed the existence of two cultural horizons in a geological situation like that of site 25FT41, i.e., in fill attributed to Terrace 2, and thus to the Mankato. Level 88 (occupational layers are designated at this site by numbers which represent the elevation above the site datum) had proven to be an intensively

occupied zone containing almost continuous concentrations of flint and numerous bones, mostly of bison; a few stone artifacts, not including points, also had been found. Very scanty material had been uncovered in level 83. In 1950, two higher occupational zones, at 91 and 92 feet, and a suggestion of a zone just below 83, were uncovered. Artifacts were rare or absent from those parts of all levels excavated except 88, which yielded four points and point fragments and a number of other artifacts. In 1951, an area of 925 square feet was excavated to augment the information on the previously known cultural levels and to expand the total number of known levels to seven. By the end of this field season, the western and southern limits of the site had been determined, but to the north and east the cultural deposits extend beyond the boundaries of the investigated areas. Again all levels except 88 yielded disappointingly scanty cultural information. Level 88, the major occupational horizon at the site, produced a considerable number of artifacts, including sufficient points and fragments to bring the total found in this level to 27. With few exceptions, these points correspond to the description of the Plainview type. They are predominantly parallel-sided, concave-based, skillfully chipped, and exhibit basal grinding. Most of the exceptions are Meserve points, as named by Davis, with sides constricted sharply toward the tip and a blade which has a pronounced right-hand bevel. Two points of this type have been reported from the vicinity of Grand Island, Nebr., in association with *Bison occidentalis*. Among the other artifacts from the level are a few thin, well-made blades with straight bases which seem to constitute a type.

Among the major accomplishments at this site during the two seasons are the recovery in geological context of numerous Plainview points, the definition of at least a limited accompanying stone artifact inventory, and the establishment of the Plainview-Meserve association. Archeologically, Level 88 at 25FT42 appears to correlate with Zone R at site 25FT41, where Plainview points were found in a deposit approximately 8 feet above Zone C, the occupants of which made points of Scottsbluff type.

Other activities of the Museum party in 1951 included the testing, with largely negative results, of site 25FT51 in the spillway area at the dam and the topographic mapping of the lower part of Lime Creek valley and the adjacent section of Medicine Creek. Paleontological and geological studies of the area were also continued, partly for the purpose of illuminating the problems of dating the early sites discussed above. On the basis of these studies, the loess above Level 92 at 25FT42 "seems to have been deposited near the climax of and dur-

ing the early retreat of the Mankato" (C. Bertrand Schultz, in 1951 field report by E. Mott Davis, in files of River Basin Surveys, p. 38).

*Trenton Reservoir site.*⁸—This reservoir site, on the Republican River behind a dam situated about 2 miles west of Trenton, in Hitchcock County, had not been surveyed prior to 1950. In 1947, a survey team from the River Basin Surveys briefly reconnoitered part of the lower reaches of the proposed Culbertson Reservoir, the dam for which was planned for a point 2 miles from the town of Culbertson. Subsequently the Bureau of Reclamation altered its plans for development in this vicinity and selected a site several miles upstream for the dam, which was renamed for the adjacent town of Trenton. The new site was not touched by the earlier reconnaissance. Because construction had begun and the reservoir is in an area that might reasonably be expected to contain significant archeological remains, the Nebraska State Historical Society, entirely with its own resources, surveyed the terrain to be affected in the spring of 1950. When it developed that sites warranting salvage did indeed exist, the Society entered into an agreement with the National Park Service to undertake the necessary investigations. Two sites were rather extensively excavated and another was briefly tested by a party of six or seven during a period of approximately two months.

The activities of the party were concentrated at 25HK7, in the dam work area, and at 25HK13, below the dam but destined for destruction by railway relocation necessitated by creation of the reservoir. When the party reached the field, considerable damage had already been done to 25HK7 (the Carmody site) by construction activities. Much of an upper deposit yielding pottery suggesting occupation by a group of Pawnee or culturally related people had been removed by earth-moving machinery. Evidence indicated the occupation was by a small group and probably for a relatively brief period, although six basin-shaped hearths exhibited sufficiently intensive burning to indicate much more than overnight camping. Separated from the above by a sterile loess zone was a dark layer containing charcoal, burnt earth, broken stones, bones, mussel shell fragments, and limited quantities of pottery and chipped stone. Two relatively shallow trash-filled pits, several unprepared hearths, a rectangular basin outlined by small sandstone slabs set on end and containing evidence of fire, and a cluster of stones that had been intensively fired were also in this level, although the last feature, which was probably at the base of a pit, may have been associated with the upper

⁸ Formerly Culbertson Reservoir.

level, previously destroyed at this point by construction. It is probable that several burials had been destroyed by the contractor's machinery, and the remnants of a single bundle burial were found in place. Associated grave goods were absent. The few sherds from this level appear to be assignable to the Harlan Cord Roughened type, the dominant pottery of the Keith focus, previously defined by Kivett. A few sherds found on the disturbed surface are not at present assignable to a complex, but have attributes found in pottery of Woodland sites and others suggestive of Upper Republican wares.

