

## Journal of the Washington Academy of Sciences

This JOURNAL, the official organ of the Washington Academy of Sciences, publishes: (1) Short original papers, written or communicated by members of the Academy; (2) proceedings and programs of meetings of the Academy and affiliated societies; (3) notes of events connected with the scientific life of Washington. The JOURNAL is issued monthly, on the fifteenth of each month. Volumes correspond to calendar years.

*Manuscripts* may be sent to any member of the Board of Editors. It is urgently requested that contributors consult the latest numbers of the JOURNAL and conform their manuscripts to the usage found there as regards arrangement of title, subheads, synonymies, footnotes, tables, bibliography, legends for illustrations, and other matter. Manuscripts should be typewritten, double-spaced, on good paper. Footnotes should be numbered serially in pencil and submitted on a separate sheet. The editors do not assume responsibility for the ideas expressed by the author, nor can they undertake to correct other than obvious minor errors.

*Illustrations* in excess of the equivalent (in cost) of one full-page halftone are to be paid for by the author.

*Proof*.—In order to facilitate prompt publication one proof will generally be sent to authors in or near Washington. It is urged that manuscript be submitted in final form; the editors will exercise due care in seeing that copy is followed.

*Unusual cost* of foreign, mathematical, and tabular material, as well as alterations made in the proof by the author, may be charged to the author.

*Author's Reprints*.—Reprints will be furnished in accordance with the following schedule of prices (approximate):

Copies	4 pp.	8 pp.	12 pp.	16 pp.	20 pp.	Covers
100	\$2.48	\$4.96	\$ 7.44	\$ 9.92	\$12.40	\$2.09
150	3.72	7.44	11.16	14.88	18.60	3.14
200	4.96	9.92	14.88	19.84	24.80	4.18
300	7.44	14.88	22.32	29.76	37.20	6.27
400	9.92	19.84	29.76	39.68	49.60	8.36

*Subscriptions* or requests for the purchase of back numbers or volumes of the JOURNAL or the PROCEEDINGS should be sent to HARALD A. REHDER, Custodian and Subscription Manager of Publications, U. S. National Museum, Washington 25, D. C.

*Subscription Rates* for the JOURNAL.—Per year..... \$7.50

Price of back numbers and volumes:	Per Vol.	Per Number
Vol. 1 to vol. 10, incl.—not available.*	—	—
Vol. 11 to vol. 15, incl. (21 numbers per vol.)	\$10.00	\$0.70
Vol. 16 to vol. 22, incl. (21 numbers per vol.)	8.00	0.60
Vol. 23 to current vol. (12 numbers per vol.)	7.50	0.90

\* Limited number of complete sets of the JOURNAL (vol. 1 to vol. 39, incl.) available for sale to libraries at \$333.50.

PROCEEDINGS, vols. 1-13 (1899-1911) complete.....	\$25.00
Single volumes, unbound.....	2.00
Single numbers.....	.25

*Missing Numbers* will be replaced without charge provided that claim is made to the Treasurer within 30 days after date of following issue.

*Remittances* should be made payable to "Washington Academy of Sciences" and addressed to the Treasurer, H. S. RAPPLEYE, U. S. Coast and Geodetic Survey, Washington 25, D. C.

*Exchanges*.—The Academy does not exchange its publications for those of other societies.

# JOURNAL OF THE WASHINGTON ACADEMY OF SCIENCES

VOLUME 40

FEBRUARY 15, 1950

No. 2

ANTHROPOLOGY.—*Early description of lambdoid cranial deformity incorrectly attributed to the Navaho: Historical note on R. W. Shufeldt, M.D. (1850-1934).*<sup>1</sup>

T. D. STEWART, U. S. National Museum.

At a meeting of the Anthropological Society of Washington on November 2, 1886, Prof. Otis T. Mason read a paper entitled "Head Flattening among the Navajos" for an absentee member.<sup>2</sup> The author of the paper, Robert Wilson Shufeldt, was then with the Army at Fort Wingate on the frontier of New Mexico. To judge by the published version of the paper,<sup>3</sup> it consisted of brief reference to two deformed skulls, together with observations on head deformation in the living Navaho. The two skulls already had been described in separate publications (Shufeldt, 1886a and b) in the *Journal of Anatomy and Physiology of London*. To the description of the first of these skulls, Sir William Turner, a distinguished anthropometrist and one of the editors, had added a note calling attention to the deformity which Shufeldt had completely overlooked. Thus, perhaps it was Sir William's note that led Shufeldt to make an investigation of head flattening among the living Navaho.

Shufeldt's two papers of 1886 are remarkable for containing some unwarranted, though perhaps understandable, assump-

<sup>1</sup> Published by permission of the Secretary of the Smithsonian Institution. Received October 10, 1949.

<sup>2</sup> See note following item 95 in Shufeldt, 1887, p. 15.

<sup>3</sup> The final publication may represent a completely altered version. In the "Abstract of the Proceedings of the Anthropological Society from Nov. 3, 1885, to May 15, 1888" (p. 364) there is a footnote stating that this paper "will be published in the Annual Report of the Smithsonian Institution for 1886." However, the author's bibliography (Shufeldt, 1887, p. 15) states that this paper had been "accepted as a contribution for the Report of the Bureau of Ethnology." Actual publication was in the *Popular Science Monthly* of 1891.

tions. First of all, there is inadequate proof that the two skulls were those of Navahos. As Shufeldt did not himself collect the specimens, his identification rests mainly on the statements of his collectors. The first skull, he says, "was collected by a young man on one of their burial grounds upon the hills in the vicinity of Fort Wingate..."; the second "was collected in a cañon some 30 miles from Fort Wingate... from a lot of graves there found among the rocks... My collector informed me that the Navajos had buried a dozen or more of their dead in the same locality..." Although the first statement now suggests the Pueblo mode of burial, the second does indeed suggest the Navaho. The fact that the Navaho were living in the area at the time lent plausibility to both statements. Little had then been published about the Pueblos who had occupied this region at an earlier time, although Bandelier (1892, pp. 343-345) had already examined the ancient ruins about Fort Wingate. Thus the need to differentiate between Navaho and Pueblo was not even considered by Shufeldt.

A second assumption concerns the mode of death exhibited by the first skull. Shufeldt (1886a, p. 426) states that death was caused "by a gun-shot wound of the head." And he goes on to say that—

The large wound of entrance has pierced the left outer angle of the supraoccipital bone, and destroyed the adjacent mastoidal process of the *pars mastoidea* of the temporal, resulting in a magnificent example of that rare condition, a fracture by *contre coup*, the external appearance of which may be seen upon the right frontal bone of the figures.

Examination of the figures, however, suggests to me that the frontal wound is a



FIG. 1.—Skull XXXII.B.6; child; in Anatomical Museum, University of Edinburgh. Collected near Fort Wingate, N. Mex., and donated by R. W. Shufeldt in 1886. Evidence is presented herewith to show that this is probably not a Navaho, as originally claimed, but a prehistoric Pueblo. Note that extreme lambdoid deformity makes the orientation on the Frankfort horizontal seem unnatural. (Photographs by courtesy of Prof. W. C. Osman Hill.)