At 25HK13 (Massacre Canyon site) rather extensive excavations revealed a zone of very black soil underlying a sterile loesslike deposit as much as 1½ feet thick. Only four hearths, all simple fireplaces on the original living surface and all suggesting rather brief use, were uncovered. Pits were also limited in number. Kivett has suggested that the larger of two oval basins, 8.5 feet long and 7 feet wide, may represent the remains of a light, temporary structure and that the other, smaller one may be a central excavation in such a feature. His suggestion is based on their similarity to basins, usually larger, found in Woodland sites in Frontier and Valley Counties. These latter features have central fireplaces, however, and may indicate seasonal differences. Six burials, in circular or oval pits, usually the latter, were uncovered, in addition to a few scattered fragmentary bones of a young child. Five of these were single flexed skeletons, while the sixth represented a more complex interment. In the case of this latter, the bones of an individual, mainly scattered but some in articulation, lay on and near the floor of the pit. Over these bones was a yellow clay layer upon which was a burned zone containing charred bones. Grave accompaniments were in the main confined to the two undisturbed child burials. They consisted mostly of disk beads of shell and tubular beads of bone.

Despite the general impression of an intensive occupation of the site, artifacts, including pottery, were not abundant. The some 85 sherds appear to represent not more than seven or eight vessels. All except a group apparently from a single pot have many of the attributes of Harlan Cord Roughened pottery but are sufficiently different to suggest they represent a distinct, as yet undefined type. The vessel of which the remaining sherds were a part had been smoothed after cord marking and the interior surface was apparently fabric-impressed. The rim, which flares from a slightly constricted neck, bears a series of oblique oval impressions immediately below the lip. Kivett has suggested it resembles pottery found thus far in minor amounts in southeastern Nebraska. Among the other artifacts recov-

ered are stemmed projectile points, one of obsidian, and a shaft wrench made from a deer metapodial decorated with incised lines. A specimen somewhat similar to the latter was recovered in 1946 from the Woodruff ossuary, a Keith focus burial, in the Harlan County Reservoir area (Kivett, 1953, pl. 22, *a*, *2*).

It appears that the work of the Historical Society at the Trenton Reservoir has extended the range of the Keith focus to the west and has indicated the existence, although it does not permit the comprehensive definition of, two or three new Woodland variants. One of the more conspicuous results of expanded research in the central Plains during recent years has been the steadily expanding list of variants assignable to the Woodland pattern, a list which, it seems, cannot yet be considered exhaustive.

The results of the 1950 investigations at the various Woodland sites in the Trenton Reservoir area have been reported in a publication of the Historical Society (Kivett, 1952).

NORTH DAKOTA

Responsibility for the archeological investigation of certain sites in the Garrison Reservoir was assumed under memoranda of agreement with the National Park Service by the North Dakota Historical Society in both 1950 and 1951 and by Montana State University in 1951.

One of the sites that will be lost with the filling of the Garrison Reservoir is Like-a-Fishhook (32ML2), the last village occupied by the Three Affiliated Tribes—the Mandan, Hidatsa, and Arikara. Founded in 1845 by the Hidatsa and some Mandan, it was augmented about 1862 by the arrival of the Arikara and the remainder of the Mandan and was occupied by these three groups until about 1890, when the inhabitants moved to individual allotments distributed throughout the Fort Berthold Reservation. There are numerous contemporary records, as well as a considerable body of ethnographic information collected during and after the occupation of the site, relative to the character of the village and of the life within it. Originally consisting entirely of earth lodges and still predominantly composed of such structures in 1865, by 1872 it contained a preponderance of rectangular, windowless log cabins. The Mandan and Hidatsa occupied the section of the site near the river bank and the Arikara quarter was immediately adjacent, to the north. A trading post, Fort Berthold, was established at the village in 1845 and a second, competing post was built in 1858. Originally known as Fort Atkinson, the

latter was taken over by the earlier establishment in 1862 and was thenceforth called Fort Berthold. At the present time the site is an impressive one. Occupying an area of approximately three-quarters of a square mile adjoining the margin of the first terrace above the Missouri River bottom, it contains numerous conspicuous large depressions and rings marking the locations of lodges and deep smaller depressions which are partly filled cache pits.