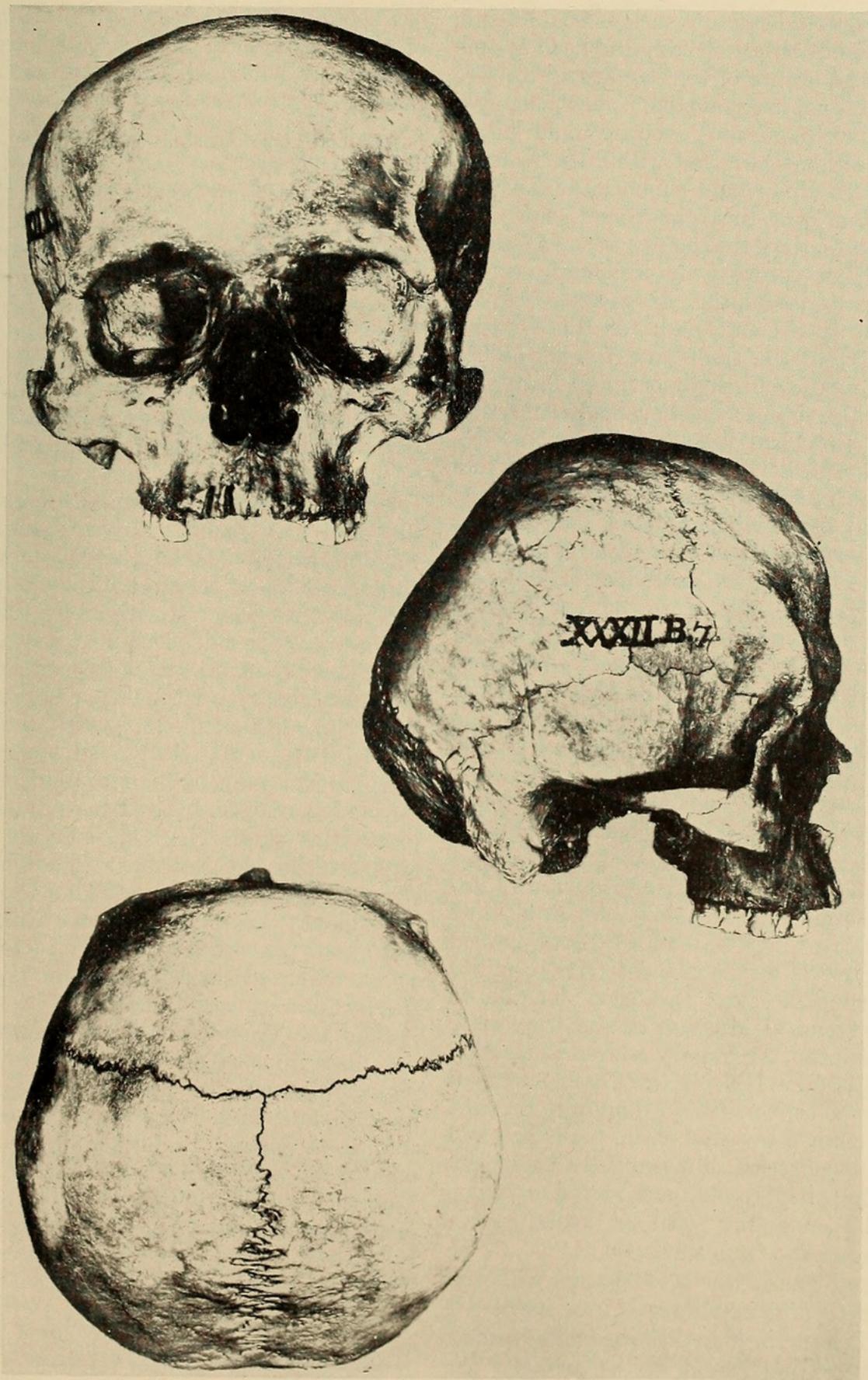


FIG. 2.—Skull XXXII.B.7; adult male; in Anatomical Museum, University of Edinburgh. Collected near Fort Wingate, N. Mex., and donated by R. W. Shufeldt in 1886. Evidence is presented herewith to show that this is probably not a Navaho, as originally claimed, but a prehistoric Pueblo. Note moderate lambdoid deformity. (Photographs by courtesy of Prof. W. C. Osman Hill.)

small depressed fracture such as could result from a blunt object striking the head at this point. The nature of the damage to the left mastoid is not ascertainable from the figures. Of course, a gunshot wound could mean that death had occurred within the historic period and this would support the Navaho attribution. On the other hand, the type of fracture that the figures seem to show could have occurred in prehistoric times.

A third assumption is resorted to by Shufeldt to account both for the extreme deformity in the skulls and for his failure to find more than slight occipital flattening among the living Navaho. His assumption is that they had practiced intentional deformation earlier but had given it up before the time of his observations. Nothing was found in the cradling practice then current to support this idea. Moreover, if such extreme deformity as exhibited in the two skulls was no longer to be encountered among the living, this suggests the lapse of a considerable time interval. If such were the case, then it seems likely that the burial places of these former inhabitants would no longer have been known to the local people.