For various reasons, including the potentialities for coordinating archeological and ethnographic data and for illuminating the acculturation process, the excavation of this site was deemed vital and the project was undertaken by the State Historical Society of North Dakota. In 1950, a group of 8 men worked in the site from June 13 to August 4, until the last week under the supervision of Glenn Kleinsasser. When Mr. Kleinsasser was incapacitated by a serious accident, Allen C. Croft assumed supervision for the remainder of the time in the field. A larger crew, consisting of a maximum of 18 workers under the supervision of James H. Howard, returned to Like-a-Fishhook for two months in 1951, and further investigation was planned for 1952. During the two seasons the sites of 12 earth lodges and 2 log cabins were uncovered and a number of cache pits were excavated in both the Arikara and Mandan-Hidatsa quarters of the village. The lodges were all circular, with 4 center posts, 12 to 15 outer support posts, and a row of small leaners, but those in the Arikara quarter differed somewhat from the others in being considerably shallower and having the center posts situated closer to the outer supports. Entrances could not always be found, but those that were defined consisted of conventional covered passages. Cache pits were usually large and cistern-shaped.

Artifacts of White manufacture were recovered in enormous quantities and in great variety, while, as might be expected, objects of native manufacture and of native materials were exceedingly scarce. A few sherds and artifacts of stone and bone were found, but usually in such small quantities that accidental inclusion in the deposits from other sources cannot be ruled out. Even objects of White origin modified by the inhabitants of the village were recovered in very small numbers. Oddly enough, only two metal projectile points were found. While firearms undoubtedly replaced the bow and arrow to a large extent fairly early in the history of the village, it seems likely that the older weapons would have been fairly numerous during the first few years of occupation. It is possible that future investigations will reveal more of the earlier deposits and expand the inventory of native products.

Inasmuch as in 1951 no dams were under construction in Montana that were then believed to constitute a serious archeological salvage problem, Montana State University agreed to put a party into the Garrison Reservoir, where the time when many sites would be lost through inundation was drawing inexorably nearer. Garrison was selected from among the high-priority reservoirs because of the probability that, in view of its location, it would yield materials relating to Montana archeological problems, properly the first concern of the Montana institution. Carling Malouf, with 10 student helpers, excavated in 3 small camp sites on the right side of the Missouri River in Mercer County during the period June 12 to August 1. The three sites (32ME43, 32ME54, and 32ME55), although differing widely in productiveness, were similar in their topographic situations, lack of evidence for dwellings or other structures, and the general nature of the occupations represented. All were found along the edges of low terraces bordering the river bottoms and in at least two there was evidence, in the presence of sterile lenses separating occupational deposits, that the use of the location was intermittent. The artifact complexes appear to have been similar at the three sites and in their various levels, except that White trade materials were confined to the higher deposits and at one site (32ME43) pottery was absent in the lower ones. This last situation may, however, be explainable in terms of the very small quantity of cultural materials of any kind recovered.

Fire hearths were found to characterize all the sites and were especially numerous in 32ME43. They were of three kinds; unprepared surface fireplaces, basins averaging about 25 inches in diameter and 7 inches in depth, and relatively deep pits with fairly straight walls containing fire-cracked stones. Clusters of stones and concentrated areas of fragmented bones were distributed through the deposits, and it was near these and the hearths that most of the pottery was found. Chipped-stone artifacts, predominantly of "Knife River flint," included side-notched and, rarely, corner-notched points, knives, and scrapers. The pottery is reported by Malouf to be of the "Mandan-Hidatsa-Arikara tradition."

The evidence reported from these three sites suggests that they are all locations that were occupied briefly and intermittently by small parties, probably from larger, relatively settled communities in the region, engaged in hunting or gathering activities.

SOUTH DAKOTA

Owing to the magnitude of the salvage task in the Fort Randall Reservoir and the rapidly dwindling time remaining to accomplish it,

various Missouri Basin institutions engaged in archeological research were requested by the National Park Service to lend assistance. The State of South Dakota, through the W. H. Over Museum and the South Dakota Archaeological Commission, put field parties into this area in both 1950 and 1951, and the University of Kansas and the Nebraska State Historical Society agreed to interrupt pursuit of their research interests in their own States to contribute to the effort. The Nebraska institution, having undertaken the salvaging of sites in the critical Trenton Reservoir area in that State in 1950, was unable to begin work in Fort Randall until 1951, but the University of Kansas sent excavation parties into the area both years.

The operations of the South Dakota Archaeological Commission-W. H. Over Museum project during both seasons were under the supervision of Wesley R. Hurt, Jr., who has published reports covering the complete investigations (Hurt, 1951, 1952). In 1950, a group of a maximum of 16 workers excavated in the Swanson site (39BR16), a compact village on a low terrace bordering the Missouri River bottoms approximately 6 miles above Chamberlain. When discovered, the site was apparent on the surface as a number of large, conspicuous, more or less circular depressions on a small point which was isolated from the body of the terrace by a shallow linear depression. Excavation revealed that a ditch approximately 3 feet deep lay beneath the latter feature and that the other depressions were underlaid by deep house floors. No evidence that a stockade was part of the defensive system was found in the intensive tests. Four houses were completely uncovered and six miscellaneous trenches were excavated. The latter revealed that there were in the site an unknown number of houses whose locations were not evident on the surface. Although there was evidence, in the intrusion of houses into cache pits and vice versa, that the village had existed for some time, the relative homogeneity of the cultural materials and the lack of evidence of superposition of dwelling structures suggests that the length of occupation was not of great magnitude.