The case against Shufeldt's tribal attribution required, it seemed to me, a re-examination of the skulls themselves. Otherwise there is nothing upon which to base an opinion, except Shufeldt's obviously imperfect drawings. But first the skulls had to be located. My search for them was aided by Shufeldt's own statement (1886b, p. 66) that the adult skull had been donated to the Anatomical Museum of the University of Edinburgh. An inquiry addressed to Prof. W. C. Osman Hill, of the Department of Anatomy, University of Edinburgh, brought the prompt reply that both skulls are still in their collection. Subsequently he kindly sent the photographs reproduced in Figs. 1 and 2, together with an authoritative opinion on the "gun-shot wound."

Comparison of the photographs with the published drawings reveals, as expected, some defects in the drawings but verifies the nature and extent of the artificial deformity. The designation used today for this kind of deformity is "lambdoid." Our present knowledge of this type of deformity in the Southwest comes entirely from collections

of Pueblo skulls. In a recent (1949) summary of the geographical and chronological distribution of lambdoid deformity among the Pueblos, Erik Reed has this to say:

Artificial lambdoid skull-flattening can be delimited in both time and space—between 700 A.D., or somewhat later, and approximately 1300 A.D.; from the upper Rio Grande [in New Mexico] to the lower Virgin River [in southeastern Nevada] and from the Little Colorado area, including the vicinity of Flagstaff [Arizona], to the northern boundary of the Pueblo domain in Utah and southwestern Colorado. (p. 115.)

Fort Wingate, from the vicinity of which Shufeldt's two skulls came, is within these boundaries. Moreover, as already indicated, it is well established that there are old Pueblo ruins in this vicinity.

On the other hand, it must be admitted that still very little is known about early Navaho skulls. Malcolm (1939) reported finding the burial of an adult male in Chaco Canyon that was "of undoubted Navaho origin but quite old." Donovan Senter, who examined the skull, states that "there was a slight artificial lambdoid deformation" (Malcolm, 1939, fn. 28, p. 16). I should like to be sure that Senter did not confuse artificial flattening with natural flattening, but unfortunately I have been unable to locate this skull. Nor can I locate other authentically old Navaho skulls. The fact remains, therefore, that Shufeldt's two skulls are about the only evidence that the Navahos practiced lambdoid deformity. From other considerations given herewith this is not very good evidence.

Like the drawings, the photographs do not throw much light on the nature of the damage to the frontal and mastoidal regions of the adult skull. However, Professor Hill was good enough to furnish me with an opinion obtained by his assistant, Dr. Hugh Taylor, from Sir Sydney Smith, professor of forensic medicine at the University of Edinburgh, and the latter's assistant, Dr. Fiddes. In their opinion, writes Dr. Taylor:

... the damage done to the frontal area was *not* due to any gunshot wound either by "contre coup" or directly. . . . In addition, they both doubt whether the "large wound of entrance" was caused by a gunshot wound at all. This opinion was based on their knowledge of the known types of apertures made by gunshot wounds. Dr. Fiddes also pointed out that this skull was covered with

"adipocere"—a substance found in skulls which lie buried for some time in soil—except on the edges of this large aperture. From this he concluded that the aperture was probably made either as the skull was being removed from the soil, or after it had been removed.

In the light of these facts, and the developments during the 60-odd years since Shufeldt wrote, the two skulls that he labeled Navaho seem more likely to be Pueblo.<sup>4</sup> The indications that the Navaho did not practice the lambdoid type of deformity exhibited in these skulls, whereas the prehistoric Pueblos around Fort Wingate did, favors a prehistoric dating. In addition, the refuted diagnosis of gunshot wound may likewise mean that these skulls date back to a prehistoric period. Essentially therefore, the tribal identification of these skulls rests upon the statements of untrained collectors.