The typical house was an oblong rectangular structure, 4 to 5 feet deep, with posts rather closely spaced along the side walls and rarely along the ends. A single row of large posts on the long axis or a double row straddling the midline constituted the other vertical members of the superstructure. The entrance was characterized by a vestibule and a ramp leading from it into the interior of the house. With one exception, where there was a single central fireplace, there were two hearths, both on the midline but situated between the center and the end walls. All in all, the structures here resemble rather

closely those of the second component at the Dodd site, near Pierre.

Specimens found in relative abundance in the fill of houses, in the cache pits, and on the general village level indicate heavy reliance for subsistence on agriculture and hunting and rather little emphasis on fishing or the collection of shellfish. The artifact inventory, notably the pottery, together with the architecture, suggests a close relationship to villages on the James and Big Sioux Rivers to the east—among them the Mitchell and Brandon sites, previously excavated and reported by the W. H. Over Museum—and Hurt has assigned the Swanson site, together with these others, to the Over focus.

In 1951, with a maximum party of 13 individuals, Hurt reinvestigated two sites, 39GR1 (Scalp Creek site) and 39GR2 (Ellis Creek site), which had been partially investigated in 1941 by the W. H. Over Museum, with WPA assistance, but which required additional field study to make laboratory analysis and reporting possible. The Scalp Creek site appeared superficially to be simply a small fortified earth-lodge village, with perhaps 15 houses, on the point of a terrace cut off by the remains of a ditch, but previous excavation had revealed that materials relating to at least two cultural complexes were present. The work during the two seasons, including the complete uncovering of nine earth lodges and the excavation of a number of trenches, demonstrated that a village of earth lodges is underlain by materials of Woodland affiliations. The upper village, surrounded by a stockade of posts spaced 1 to 3 feet apart and defended with a ditch 3 feet deep on the side not protected by a slope, contains circular houses with central fire basin, four center posts, varying numbers of outer roof supports, a row of leaners, and a covered entrance passage. Unlike the situation in many earth-lodge villages of the region, cache pits were rather scarce and were usually small. A subsistence pattern based on agriculture and hunting, especially of bison, is indicated by the specimens recovered. The pottery is simple-stamped and decorated primarily by incising, both on the rim and body, and appears to resemble that previously recovered and reported from the La Roche site, some distance up the Missouri River (Meleen, 1948). Although there seem to be some differences, at least in proportions of various pottery types and perhaps in architectural and other traits, Hurt has assigned the upper (Wheeler) component of the Scalp Creek site to the La Roche focus.

In the lowest cultural deposits at the Scalp Creek site and at the Ellis Creek site, situated on a terrace some 2 miles downriver, artifacts were recovered which included pottery very similar to the ceramics at sites on Loseke Creek and Eagle Creek in Nebraska, the

former of which have been described by Kivett (1952). This pottery is characterized by decoration of the rim area, predominantly with single-cord-impressed lines or nodes. Hurt has also distinguished another component in the upper part of the Woodland deposits at the Scalp Creek site in which there are cord-marked vessels with flaring, undecorated rims (or with only the lip decorated) and vessels whose outer rims are decorated with horizontal incised or trailed lines, usually below a band of short impressed lines. Shallow fireplaces occurred throughout the Woodland level, but evidences of structures were absent except for two patternless clusters of small post molds and areas which suggested floors. Rather small shallow pits were numerous, and large bell-shaped cache pits were entirely absent. No evidence of corn or other cultivated plants was found, although a few scapula hoes were present. The suspicion that corn cultivation was practiced seems warranted, in view of the probable relative recency of the complex and, especially, in view of Kivett's report of corn in one of the related Loseke Creek sites (Kivett, 1952, p. 57).

Site 39BF3 (the Talking Crow site), an earth-lodge village on a low terrace in the upper part of the Fort Randall Reservoir area, has intrigued archeologists for some time, primarily because of the variety of the ceramic remains collected from its surface. The University of Kansas, through Carlyle S. Smith, assumed the responsibility for the intensive investigation of this site, which proved upon excavation to be as complex as was suspected. A party of a dozen to 15 workers spent approximately two months each of the years 1950 and 1951 in the Talking Crow site and an additional season's work was planned for 1952. By the end of the 1951 field season, seven houses, not all of which were marked by surface depressions; a refuse mound; and many cache pits and other features had been excavated and test trenching had uncovered parts of such defensive features as the bastioned ditch, stockade, and a mound that may have served in place of the stockade at the eastern edge of the site. A few burials had been encountered in various parts of the village. Houses were basically circular, with central fireplace, four center posts, outer posts generally closely spaced around the perimeter, and vestibule entrance. A number of features were found in stratigraphic relationship, and the contents of the refuse mound, excavated in 6-inch levels, appeared to show ceramic changes from bottom to top.

Two pottery wares, not previously isolated, have been described and named by Smith. They are the Talking Crow and Campbell Creek wares. The former is characterized by simple-stamped globular bodies, frequently somewhat flattened shoulders, and straight high

rims on which the lips are often decorated by impressing or notching. Shoulders are frequently incised. Campbell Creek ware embraces globular vessels with rounded shoulders and simple flaring or collared rims. Surfaces are predominantly cord-marked and decoration, confined mainly to the rim, consists of notching or pinching of the lip on flaring rims and incising on collared rims. Talking Crow ware resembles in many respects the ceramics of the Lower Loup complex in Nebraska, while the Campbell Creek pottery suggests rather close affinities to that of the Nebraska and Upper Republican aspects. These two categories include the bulk of the pottery found in the site, but other kinds occur in smaller numbers. These include a few sherds of Stanley ware, predominant in sites farther up the river, and somewhat more abundant fragments of vessels with horizontally incised rims and shoulders which are usually decorated by incising and punctating.

At the end of the 1951 work Smith felt that, in addition to a late nineteenth-century Dakota occupation, three periods—defined by pottery, since other artifacts seemed to be much the same throughout the occupation—could be distinguished in a cultural continuum. Campbell Creek ware predominated in the earliest period, Talking Crow ware in the latest, with pottery of the two represented in approximately equal proportions in the middle period. Small quantities of White trade materials were present in proveniences attributable to all periods. If further excavation and final analysis sustain Smith's impression, based on incomplete results, of continuity rather than a series of discrete occupations of the site it will be of considerable interest, since continuous occupation would seem to imply an unexpected compression of the history of the ceramic types present. Among other things, pottery apparently closely related to the Campbell Creek types, and perhaps even assignable to them, occurs in other contexts without evidence of White contact and even the later pottery with horizontally incised rims seems elsewhere to be prehistoric.

Evidences of intensive aboriginal occupation on a level terrace adjacent to the town of Oacoma, across the Missouri from Chamberlain, were assigned the numbers 39LM26 and 39LM27 by the River Basin Surveys in 1947 and, more recently, the names Sharpe site and Donahue site by Marvin F. Kivett, who began their excavation for the Nebraska State Historical Society in 1951, under an agreement with the National Park Service. The sites, if not actually parts of a single village, appear at least to represent a single cultural complex. A party of five worked there for approximately two months that year. Two houses (one in each of the sites) and a part of a third, a refuse

mound, a segment of a ditch and stockade at 39LM26, and a number of storage pits were excavated. Additional investigation was planned for 1952. The house remains that were completely uncovered were circular, with central fireplace, square central roof support arrangement, closely spaced outer posts, and an intermediate set of posts that did not conform to a well-defined pattern. The vestibule entrances faced to the south and southeast. The house in 39LM26 appeared to have been extensively remodeled, as indicated by the presence of two fireplaces, one intruding into the other, and by evidence of abandonment and filling of old post holes and the setting of new posts. There was evidence, too, of an attempt to seal off old refuse deposits by blanketing them with clay at points where the house walls were expanded. Storage pits were of two kinds, bell-shaped and cylindrical. The walls of the former were often plastered with red clay, but the cylindrical pits lacked such treatment. The nature of the artifact inventory is consistent with an early contact date for the sites and this is borne out by the consistent presence of limited amounts of materials derived from White culture in the various features. A large proportion of the pottery is of the Talking Crow Straight Rim type defined by Smith, but other Talking Crow types are present also, as are cloistered rims like those from Nebraska Lower Loup sites. The sites appear to be rather closely related to the late period at Talking Crow and probably to the late component of the Oldham site as well. Kivett has tentatively suggested a date of not later than 1750 and perhaps as early as the last half of the seventeenth century for the major occupation of the Oacoma sites. His reasons for this estimate seem valid and it will be surprising if further evidence does not support his suggestion.

WYOMING

In view of the large numbers of sites in the two Wyoming reservoirs—Boysen and Keyhole—in which the River Basin Surveys carried on intensive investigations in 1950 and 1951, respectively, and of the significance of many of them as revealed by earlier surveys, it was fortunate indeed that the University of Wyoming was able to assist in the task of salvage. Under memoranda of agreement with the National Park Service, parties from the University, under the supervision of William Mulloy, investigated several sites in the Boysen Reservoir in 1950 and excavated in one site in the Keyhole Reservoir in 1951. While each of the two organizations carried on an independent program in different sites, consultation during the field

season and other mutual assistance materially expedited the work of the Surveys and, it is hoped, were of aid to the University as well.