It is to be hoped that future bibliographers will clarify the nature of these references. Otherwise they will continue to mislead the unwary reader seeking information on the Navaho. Dingwall, for example, who wrote a book (1931) on the world-wide distribution of artificial cranial deformation, has referred therein to Shufeldt's first paper and Turner's note thereon. And the latest special bibliography on the Navaho (Kluckhohn and Spencer, 1940), as well as the foremost general ethnographic bibliography (Murdock, 1941), includes this whole series of references.

In my opinion the main contribution of Shufeldt and Turner in these papers, although admittedly little use has been made of it, was to provide an early description of lambdoid deformity. However, theirs was

<sup>4</sup> Because of individual variation, the facial proportions in the adult are not helpful for purposes of tribal distinction.

ETHNOLOGY.—*Bird nomenclature and principles of avian taxonomy of the Blackfeet Indians.*<sup>1</sup> CLAUDE E. SCHAEFFER, Museum of the Plains Indian, Browning, Mont. (Communicated by JOHN C. EWERS.)

The present paper comprises the preliminary results of a program of ethnobiological research now being carried on by the Museum of the Plains Indian among the Blackfeet Indians of Montana. As a field of inquiry, the relationships between man and

not the earliest. This honor goes, so far as I can discover, to W. J. Hoffman eight years earlier (1878). The specimen described by Hoffman, usually considered to be a Pueblo, came from the Chaco Canyon, which is around 50 miles northeast of Fort Wingate.

#### LITERATURE CITED

- ANONYMOUS. *Abstract of the Proceedings of the Anthropological Society [of Washington] from Nov. 3, 1885, to May 15, 1888.* Amer. Anthropol. **1**: 361-371. 1888.
- BANDELIER, A. F. *Final report of investigations among the Indians of the Southwestern United States, carried on mainly in the years from 1880 to 1885.* Papers Archaeol. Inst. Amer., Amer. ser. no. 4, pt. 2, 591 pp. 1892.
- DINGWALL, ERIC JOHN. *Artificial cranial deformation. A contribution to the study of ethnic mutilations.* London, 1931.
- HOFFMAN, W. J. *Report on the Chaco cranium.* 10th Ann. Rep. U. S. Geol. and Geogr. Surv. . . . for the year 1876: 453-457. 1878.
- KLUCKHOHN, CLYDE, AND SPENCER, KATHERINE. *A bibliography of the Navaho Indians.* New York, 1940.
- MALCOLM, ROY L. *Archaeological remains, supposedly Navaho, from Chaco Canyon, New Mexico.* Amer. Antiqu. **5**: 4-20. 1939.
- MURDOCK, GEORGE PETER. *Ethnographic bibliography of North America.* Yale Anthropol. Stud. **1**: xvi + 168 pp. 1941.
- REED, ERIK K. *The significance of skull deformation in the Southwest.* El Palacio **56**: 106-119. 1949.
- SHUFELDT, R. W. *A Navajo skull.* Journ. Anat. and Physiol. (London) **20**: 426-429. 1886a.
- . *A skull of a Navaho child.* Journ. Anat. and Physiol. **21**: 66-71. 1886b.
- . *Contribution to science and bibliographic résumé of the writings of R. W. Shufeldt, M.D. 1881-1887.* New York, 1887.
- . *Head-flattening as seen among the Navajo Indians.* Popular Sci. Mon. **39**: 535-539. 1891.
- TURNER, SIR WILLIAM. *Additional note on the Navajo Indian skull.* Journ. Anat. and Physiol. **20**: 430-431. 1886.

nature in the Northwestern Plains and the traditional native ideologies built up around its biota offer much to enrich our understanding of the resident Indian cultures. In this study attention is confined to Blackfeet ornithology and, more narrowly, to the nomenclatorial phase of that topic. The rest of the material collected on Blackfeet bird

<sup>1</sup> Received September 6, 1949.

knowledge, including the economic importance of wildfowl, methods of taking, birds as pets, socioceremonial aspects, and the whole structure of avian folklore, has been set aside for presentation at a later date.

The Piegan, or southernmost Blackfeet tribe, have occupied the short-grass plains of northwestern Montana from as early, at least, as the beginning of the nineteenth century. As Saunders (p. 9) has pointed out, the plains, most of the mountain valleys, and all the lower slopes and canyons of this region are located in the Transition Life Zone. Within this zone the same author (pp. 12-26) has tentatively demarcated a number of faunal associational areas—grasslands, lakes, marshes, thickets, etc.—each with its characteristic assemblage of bird forms. Westward the Hudsonian, Canadian, and Arctic-Alpine Zones at successively higher elevations of the Rockies are distinguished, in turn, by different groups of tree-dwelling species. As a result, the avian life of the Piegan country is both varied and abundant.

The same life-zone pattern can be extended northward into Canada, presumably with slight if any change in faunal types, to include the tribal territories of the Blood and Blackfeet proper. In Alberta and Saskatchewan the plains south of the North Saskatchewan River represent the earliest known hearth of Blackfeet culture (Ewers, p. 9). Throughout the period of their recorded history, the three tribes have resided continuously within the Transition Zone. Their long acquaintance with plains-dwelling bird species is reflected, accordingly, in Blackfeet terminology.

My ornithological notes were collected during the winter and spring of 1948-49 from southern Piegan sources in and about Browning, Mont. Most of the data came from Jim White Calf (WC), age 85; Richard Sanderville (RS), age 83; and Wallace Night Gun (NG), age 76. White Calf was not only versed in native bird lore, but his ownership of the Beaver Bundle made him conversant with ceremonial aspects of the topic.<sup>2</sup> He

<sup>2</sup> Today (and possibly in earlier days) the greater part of Blackfeet faunal lore is in the possession of certain Medicine Bundle ritualists, who recapitulate the traditional knowledge of their forebears during the formal opening of the bundles.

was acquainted with the names of about 70 species. Sanderville, as the result of a life long interest in Blackfeet culture and history, had accumulated a fund of knowledge on the avian world. He was familiar with the names of about 60 species. Night Gun's knowledge was less extensive, but he proved useful in checking the statements of others. Less frequently and for shorter intervals, the services of Weasel Tail (WT), age about 90, Green Grass Bull (GB), age 86, and Short Face (SF), age 78, were utilized for information on various points. Their knowledge was about equal to Night Gun's. My interpreter was George Bull Child. An opportunity to compare Blood nomenclature with that of the Piegan was presented in the person of Harry Under Mouse (UM), age 58. This informant had grown up on the Blood Reserve, in Canada, and possessed a fair knowledge of the ornithology of that group. From his statements it appears that such differences as may formerly have existed between the two tribes were relatively minor and unimportant.

The procedures employed in identification deserve comment here. Black-and-white and colored bird plates ordinarily utilized for this purpose proved inadequate among elderly Blackfeet, many of whom are illiterate and handicapped by poor vision as well. Another method, supplemented by illustrations (Pearson; Peterson) and verbal descriptions, provided more satisfactory results. It consisted of submitting a series of prepared bird skins<sup>3</sup> to informants for detailed examination and comment.<sup>4</sup> Skins of 107 different species were chosen from the total of 332 known to occur throughout the State. Selection of skins was arbitrary but included representative varieties of the plains and mountains of northwestern Mon-

<sup>3</sup> The prepared bird skins were secured on loan from Washington State Museum, Seattle. The assistance of Dr. Erna Gunther, director, in making available the Museum's ornithological collections is gratefully acknowledged. I am also indebted to Mrs. Martha Flahaut, curator of biology, for advice on points of bird distribution, behavior, and source material.

<sup>4</sup> This procedure conforms with a pre-established pattern of Blackfeet ceremonialism, in which animal and bird skins from certain medicine bundles are handled in ritualistic ways, usually in mimetic dance and song contexts. See Wissler, p. 168 ff.



Carlgren, Oskar Henrik. 1950. "A revision of some Actiniaria described by A. E. VERRILL." *Journal of the Washington Academy of Sciences* 40, 22–28.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/122713>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/101153>

**Holding Institution**

Smithsonian Libraries and Archives

**Sponsored by**

Biodiversity Heritage Library

**Copyright & Reuse**

Copyright Status: Permission to digitize granted by the rights holder

Rights: <https://www.biodiversitylibrary.org/permissions/>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.