Boysen Reservoir site.—In 1950 the Wyoming party operated in the Boysen Reservoir from June 20 to August 15, during which time excavations of varying magnitude were accomplished in nine sites and a number of petroglyph sites were studied. Two of the sites consisted of groups of stone circles, while the remainder were camps containing hearths. At 48FR16, where dozens of stone circles lie on terraces on the east side of the Bighorn River, the entire site was mapped, as were individual circles, and the circles were examined in detail both by minute inspection of the surface and by excavation. Although there were central clusters of stones within some of the rings, none appeared to have been subjected to intense heat; in fact, no evidence of fire was found anywhere within the site. Nor were any indications of floors observable. Artifacts were found in exceedingly small numbers. Flakes and percussion-flaked quartzite cores were most common and there were only occasional blades and projectile points.

Site 48FR25, on the north side of Poison Creek, was the other group of stone circles investigated. The circles were mapped and a surface collection was made. Near this site, but on the opposite bank of Poison Creek in an area sheltered by considerable sand dunes, were stone hearths, often containing mano and metate fragments. Both surface and basin-shaped hearths were included. This site, 48FR25, yielded artifacts, including corner-notched projectile points, in rather small quantities. Because of their proximity and a similarity in the artifact assemblages from these two sites, Mulloy has suggested the possibility that they are related and that the stone circles served some special function for the inhabitants of the camp site.

Other camp sites in which excavation was done include 48FR33, 48FR55, and 48FR59, all of which contained hearths and yielded artifact collections apparently rather similar to that from 48FR5. Sites 48FR8, in the sand dunes along the north bank of Muddy Creek, and 48FR34, at the base of a sandstone outcropping on which there are numerous petroglyphs, appear to be continuous, but the latter consists of two occupational levels separated by a sterile sand layer. Both levels produced corner-notched points which exhibit some differences.

Keyhole Reservoir site.—During a month in June and July, 1951, Mulloy, with a force of 6 workers, partially dug site 48CK7 (McKean site) on the Belle Fourche River in the Keyhole Reservoir area. This site, unimpressive as far as surface evidence is concerned, proved

upon excavation to be unusually extensive and productive. In the limited time available, five trenches 75 feet long were dug at intervals of 200 feet perpendicular to the border of the terrace upon which the site is situated and, in addition, the earth from 145 5-foot squares was removed and screened. Cultural material was found to a depth of as much as 4 feet in two well-defined occupational levels separated by a sterile zone. The upper cultural deposit, like the lower one, is covered by sterile earth, a fact which explains the unpromising surface appearance of the site. The lack of any cultural material in the upper deposits of an abandoned meander adjacent to the terrace edge suggests that this feature postdates even the later occupation.

The upper cultural horizon contained large rock-filled hearths, while the hearths in the lower level were smaller and only part of them were stone-lined. The relatively considerable cultural inventories of the two horizons differ in several respects, among which the projectile point differences are prominent. The earlier points are either of the McKean type defined by Wheeler or are similarly basally notched but have proximally constricted edges to create shoulders and a stem. There is no grinding on any of the specimens. The points in the upper level, by contrast, are predominantly corner-notched and convex-sided or triangular and unnotched. Certain other differences in the two levels suggest distinct economic orientations. The later deposits contained mano and metate fragments, numerous mussel shells, and very few bones, while the earlier ones lacked grinding stones and mussels and produced greater quantities of bone, especially of larger forms.

Productive as the 1951 excavations were, the evidence is that the parts of the site in which occur the heaviest concentrations of cultural material remain unexcavated. Accordingly, it was decided that additional excavation in the site should be undertaken in 1952.

CONCLUSION

Some measure of the emphasis on and accomplishment of actual salvage operations during 1950 and 1951 is provided by the statistics relating to the basin-wide archeological program. These show that the combined efforts of the River Basin Surveys and other participating agencies resulted in the excavation of 66 sites in 11 reservoirs rather widely distributed in the Missouri Basin. This is in addition to some minor testing in a few other sites which cannot be tabulated because the pertinent figures are not given in certain of the reports on file with the Project. The magnitude of operations varied widely, depending primarily upon the characteristics of the sites in question. Thus,

at Boysen Reservoir, only a few days to a month were spent by the Project party at each of the shallow and/or small sites investigated. On the other hand, nearly two full seasons were devoted to Rock Village and the Oldham site, large important earth-lodge villages on the Missouri River in the Garrison and Fort Randall Reservoirs, respectively. The fact that reconnaissance was the sole responsibility of but a single small party each year also reflects the changing emphasis from extensive search to discover what remains are threatened to intensive study of the important sites which will be submerged. Despite the seemingly considerable accomplishment in the way of excavation suggested by the figures cited above, in actuality work will have to proceed in the future on an appreciably larger scale, at least in some areas, if the minimum essential sample of the archeological data is to be obtained. Only three of the hundreds of earth-lodge villages to be lost in the Oahe Reservoir had been at all extensively excavated by the end of 1951, and additional work in one of these is necessary.

The reconnaissance of a large number of reservoirs, most of them in the more westerly portions of the Basin, gratifyingly revealed that a number of the smaller projects will result in no serious archeological loss and will require no further attention, although others will call for additional examination if construction is initiated.

Although the full significance of the intensive research by the various agencies in Montana, Wyoming, Nebraska, and the Dakotas will not be known until the laboratory studies have been completed and the results made available, it is evident that a considerable advance in our knowledge of aboriginal culture history over a wide spatial and temporal range can be anticipated. In the western part of the area, the recent work in the Angostura, Boysen, Canyon Ferry, Key-hole, and Tiber Reservoirs has produced information that is rather uneven as far as quantity and potentiality for reconstructing history are concerned. Sites within the confines of the Canyon Ferry Reservoir appear to have been occupied so briefly and are so unproductive that any interpretation must be largely of a negative nature. Elsewhere, on the other hand, new information was acquired which should materially aid in closing some of the temporal and spatial gaps in the current picture of prehistoric occupancy of the western Plains. As far as the apparently earliest occupations that have been studied are concerned, the work of the two years under review consisted mainly of supplementation of previous investigations. At the Ray Long site in the Angostura Reservoir area, the exposing of a rather extensive area yielded a few additional specimens of the characteristic Angos-

tura point but added little to the cultural inventory otherwise. The radiocarbon dates of 7073 ± 300 and 7715 ± 740 are, unfortunately, from an area of the site that has yielded no diagnostic points *in situ*, but there is good reason to believe the dates are applicable to these distinctive artifacts. Nearly 300 miles to the southeast, in the Medicine Creek Reservoir, the continued excavations in buried sites on Lime Creek, most especially in the Red Smoke site, added considerably to the previously rather scanty collection of Plainview points, established the association of the Plainview and the somewhat similar Meserve point, and expanded the inventory of other artifacts in the complex. Although the geological associations of the Angostura and Medicine Creek deposits are not such as to permit comparison between the two and radiocarbon dates have not yet been obtained for the latter, the Plainview occupation at Lime Creek is presumably the earlier. Plainview and Meserve points have been found elsewhere associated with extinct bison, while at the Agate Basin site, which produced points rather closely resembling Angostura points, only modern bison are reported.

Evidence newly acquired promises to fill in many details regarding the succession of cultures during the several millennia succeeding the earliest occupations in the more westerly parts of the Plains. Indications that eventually a number of horizons can be defined for this area are beginning to emerge from the relatively scanty data now on hand, and recent investigations under the salvage program will undoubtedly sharpen the definitions. The prospects seem bright that, as instances of stratification multiply, as the artifact assemblages for different complexes are expanded, and as radiocarbon dates are determined, a relatively complete history of the region can be developed. At the present time, a general succession of projectile-point forms seems to be definable, but undoubtedly as additional research results in the determination of more or less complete complexes and of finer typological distinctions, a much more refined temporal and cultural breakdown will be achieved. Pending additional excavation, or at least the analysis of the data now in the laboratories, about all that can be said at present is that small notched and unnotched triangular points were preceded by corner-notched points, which were in turn preceded by lanceolate and other points that seem to occur in relatively early contexts in the region and elsewhere.

Apparently later in time than the complex represented at the Ray Long site is a culture newly defined, mainly on the basis of work in the Keyhole Reservoir. Both here and in the Angostura Reservoir, its most distinctive artifact, the McKean point, has been found strati-

graphically beneath other cultural deposits, and in one stratified site, 48CK7, the prospect is for the recovery of a rather exhaustive artifact assemblage associated with the points. At a number of sites in the various reservoirs the predominant point is either corner-notched or side-notched, and where stratigraphic evidence exists, the latter seems to characterize the latest occupations. For the later part of the time span of aboriginal occupation of this region, the presence or absence of pottery seems to depend at least partly on factors other than temporal ones. It is probable, for example, that potteryless sites with a predominance of side-notched triangular points are generally later in time than sites yielding heavy, cord-marked pottery and corner-notched points. Later nonceramic sites may, of course, represent occupations either by groups using no pottery or by small hunting parties of pottery-making peoples. In the Boysen area, the occurrence of large numbers of metates and manos in sites producing corner-notched points suggests a considerable emphasis on gathering, which may represent an orientation different from that of other complexes in the area.

As yet it is difficult to fit the relatively few occurrences of pottery in the western Plains into the cultural picture of the Plains as a whole, since the small collections generally cannot be surely identified with known complexes. The sherds from the upper levels of site 48CK204 in the Keyhole Reservoir are apparently referable to a Woodland variant, and some sherds from 39FA23 and 39FA83, in the Angostura Reservoir, for example, could be lost in the collections from Upper Republican sites in southern Nebraska, but much of the pottery, notably that from the Boysen and Tiber Reservoirs, does not appear to be closely related to any well-defined ceramic complexes. Present evidence indicates that pottery-bearing sites are widely distributed, although apparently in small numbers, throughout the western Plains, but their significance in the late prehistory of the region will be known only when more knowledge of their distribution and variations is at hand. What little is known of the associations and stratigraphic position of pottery in the part of the region west of the Black Hills suggests that it does not occur here earlier than fairly late prehistoric times. The presence of pottery beneath 8 feet and more of overburden at site 24TL26 in the Tiber Reservoir is apparently evidence for depositional recency rather than for ceramic antiquity.

In the Harlan County Reservoir, the investigations of the University of Nebraska, when reported, will expand our knowledge of a number of cultural entities of the ceramic period in the central Plains.

Together with the results of the intensive work of the River Basin Surveys in the Medicine Creek Reservoir, new information on Upper Republican and Woodland manifestations should provide, in the case of the former, a comprehensive cultural picture unprecedented in the Plains and, in the case of the latter, illumination of the variations present in the region. Continuing excavations at White Cat Village constitute an unusually thorough study of a single Dismal River community and should reveal much in regard to the community plan and the everyday life of the inhabitants. Finally, it is to be hoped that work in sites of a fourth manifestation will permit an adequate definition of a complex about which tantalizingly little is known from sites at Glen Elder, Kansas, and on White Rock Creek, in the Lovewell Reservoir area.

Perhaps the outstanding contribution of the work of the Nebraska State Historical Society in the Trenton Reservoir consists in the additional information it produced on the range and character of the Woodland variant known as the Keith focus, although the presence of two or three new, as yet undefinable, Woodland variants was also demonstrated.

By far the largest part of the resources of the agencies engaged in the salvage program was expended on the Missouri River in the Dakotas, where hundreds of village sites will be flooded when three large dams now under construction are completed. In the Garrison Reservoir, North Dakota, the River Basin Surveys excavated in two earth-lodge village sites, 32ME15 and 32ME16, and in a frontier military post, Fort Stevenson (32ML1). The extensive excavations in the Rock Village (32ME15), probably occupied by a predominantly Hidatsa group, are the first of any magnitude accomplished in a site attributable to this tribe, and reveal Hidatsa culture before any appreciable replacement by objects of industrial society origin had taken place. The Star Village (32ME16), on the other hand, represents a village of the Arikara, a group with a material culture fundamentally similar to that of the Hidatsa, at a time when the earth lodge was still built but artifacts of White origin had largely replaced native products. In part still later in time is the Like-a-Fishhook site, composed of earth lodges and cabins, occupied by the three village tribes—the Mandan, Hidatsa, and Arikara—mainly in the latter half of the nineteenth century. Small camp sites investigated by the University of Montana in the same vicinity probably represents occupations by small hunting and gathering parties from the larger earth-lodge villages in the region.

Recent excavations by the River Basin Surveys and other institu-

tions in the lower part of the Oahe Reservoir and in the Fort Randall Reservoir have revealed cultural remains that apparently will be assignable to something more than 10 foci. Although there seems no doubt that some of these complexes represent different stages of development in single cultural traditions, additional research will be necessary before it is possible to state in each instance what differences are of primarily temporal significance. One thing, however, seems clear; the region is characterized, not by the development through time of a single cultural tradition, but by several traditions present during various segments of the total cultural time span and participating in the characteristics of the horizons into which that time span can undoubtedly be subdivided. Relationships to cultural manifestations both to the east and the south are apparent in the materials recovered to date, and analysis now in progress will undoubtedly clarify these relationships. External evidences of the relative temporal positions of various complexes have already made possible the construction of a partial sequence. Cultural deposits have been found in clear stratigraphic relationship at the Scalp Creek, Dodd, Talking Crow, Cheyenne River, and Oldham sites. At the Scalp Creek site, a Woodland component assignable to the Loseke Creek focus defined in Nebraska underlay a component related to the La Roche site. At the Oldham site, an occupation with Great Oasis pottery is earlier than one related to the Oacoma sites and the latest occupation at the Talking Crow site, where the earliest occupation, assigned to the Campbell Creek focus, bears some relationship to the Nebraska and Upper Republican manifestations. At the Dodd site, two components characterized by long rectangular houses and cord-marked pottery lay beneath a horizon containing circular houses, simple-stamped pottery, and White trade goods. Finally, at the Cheyenne River site, a historic occupation in the Arikara tradition is later than a component with predominantly incised pottery, which in turn overlies rectangular structures. Other evidences for placement of sites in time consists, of course, in the presence or absence of metal and, as a partial framework based on external evidence is constructed, the internal evidence of typology is becoming more significant as a means of completing the sequence.

It should be apparent that when present studies have been reported a good beginning will have been made toward filling the gap in our knowledge of cultural history in the area where the largest reservoirs in the water-development program will eliminate a large proportion of the archeological data, the Missouri River in the Dakotas. It will be only a beginning, however; perhaps the most impressive accom-

plishment of the investigations to date has been the revelation of the complexity of the region's archeology. Unless a great deal of additional investigation is accomplished before the dams, especially the Oahe Dam, are completed, we shall have not a great deal more than the scant consolation of knowing that prehistory along the Missouri River was far more complex than was suspected before the salvage program began.

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